Media and Information Literacy as a Public Good

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The theme of the 2021 edition of the Global Media and Information Literacy Week was "media and information literacy for the public good" (UNESCO, 2021b). The Republic of South Africa hosted the theme week to uphold the vision of information as a public good in the context of a new post-COVID normality (UNESCO, 2021a). In times of multiple crises, such as the COVID-19 pandemic, disinformation and information warfare, and in an era where the free flow of information is increasingly controlled and constrained, it is essential to discuss how good efforts of the humankind, such as democracy, freedom of speech, and MIL, can be saved as a public good, for the common good.

The concern about MIL as a public good is dependent on appropriate structures for viable media that can sustain quality content, as well as accountability and public trust, and on citizens who can assess, nurture, and appreciate these (UNESCO, 2022). The Windhoek 30+ Declaration on Information as a Public Good (UNESCO, 2021d), which was announced at the World Press Freedom Day 2021 conference in Namibia, identified several factors as prerequisites for guaranteeing information as a public good that would "serve as a shared resource for the whole of humanity" (ibid., 4), including press freedom, media independence, plurality and viability, transparency of digital platforms, and citizens empowered by media and information literacy (MIL).

Recognizing MIL as a public good emphasizes the importance of collaboration among governments, educators, and civil society to strengthen this critical skill set, ultimately improving societal well-being. According to the concept notes for Global Media and Information Literacy Week 2021 (UNESCO, 2021a, p.2), the complex information environment in post-covid societies necessitates capacity building for MIL:

> In the current ecosystem of complex and sometimes contradictory messages and meanings, it is hard to conceive of the public good being advanced if the public is disempowered in the face of opportunities and threats. Capacity building is needed of our competencies in order for each individual to understand the stakes and for the public to contribute to and benefit from information and communication opportunities. Specific knowledge and skills are needed, and UNESCO aggregates these under the banner of media and information literacy.

Aspirations to keep MIL in the public eye primarily prioritize the goal of preventing the knowledge, methods, and institutional structures that contribute to MIL, and the outcome of media education, from falling into the hands of a few, while instead ensuring that both the structures, processes, and their outcomes remain available to the public. Investments in MIL should remain in the public domain to ensure maximum accessibility and long-term development, based on a large base of actors organized in multistakeholder networks. The current media landscape presents significant challenges, including the dominance of a few transnational media companies, the centralization of media structures, platformization, and the blurring of profit and non-profit communication boundaries, which Eisenstein (2016) describes as a condition of "content confusion" where the genre boundaries of communication and marketing merge in increasingly commercialized promotional media cultures (Davies, 2013). Political negotiations about what is and is not public occur in debates about copyright protection, children's rights, and vulnerable and marginalized groups, among other topics. The public and open character of resources and processes does not always necessarily equal to the public or common benefit, even if publicness and openness are fundamentally important democratic principles.

Public Benefit

Within the academic context of political philosophy and ethics, the term "common good" refers to a normative and often abstract idea encompassing the collective well-being and welfare of a community, society, or the general public. Aristotle used the term common good (*to konei sympheron* in Greek) to describe constitutions that prioritize shared community interests over rulers' interests. It posits that certain fundamental values, goods, or principles should be pursued for the betterment of all community members, regardless of individual or specific interests. Similarly, John Locke (1698) used the term "common good" to refer to interests shared by all political community members. Members of a political community form social bonds with one another. Moreover, citizens in a mediatized society are increasingly taking on public roles, and the community's political morality requires them to think and act differently than they would if they were acting as private individuals. In other words, political morality encourages individuals to think and act following a shared concern for common interests (Hussain, 2018).

The common benefit encompasses a variety of elements, including social justice, equal access to resources, security, public health, sustainability, and the overall promotion of shared prosperity. The pursuit of the common good should be a foundational ethical principle for evaluating MIL policies, institutions, and actions in the context of governance and public decision-making, with the goal of improving the collective's overall welfare and flourishing, while also acknowledging the importance of balancing individual rights and freedoms with broader societal interests.

As a form of "a public good", MIL can be defined as a social or collective product, commodity, or service made available to all members of society. The marketplace creates private goods but is dependent on goods it cannot provide, such as property rights, peace, and education, particularly in the transversal competency of MIL. These must be created with the assistance of non-profit or modified market mechanisms. According to Kaul and colleagues (1999), public goods have two key characteristics: they are both non-rivalrous and non-excludable. Non-rivalrous means that many people can consume the good repeatedly without becoming depleted, whereas non-excludable refers to a situation in which no one is excluded from consumption. Individuals' increase in MIL competence is supported

by public goods regimes, also known as welfare infrastructures, such as public schools, libraries, museums, and archives, as well as civil society and market structures. The more people develop media literacy, the greater the benefits for each individual, as valid information accumulates and is elaborated in the networked cultures of the information society. Simultaneously, MIL cannot be purchased; rather, it must be acquired through iterative practice that lasts a person's entire life.

How MIL constitutes "a public good" should be examined more closely. In this context, MIL can be viewed as the result of the creation of public goods such as education, texts, and free circulation of ideas. Is it the concept itself that can be identified and consciously developed, as a symbolic idea that can be translated into strategies and actions, as well as the indirect result of promotional activities that manifest as competencies among population groups? The various levels and forms of "public good" are deeply intertwined: MIL awareness is a prerequisite for governments and intergovernmental bodies to recognize the importance of developing infrastructures to support MIL and taking action to promote it.

UNESCO has spent decades working across all continents to establish a global vision for the importance of MIL. After defining and demarcating the concept as an umbrella term to denote people's "ability to access, analyse and create information in a variety of media" (Wilson et al., 2011), UNESCO has outlined guidelines for the development and implementation of policies that would make societies more media-literate (Grizzle et al., 2013, 2021). Creating media-saturated societies that are accessible to all and facilitating the development of competences among the population has been designated as a political priority. MIL, as an ecology of competences that result from both formal education and informal learning, enabled by appropriate infrastructures and informed governance, can thus be viewed as a public good for the public good.

If the public interest requires making MIL and related products and infrastructures available to all, what are the barriers to learning being accessible and affordable to all? Making texts as products a public good does not imply making knowledge a public good, even if removing barriers to text accessibility has implications for knowledge-sharing (Suber, 2009). The commitment to open education and the creation of open educational resources, as reflected in UNESCO's (2021c) recent recommendations on open science, represents a global effort to create information as a public

good. The availability of learning resources, such as massive open online courses, lectures, and other teaching events made public via recordings and streaming, contributes to MIL processes as a public good. Virtual platforms and tools enable academics to share their insights and connect with stakeholders in various ways.

To learn more about MIL as a public good, systematic data on its manifestation across population groups should be collected. One of the central challenges, however, has been the difficulty in measuring MIL in a valid and, in particular, comparable manner (e.g., Bulger, 2012). It is difficult to draw a line between what is "enough"– that is, what is the preferable minimum level of mastering MIL– and how MIL is enacted in everyday situations rather than simply tracing MIL awareness. Even if a political decision could be made about the optimal times – everyone should be exposed to news for at least four hours per week – we would still be unable to fully capture the transformative process of learning. MIL achievement and enactment are context-dependent and not reducible to the timing or frequency of media use or a specific type of media. It cannot be viewed as a skill in using technology, such as completing certain tasks at a certain time. Nevertheless, in public debates, the ability to apply MIL is frequently reduced to people's ability to identify fake content or perform specific information search tasks, as if the choice was always between "yes" or "no"/"fake" or "not fake". In a similar and simplified manner, MIL is frequently envisioned as "vaccine" or "syringe" against disinformation and malinformation.

Despite the difficulties in providing specific evidence in terms of quantity or versatility, MIL can be viewed as a way to combat inequalities and increase population groups' resilience to disinformation and propaganda. Instead of being given a simple "yes" or "no" choice, media users and content creators should be taught long-term critical thinking skills. The long-term strategy work is a continuous bass line of transforming information into public benefit.

MIL-washing and -wishing

Recently, new actors, such as digital communication and public relations companies, often partnered with individuals acting as social influencers, and the media, both legacy and new media, are showing an increasing interest in advancing the MIL agenda. The UNESCO initiative "Letting the sun shine in" advocates for increased transparency between companies, such as in the collection and use of personal data, in order to hold companies more accountable for their operations (Puddephatt, 2021). Digital content creators classified as social influencers, which range from independent citizens to professionalized users collaborating with influencer networks, should adhere to a common code of conduct that emphasizes the public good (Martin, 2009). Furthermore, the actions of media and scientific publishers that restrict content behind paywalls may be considered detrimental to MIL and the public good. If publishers regard information as a democratic common good, they should actively pursue transparency (UNESCO, 2021c).

Therefore, in digital commercial spaces, we should remain vigilant about instrumental uses: MIL has the potential to be exploited as a means of gaining reputation as part of for-profit activities, similar to using the concepts of sustainability and green transformation as greenwashing, or deliberate efforts to make something appear more favorable in terms of environmental issues (de Freitas Netto et al., 2020), or greenwishing, wishful thinking with unattainable goals (Austin, 2019). In the same way, "MIL-washing" or "MIL-wishing" are actions that use MIL strategically for the benefit of an organization or a specific interest group. Companies may give the impression that they are engaged in non-profit MIL promotion while selling products, converting MIL promotion into covert marketing. Popular public events, such as book fairs, frequently strive to be perceived as institutions with democratic goals, even if their operations are based on profit-seeking principles; exhibitors and visitors pay to attend the event, and anyone who pays may become a content producer. Especially if commercial actors are willing to include any paying customer, regardless of content, in the "public" arena, the common benefits may not be realized. Therefore, the public good should be actively defined in public debate and not sacrificed for financial gain or revenue, or viewed as an all-encompassing umbrella of "freedom of speech". It can be difficult to see the true intentions and consequences of MIL actions at times, because for-profit organizations' self-interests can overlap with public benefits and interests.

All media can be used for both "good" and "bad" purposes, because "good" and "bad" are defined in terms of the communal perspective of the "common good." Even though the perspective of "good media" has become especially prevalent in the development of artificial intelligence, where concepts such as "good AI" and "friendly AI" have emerged to denote beneficial uses (see, e.g., Jaakkola, 2023), the dual-use potential should be recognized when discussing any technology, media, or MIL. Even MIL skills and capacities can be used for both good and bad purposes (McDougall, 2017).

Structure and Outline of the Book

The MILID Yearbook, published annually by Nordicom from 2013 to 2018 and biennially by UNIMINUTO University since 2021, results from academic collaboration and network activities spanning continents. Its goal is to bring together MIL academics and practitioners from around the world to address global issues related to the overarching theme of UNESCO's Global Media and Information Literacy Week. Drawing on the experiences of the global Media and Information Literacy and Intercultural Dialogue University Network (UNESCO/United Nations Alliance of Civilizations (UNAOC) MILID Network), the yearbooks help to promote research, higher education, and MIL participation. The network initiative, launched by UNESCO and the UNAOC at the First International Forum on Media and Information Literacy in Fez, Morocco, in June 2011, emphasizes the importance of MIL in today's interconnected world.

The MILID Yearbook's value lies in providing a crossroads for discussion of MIL across cultures and continents. This anthology is a global public good effort with 15 chapters written by 34 authors from 13 countries. Each of the book's three sections contains academic and professional contributions. The academic contributions are studies conducted according to the conventional scientific standards, while professional essays provide MIL educators and practitioners with opportunities for reflection, elaboration and sharing of the ideas they have experienced in their work. All chapters, invited through an open call for papers (Jaakkola et al., 2022), have undergone a double-blind peer review.

The book emphasizes the evolving nature of MIL and its significance as a public good. Alton Grizzle's introductory essay, "9 Aptitudes and 7

Excellences of Media and Information Literacy for the Public Good: A Purpose-Driven and Critical Reflection," elaborates on this idea, advocating for MIL's recognition as a critical component of societal well-being. Grizzle explains the multifaceted dimensions of MIL using the concept of aptitudes and excellences, emphasizing their collective role in cultivating an informed, engaged, and empowered citizenry. By defining MIL as a framework for critical thinking and civic participation rather than a set of skills, the chapter emphasizes the importance of global collaboration and collective action in enhancing MIL initiatives. Thus, this section serves as a foundation for future research into MIL's transformative potential in shaping modern societies and advancing the public good.

The first section focuses on the public good in the face of disinformation and the post-truth era. In an era characterized by the widespread dissemination of fake news and misinformation, MIL have emerged as critical tools for protecting democratic societies. Auksė Balčytienė and Kristina Juraitė, in their chapter "Media and Information Literacy as a Strategic Guideline towards Civic Resilience: Baltic-Nordic Lessons," emphasize the importance of MIL-driven guidance in fostering resilience in the aftermath of "inforuptions" and media-related digital communication disorders. They argue that MIL plays an important role in improving civic resilience and democratic sustainability, particularly in the Nordic and Baltic regions. They emphasize the importance of integrating MIL into larger resilience structures, such as media freedom, viability, and accessibility, by advocating for a comprehensive approach that considers the changing information landscape. Furthermore, they provide information on the challenges faced in the Baltic-Nordic region and recommend effectively incorporating MIL into educational and policy frameworks to improve social resilience.

Erasmo Moises dos Santos Silva and Agnaldo Arroio explore the critical role of science education and MIL in combating misinformation, particularly about science and scientists, as observed in movements against COVID-19 health protocols. Their chapter, "Science Literacy in the Age of Disinformation: Building Bridges to Address the Complexity of the Challenge," criticizes simplistic approaches to misinformation and calls for a more nuanced understanding of the problem. They emphasize the importance of scientific literacy and MIL in preserving democracy, science, and the common good, particularly in Brazil. The authors focus on specific issues to demonstrate the complexities of scientific

misinformation and its implications for public health and social trust in scientific institutions. Furthermore, they propose practical strategies for incorporating MIL into science education curricula, emphasizing the importance of interdisciplinary collaboration in addressing scientific disinformation challenges.

In a study titled "Combating Fake News: How Increased Media Competences Can Curb the Disinformation Trends in Nigeria," Desmond Onyemechi Okocha, Samuel Akpe, Idonor Emmanuella Rukevwe, and Ben Ita Odeba examine the phenomenon of fake news in Nigeria and the role of media literacy in combating it. Conducting qualitative interviews with journalists, the study examines how media competences can mitigate the spread of fake news, emphasizing the responsibility of journalists to validate information for credibility. This chapter explores the sociopolitical context of Nigeria and its implications for media literacy initiatives, highlighting the challenges faced in combating fake news in a diverse and rapidly evolving media landscape. Additionally, the authors propose actionable recommendations for policymakers, educators, and media professionals to enhance media literacy efforts and promote critical thinking skills among the populace.

Finally, the chapter "Do Fake News Catch Our Attention? A Study of Visual Attention Applied to the Consumption of Fake News About COVID-19 in Brazil" by Diogo Rógora Kawano and Tiago Nunes Severino examines the visual attention patterns of individuals when consuming fake news related to COVID-19 in Brazil and compares them to authentic news. Despite efforts to combat fake news, it remains unclear how people discern false information. The study uses eye tracking technology in 23 participants to analyze their ocular behavior while reading real and fake news. The results indicate differences and similarities in the attention given to various elements, such as headlines, main text, images, and news sources. The findings underscore the importance of using eye tracking technology to combat disinformation and highlight the need for more research in this area.

The second section explores post-pandemic literacy, focusing on MIL in the COVID-19 pandemic context. The section is introduced by Maarit Jaakkola's chapter "Capturing the Contours of the Field of Media and Information Literacy (MIL) Research: A Systematic Literature Review of Studies Conducted at Swedish Universities in 2021" examines MIL within

the Swedish context and provides valuable insights into the landscape of MIL research. The chapter highlights the prevalence of MIL-related student theses and contrasts the approaches taken by student-led initiatives versus those driven by professional researchers and university faculty. It distinguishes MIL as both a standalone topic and an integral component of various academic disciplines, shedding light on the qualitative nature of original research in this field.

In a chapter titled "Transforming University Students into Library Users: Influence of User-Education Programmes on the Information and Study Skills of First-Year Students in South Africa," Katlego Petrus Chiya and Omwoyo Bosire Onyancha examine the impact of user education programs on first-year students' information and study skills at North-West University's Vaal Triangle campus in South Africa. They surveyed 1,885 first-year students from two faculties, selecting 320 through systematic sampling, using a quantitative approach and case study method. The results show that many students had no library training before university, but after participating in user education programs, they became independent library users, enhancing their lifelong learning. Most agreed that information literacy training improved their abilities, particularly in finding relevant study information. However, the study emphasizes integrating and evaluating these programs within the university curriculum to ensure their long-term relevance and effectiveness.

In his chapter, Michele Filippo Fontefrancesco's chapter, "Opportunistic Media and Information Literacy: A Case Study of the Implementation of E-Commerce in the Food Retail Sector in Italy," examines how small-scale food retailers in Italy used digital tools during the nation-wide lockdown. Although the pandemic increased familiarity with digital resources, the study reveals a transient, opportunistic approach to MIL with limited long-term impact. Yolanda Berdasco's professional contribution, "Post-Pandemic Financial Literacy in Social Media: How Microblog Posts Reflect Citizens' Opinions about Taxes," deals with the public discourse on pandemic-related spending and taxation through the social network of X, known during the pandemic as Twitter. By looking at tweets addressing tax-paying and -rising in Spain, she explores the challenges and shortcomings of a microblog to address complex societal questions.

The third section of the book explores the dynamic (re)evolution of textbooks, other educational resources, and instructional formats to promote MIL

as a public good. It examines innovative approaches like gamification and co-production of media content with young users to enhance MIL initiatives. By adapting educational resources to address contemporary media landscapes, the section gives examples of empowering individuals as informed digital citizens. Through collaborative content creation and evolving pedagogical practices, it underscores the importance of engaging formats in promoting critical literacy skills among learners. In their chapter titled "Media Literacy in Moroccan Secondary Education: An Analysis of Student Awareness, Teacher Understandings and Textbook Content," Mohamed Mliless and Fouad Boulaid analyze Arabic-language textbooks. They investigate the influence of media and communication technologies on contemporary society, highlighting the impact of the substantial influx of media content on daily routines. Using a multimethod approach, including student questionnaires, teacher interviews, and textbook content analysis, they assess the state of media literacy in Morocco. Their findings reveal students' lack of awareness of media literacy, while teachers recognize its importance. Both groups advocate for its classroom integration through appropriate materials and teacher training.

Meanwhile, in the chapter titled "New Instructional Formats for Media Literacy Education: A Retrospective Analysis of Projects Based on Gamification, Exploration, and Multiformats," the authors Santiago Tejedor, Laura Cervi, Samy Tayie, Cristina Pulido, and Sally Tayie reflect upon six innovative MIL projects conducted at the Autonomous University of Barcelona. Their professional reflection sheds light on the effectiveness of these projects in engaging young people in the consumption of critical media. The success of these initiatives, which incorporate elements such as escape rooms, educational video games, project-based learning, exploration, and storytelling, underscores the necessity of continuously evolving and unconventional educational proposals tailored to contemporary media and platforms. The researchers emphasize the importance of collaborative research efforts between academia, media, and industry stakeholders to further develop these pioneering approaches in MIL education.

The US media educator Sherri Hope Culver documents and reflects on her own activity as a producer of a child-led podcast in her professional-type of chapter "Exploring Children's Ability to Employ Media and Information Literacy Assessments: Insights from the Podcast Kids Talk Media," giving a voice to children as media-literate consumers. Her autoethnographic approach outlines the essentials for working with under-aged media users

and collects advice for co-producing media content with young media users. Culver remarks that a podcast is a good medium for discussing media use with children, as it enables presenters to talk in an unobtrusive environment where they are not seen like in video recordings.

The fourth and final section focuses on curriculum development in relation to fostering conditions for MIL and recognizing it as a key enabler for individual and group learning and thus as a public good. In their chapter titled "'Controlling Borders – not Vaccination Status': Teaching about 'Fake News' and Human Rights across the Curriculum," Helena Dedecek Gertz, Franziska Gerwers, and Sílvia Melo-Pfeifer explore the pedagogical advantages of incorporating "fake news" related to COVID-19 and migrants into classroom instruction. By scrutinizing the discursive and multimodal strategies employed in such misinformation, they aim to foster MIL on various subjects. The chapter advocates for educational practices centered on analyzing content, discourse, and multimedia elements of "fake news" to enhance MIL skills among students. Furthermore, the authors highlight the importance of critical discourse and multimodal analysis in cultivating comprehensive perspectives, moving beyond mere identification and linguistic deconstruction of misinformation.

Tomás Durán-Becerra, Luisa Payán, Gerardo Machuca, and Cristian Castillo Rodríguez's chapter titled "Media and Information Literacy in Colombian Teacher's Education: Insights from Implementing the UNESCO MIL Curriculum," shed light on the potential progress in MIL within Colombia's educational landscape. By highlighting the initial steps taken to pilot the UNESCO MIL Curriculum, they describe how various projects developed by UNIMINUTO and other national actors are paving the way for the formulation of a comprehensive MIL policy, a critical step in improving educational equity and preparing students for the challenges of the digital era. While Colombia has made significant progress in developing technological infrastructure, the educational system suffers from quality inconsistencies across regions and sectors. Academic achievement disparities persist among secondary school students in urban and rural areas and between formal and informal education sectors.

Last but not least, Jociene Carla Bianchini Ferreira Pedrini, Cristóvão Domingos de Almeida, and Igor Aparecido Dallaqua Pedrini contribute with a professional reflection that examines the flipped classroom method within academic journalism education in Brazil. Their chapter "Graphic

Design and Visual Creation: The Flipped Classroom in Remote Learning in Academic Journalism Education" focuses on using the Canva app for visual creation in remote learning. They presented a case study on their experience with remote learning during the COVID-19 pandemic at the UFMT Campus Araguaia in the second semester of 2021. The study discusses the difficulties of teaching practical subjects remotely, emphasizing the importance of specific software programs without jeopardizing the teaching-learning process. The findings highlight the Canva app's successful adoption as an innovative pedagogical approach, resulting in high-quality advertising and journalistic pieces, and both professors and students are pleased with the new teaching model.

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9 Aptitudes and 7 Excellences of Media and Information Literacy for Public Good: A Purpose-Driven and Critical Reflection

Alton Grizzle

This paper argues for media and information literacy (MIL) as a public good. When nations and peoples are informed, media and information literate, engaged, and empowered, information as a public good becomes possible and sustainable. However, for people to be empowered with media and information literacy, media and information literacy itself must be a public good. In this paper, the author shares what was in his mind and heart when the 5 Laws of Media and Information Literacy were articulated and invites partners around the world to pour into this container intended to stimulate a melting pot of knowledge. For the first time, using the proposed 9 Aptitudes and 7 Excellences of Media and Information Literacy, this paper buttresses the argument that media and information literacy is a public good and must be deployed for the public good. It is a way for people to guard their minds and hearts. Emphasis is placed here on the importance society places on MIL and the values attached to it. As a way to stimulate further deliberations, the paper calls for reflections on the priority that should be accorded to the proposed MIL Aptitudes and Excellences in both individual and collective life. It calls for individual and collective roles with respect to people's growth path in becoming media and information literate by recognizing that some competencies are innately endowed (*Aptitudes*) and must be nurtured through the *Excellences* for the sustained *Manifestations* to be reached. By extension, actions should inform individual and collective take in the defense of media and information literacy as a public good.

Keywords: public good, public goods, UNESCO, media and information literacy, aptitudes.

It might be appropriate to say that this paper is not one of the traditional academic papers.[1] The readers are, therefore, advised to read this paper from the standpoint of a non-conventional academic perspective (like when you read one of your favorite novels, newspapers, blogs, or whatever you read for relaxation). The author makes this proposition not from the position of weakness or justification to compromise academic soundness. Rather, this approach is adopted to stimulate reading for introspection and self-reflection as well as reading for empathy, peace, and love. Yes love, not hate! By now you can detect the unorthodox approach to this paper. One gets inspiration from everywhere when writing. The author acknowledges the Associate American Corner Librarian, De La Salle University. The idea of corner libraries reminds us of corner shops and could be an excellent manifestation of MIL Cities (Grizzle et al., 2021). The development, sustainability, and access to libraries are important metrics of MIL Cities (Chibás Ortiz et al., 2020). We must construct cities from not only mortar, steel, and technology but also media and information literacy (MIL) as a public good. Cities are driven by information—information dissemination, collection, storage, and processing. We must design cities as big learning spaces for media and information literacy. In multimodal cities, MIL becomes the GPS to navigate the corridors, lanes, streets, main roads, and the information and digital superhighway. It is about reading the world and reading the words! (Yarbaşi & Aydin, 2022; Freire, 1985). Hence, this paper offers a social and existential context of media and information literacy for the public good in informed nations.

When everyone can say "IamInfoSmart," we are gaining "MILeage: Towards Lifelong Learning and Sustainability," which speaks volumes like the sounds of many waters. I invite readers to come and reason together. I invite you to come. Let us think together. If we agree on some, it is normal. If we disagree on some, that too is human. What is important is that we reason together with mutual respect. It is possible in societies and nations.

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[1] The statements are written in part in my role as Programme Specialist in Media and Information Literacy UNESCO. These are not necessarily the opinion of UNESCO or in any way bind the organization.

Furthermore, this paper proffers several propositions. It posits that when nations and peoples are informed, media and information literate, engaged, and empowered, information as a public good becomes more possible and sustainable. However, for people to be empowered with media and information literacy, media and information literacy itself must be a public good. To appreciate the idea of MIL for the public good, we must first contemplate, receive, eat, and digest the WHY in the urgent reality of MIL for all, that is, MIL for everyone and by everyone. Obviously or obliviously, we live in a world where we must contemplate, reflect, reason, or deliberate (enabling and allowing our brain to receive information, process, critically assess, and assimilate information), which is what media and information literacy is about. It is imperative to comprehend what is meant by espousing "Media and Information Literacy for the Public Good"!

Perhaps, let us start with the public good as we know it. The public good refers to actions, interventions, tools, natural resources, products, or services that benefit all members of society (Parenteau, 2023; Kartal, 2010). For example, we consider clean air, clean water, healthcare services, affordable food, access to peace and security, and the airwaves as contributing to the public good. All human rights are related to the public good (Enderle, 2021). Many argue that media and the Internet or digital commons are also public goods (Wittel, 2016; Wylde, 2023). The Internet and media do possess attributes of social and economic benefits associated with the public good. This is why governments, civil societies, the private sector, and multilateral organizations, including the United Nations (UN), are invested in their governance (Haggart et al., 2021).

To buttress the point on the issue of public goods as related to MIL, an allegory to our daily experience appears suitable. For instance, we are all concerned as to whether the air we breathe is clean, whether the water we drink is polluted, and whether the food we eat is healthy. While one is not so sure about this, one is sure of the need for more media and information literacy to strengthen health literacy in that respect. Generally, we all want to eat food that will not harm us. In this respect, it is a matter of public health, meaningful human existence, or even life and death. Should that be the case, one can readily ask why are we or should we be less concerned about the information that we contemplate, receive, eat, and digest. In other words, why are we not conscious of the enabling information environment we live in and the kind of information we allow

our brain to receive, process, evaluate, and assimilate? This too is a matter of public health! Following this line of thought, it might be justified to say that depolluting the information ecology should be considered a public health issue (Dramé, 2020). It is tantamount to depolluting our brains, our minds, or even our hearts, some may add. Therefore, a conscious effort to critically and wisely use information for informed decision-making is a matter of public good. As a result, by becoming media and information literate, people can help to depollute information environments by using information, media, and digital technologies for informed decision-making and engagement in sustainable development. To understand how we can apply MIL for the public good, it is key to understand how public good generally should be treated.

How Is Public Good Normally Treated?

The two main criteria that distinguish public good are that it must be non-rivalrous and non-excludable (Kartal, 2010; Yew-Kwang Ng, 2023). Non-rivalrous means that the goods do not dwindle in supply as more people consume them; non-excludability means that the goods are available to all citizens. They are designed to be available to all and have qualities that ensure individuals or groups can access them. They also must be able to withstand use without them becoming unavailable to future users (Houser et al., 2002; Kotchen, 2012; Parenteau, 2023).

Governments are most successful in providing public goods when they have strong institutions. This relates to *SDG 16: Peace, Justice, and Strong Institutions* (United Nations, 2023). Inclusive governments place high value on the welfare of all their citizens. Governments that are of such a disposition can realize the full societal benefit of public good and ensure sustainable availability for present and future citizens. Trust, transparency, freedom, peace, and equality can be advanced in the public sphere by recognizing that the public sphere revolves around individuals and groups with varying levels of information and engagement. Media and information literacy can help in that respect (Grizzle, 2020).

All citizens fall into one of the five following categories with respect to information and positive engagement in society (see Figure 1):

i. **The informed and engaged**

ii. **The informed and disengaged**, which gradually transitions to the group of informed and engaged

iii. **The uninformed and disengaged**, which progressively moves to be informed and disengaged and eventually arrive at being informed and engaged

iv. **The dis-misinformed and engaged**, which follows the paths toward informed and engaged

v. **The misinformed/disinformed and disengaged** as well as the misinformed and disengaged, which progress to being informed and engaged

Figure 1. Matrix of Stages of Information and Engagement
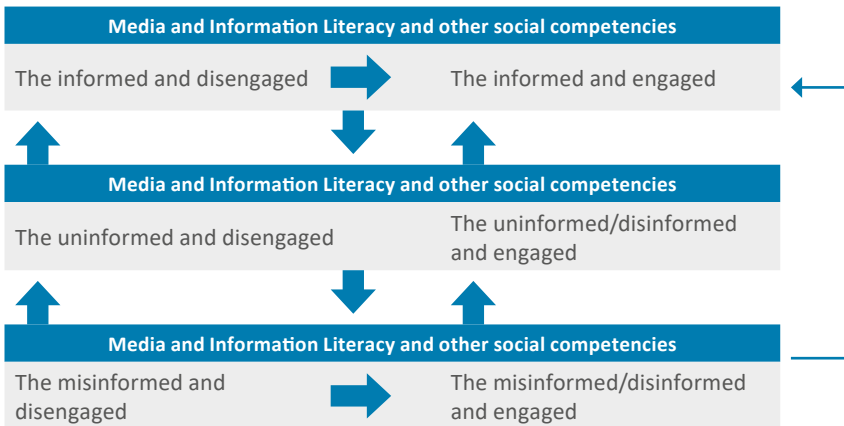
Source: Own elaboration

Media and information literacy can serve as a "rebalancer" to ensure that all citizens in the other groups gradually transition to the informed and engaged group. This is, of course, within limits so that people's rights are not violated in this quest to stir engagement (see Law 4 of the 5 Laws of Media and Information Literacy for principles in connection with media and information literacy and rights).

Ensuring that MIL for All Is a Matter of Public Good

Governments, civil societies, private sectors, and multilateral organizations, including the United Nations, should invest heavily and urgently in MIL for everyone. This is a public good investment. As proposed earlier, let us reason together and put this proposition that media and information literacy is a public good on trial. I offer the following additional pieces of evidence to the defense of this thesis.

These are summarized in three categories:

1. The 9 Aptitudes of Media and Information Literacy
2. The 9 Manifestations of Media and Information Literacy
3. The 7 Excellences of Media and Information Literacy

To ensure brevity, this paper focuses on:

1. The 9 Aptitudes of Media and Information Literacy
2. The 7 Excellences of Media and Information Literacy

However, for a better understanding of how the above-listed pieces of categorical evidence explain MIL as a public good, the author hereby discusses the interconnection between them using the 5 Laws of MIL.

Explaining the Linking Forerunner:
The 5 Laws of Media and Information Literacy

A few years ago, UNESCO and its partners articulated and promoted the 5 Laws of Media and Information Literacy (Grizzle & Singh, 2016). The 5 Laws of Media and Information Literacy offer a principled framework for MIL as a public good (see Figure 2).

Figure 2. 5 Laws of Media and Information Literacy

Source: Grizzle & Singh (2016)

Examining the 5 Laws of Media and Information Literacy

As a consensus-building initiative among MIL stakeholders, the 5 Laws of Media and Information Literacy (Grizzle & Singh, 2016) summarized in Figure 2 was inspired by Ranganathan's (1931) 5 Laws of Library Science, which form the principles of library design, management, development, and library use. The 5 Laws of Media and Information Literacy are intended as guiding principles for stakeholders in developing MIL policies, strategies, and operational programs.

It is not the author's intention here to do an in-depth analysis of the 5 Laws of MIL in the 21st-century information and communication landscape.

Nevertheless, it is worth presenting some insights and reflections on each of the 5 Laws of Media and Information Literacy, with emphasis placed on Law 1 and Law 4. Furthermore, these two laws might emerge as the most controversial. The author entreats readers not to get confused as the counting is numbered 1, 4, 2, 3, and 5. This is done on purpose. Some may argue that the placement of the numbering of each law is not intuitive like the design of Figure 2. However, such design techniques are employed to get people to pay attention and attract them to look and read with purpose. This is indeed MIL in action!

Ranganathan (1931) was very surgical in writing the 5 Laws of Library Science. In his characteristic manner, he used very few words. Contrarily, the 5 Laws of MIL contain many words. One should take them as real containers, 99.9% empty, waiting to be filled with more knowledge and truths or, preferably, verifiable information.

5 Laws of Media and Information Literacy: Law 1

For the first Law of Library Science—books are for use—Ranganathan writes, "The first law of Library Science, like the first law of any other science, embodies an elemental truth. In fact, it is so self-evident that one may be inclined to say that it is trivial. But, that is an invariable characteristic of all first laws. Take, for example, the first law of conduct (Satyam Vada – speak the truth), or the first law of motion" (ibid; p. 1; Navalani & Satija, 1993; Ranganathan, 1931).

Following Ranganthan's assertion, I state the first law of MIL as: Information, communication, libraries, media, technology, and the Internet, as well as other forms of information providers, are for use in critical civic engagement and sustainable development. They are equal in stature, and none is more relevant than the other or should be ever treated as such.

The first part of Law 1 concerns the frequently disproportionate emphasis by MIL experts/practitioners on the business or commercial dimensions of information, media, and technology at the expense of governance, sustainable development, and the civic engagement remit. Law 1 suggests that business and commerce are part of civic engagement and sustainable development. MIL intervention should consider that balance and pursue, for example, MIL for entrepreneurship. Concerning the second part of Law 1, some scholars may argue that information, communication, libraries,

media, technology, and the Internet are not all equal. However, it should be noted that the suggestion is not to project equality of impact, reach, or the use of libraries, media, technology, and the Internet. It is more to suggest that stakeholders should reach a consensus in (i) building in the minds of users the equality of stature and relevance of libraries, media, technology, and the Internet to life and (ii) helping users, people, and citizens see the unity and oneness in these different modes to access and engage in information and communication. An example is the truth about how digital technologies have transformed every aspect of life and helped improve living standards. This does not mean books are no longer needed, and reading should be relegated to being the forgotten or lost pearl of great price. MIL stakeholders should enable all users/ citizens to understand that the Internet is nothing but millions of books in digital format or a colossal digital library. Another example is the present trend among countries around the world to focus more on digital/ technological competencies than the other competencies that MIL entails when developing education policies and programs. When these digital competencies are congruent with the other competencies of MIL (Grizzle & Singh, 2016), then it is a matter of naming, although form sometimes affects content and in turn policy priorities. However, when these digital competencies ignore people's critical competencies to access, search, evaluate, use, and produce information and media content for sustainable development, they would be in contravention of Law 1 and Law 5 of MIL.

The same argument extends to information versus communication. The perennial debate among scholars about certain facets of the epistemology of information and communication (Dousa, 2014; Abdallah Tani, 2019)— which comes first, which is the larger field, or which is more important— does not help empower users and citizens with competencies about access to information and their communication rights.

5 Laws of Media and Information Literacy: Law 4

Law 4 states that every citizen wants to gain and understand new information, knowledge, and messages as well as communicate, even if she/he is not aware or admits and expresses that he/she does. Her/his rights must, however, never be compromised. There are three main postulates based on the largely held view that human beings are communicative beings (Urlica et al., 2021). The first assumption is that people can freely make a choice that they do not want to gain and understand new information,

knowledge, and messages as well as communicate. Some researchers have investigated the case of "news resisters," people who consciously and intentionally reduce or limit their consumption of and exposure to news (Woodstock, 2014; 2016). These groups of people may soon realize that they are missing valuable information that they need or could help them. There are more extreme cases of people choosing to live the life of a recluse over extended periods. Others may choose to isolate themselves for shorter periods in the Amazon of Latin America, the hinterlands of Guyana, the savannahs of Africa, or the desert of the Arab world (O'Balle. J., 2022). There may also be others who, for different reasons, choose to live off the grid, completely away from electronic and digital communications (Hager et al., 2023). The reality is that such persons still want to gain and understand new information, perhaps by reading the trees, the skies, the streams, the insects, or even the cycle of nature that changes from morning to night.

The second postulate is that people may be convinced by others or by systems that they do not need to gain or understand new information. MIL should be an avenue that enlightens such people that they are being oppressed rather than protected.

The third postulate is that people, who are starved of access to information, technology, and media due to economic factors, may be convinced by their life experiences that they can live without them. However, when given an opportunity to access them, they realize how disadvantaged they had been without the access and understanding. An example is a media literacy project that UNESCO implemented in 2006 in partnership with the National Authority for Library and Information Services in Trinidad and Tobago (Williams, 2007). The project was intended to impart information, media, and technological competencies to adult learners in the Tunapuna Public Library. A security officer at the library, invited to participate in one of the training sessions, was initially hesitant as he felt that the type of training would not be of use to him. However, at the end of the session, he was so enlightened that he declared that for some 20 years that he had been working at the library, it never once crossed his mind that he could develop the skills to do what many came to the library to do—that is, to search and find the information they needed.

5 Laws of Media and Information Literacy: Law 2

Law 2 states that every citizen is a creator of information/knowledge and has a message. People must be empowered to access new information/ knowledge and express themselves. MIL is for all—women and men equally—and is a nexus of human rights. Law 2 highlights three points. By stating that everyone creates information and knowledge, Law 2 implies that even people who do not have access to media and technology create information and knowledge. They do this through their lived experiences. MIL should give them the know-how and the platform to access more information, connect with others, and communicate. The last part of Law 2 suggests that MIL is not only for those with privileged access to information, technology, and media. Those who do not have such access need MIL to help in reading product labels, books, images, signs, maps, and billboards as well as in investigating and advocating why they do not have that access. Espousing MIL for all peoples was inspired by (i) the UN's "Education for All" program for which UNESCO is a lead implementing agency, (ii) UNESCO's "Information for All" program (UNESCO, 2017), and (iii) Livingstone's use of "media literacy for all" (Livingstone, 2011). The premise here is that education for all is not complete without MIL for all. The gender dimensions of MIL are fundamental. The final point to be made here is in relation to MIL as an antecedent to human rights. For people to enjoy the full benefit of their rights, they first need to have the knowledge, skills, and attitude to know how to search for and investigate their rights and from whom they can receive advice as and when needed.

5 Laws of Media and Information Literacy: Law 3

Law 3 states that information, knowledge, and messages are not always value-neutral or independent of biases. Any conceptualization, use, and application of MIL should make this truth transparent and understandable to all citizens. It points to the reality that we all have our biases, which may come through different actions, such as innocent preferences, choices of a particular stance or perspective over another, nepotism, malice, prejudices, racism, outright intention to deceive, hate, and intolerance. Even certain conceptualizations of MIL promote some values or beliefs over others and could also possess biases. Law 3 calls for MIL that enables people to understand the motivation behind certain values asserted; the potential lack of independence in all forms of information, news, research processes, and results; and the nature of biases (Ionescu & Licu, 2023).

5 Laws of Media and Information Literacy: Law 5

Law 5 states that MIL is not acquired at once. It is a lived and dynamic experience and process. It is complete when it includes knowledge, skills, and attitudes and when it covers access, evaluation/assessment, use, production, and communication of information, media, and technology content. It suggests that becoming media and information literate is about being taught, self-learning, and having one's own experiences. It is not sufficient to say that one is media and information literate after pursuing a five-day workshop in MIL. Becoming media and information literate is a process that happens over time. It should be noted that Law 5 does not suggest that one must master, know, or even possess all the competencies of MIL to be media and information literate. The second part of Law 5 reinforces Law 1, which states that MIL policies and programs should integrate information, media, and technological competencies. They should recognize that people can learn through creating. Finally, MIL policies and programs should address people's attitudes to information, technology, and media.

It embraces the vision of MIL being central to education, teaching, and learning as illustrated by the 5 Laws of MIL that reinforces MIL as a public good. If education is a public good, and it is (Daviet, 2016; Locatelli, 2018), then MIL becomes an indispensable public good to quality education and education for all.

Having discussed the 5 Laws of MIL as an interlink in bidding the defense for MIL as a public good, let us now consider the previously listed categorical pieces of evidence.

9 Aptitudes of Media and Information Literacy for Public Good

Using the 5 Laws of Media and Information Literacy as a basis, in this paper, I offer 9 Aptitudes of Media and Information Literacy. By this, I mean understanding the competencies people are endowed with or how they become more self-empowered through the acquisition of MIL. As human beings, we all possess certain innate levels of wisdom, knowledge, trust, mending skills, power, insight, discernment, language, and the ability to interpret—however basic these might be.

Figure 3 is illustrated using Article 1 of the Universal Declaration of Human Rights, which states, "All human beings are born free and equal in dignity and rights. They are <u>endowed</u> with <u>reason and conscience</u> and should act towards one another in a spirit of brotherhood...." The acquisition of media and information literacy competencies can stir this <u>reason and conscience </u>in all peoples (UN, 1948).

Figure 3. 9 Aptitudes of Media and Information Literacy
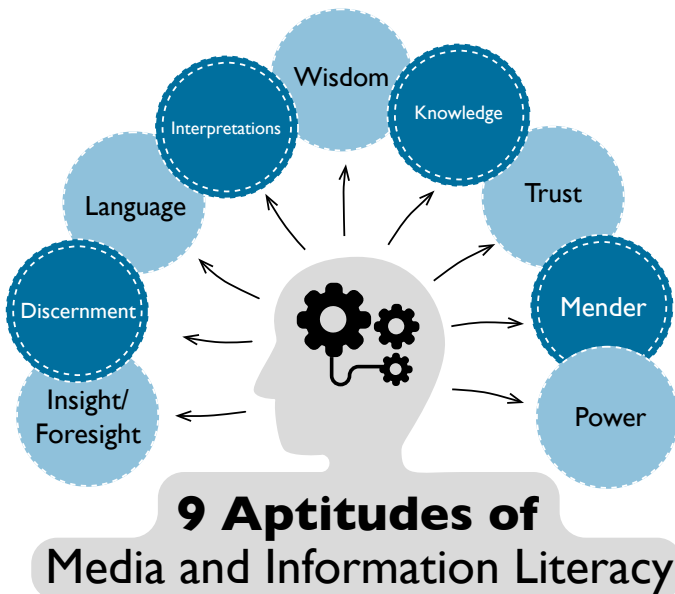
Source: Own elaboration.

The 9 Aptitudes of Media and Information Literacy are Wisdom, Knowledge, Trust, Mender, Power, Insight or Foresight, Discernment, Language, and Interpretations. They sustain values and social competencies proposed by Grizzle and Hamada (2015):

1. **Aptitude 1** is **Wisdom**. Wisdom, as all would agree, is the epitome of becoming media and information literate. In its simplest form, wisdom is the application of knowledge or new information. It assumes that this knowledge to be applied is verified, wholesome, and beneficial to oneself, one's family, or society. We all possess some level of wisdom. If one's life is threatened, it is wisdom that tells us to take flight, run away, or fight. When babies are hungry or uncomfortable, they cry for attention. If each time one takes a

particular route to work the travel time doubles because of traffic congestion, then conventional wisdom would mean not taking that route anymore, unless new information comes that the circumstances have changed. In the era of information overload and rapidly changing information muddied by disinformation and misinformation, our innate wisdom, conventional wisdom, or simply common sense is still relevant. Edith Hall in her book *Aristotle's Way: How Ancient Wisdom Can Change Your Life* (Hall, 2020) suggests taking three steps before acting in any situation, as stressed by Aristotle:

a. Deliberating carefully in making decisions is a key part of "living a good life." However, we should never deliberate in haste. "Sleep on it," we often say. Do not click, share, or speak too impulsively. Later in this manuscript, you will notice that Aptitude 1 appears again in the 7 Excellence of Media and Information Literacy.

b. Always verify the information.

c. Consult experts. If you are not an expert, find one or as many as possible. However, be careful of people who pose as experts.

2. **Aptitude 2** is **Knowledge.** We all possess some level of knowledge, at the very least about ourselves and certain aspects of our surroundings or the world around us. Media and information literate people *know* how we come to *know* (Dutemple et al., 2023; Sartori et al., 2022)—why we believe what we believe—which often affects why we act the way we act.

3. **Aptitude 3** is **Trust.** Trust is crucial in all aspects of life. When the stoplights are red, we trust that the cars will stop, so we walk across a bus thoroughfare. Children put their trust in their parents. We all put certain levels of trust in our family doctor. When we are media and information literate, we know what information to trust, who to trust, and why we should or should not trust. UNESCO and its partners organized Global Media and Information Literacy Week 2022 on the theme Nurturing Trust: A Media and Information Literacy Imperative. The Edelman Trust Barometer 2022 found that concerns about false information are at an all-time high (Edelman, 2022) and that the trust factor in media, government, and business has been on the decline for many years. In Our Common Agenda (United Nations, 2015), a report of the Secretary-General of the UN, Mr. António Guterres, 12 commitments were made by world leaders.

Among these commitments, Mr. Guterres highlighted the values of trust and solidarity as being the glue for social cohesion and social breakthroughs for the common good.

4. **Aptitude 4** is the ability to be a **Mender.** A Mender fixes, repairs, restores, or rebuilds things. It is not just the leaders that should help fix our broken information and digital ecologies, but every citizen must acquire media and information literacy so that he/she can fix the little parts within his/her reach and sphere of influence. Imagine the information ecologies like a huge fishing net covering the entire earth. Each of us represents a little square, circle, or diamond in the net. If many small diamonds/squares/circles are broken, the entire net will be compromised.

5. **Aptitude 5** is **Power.** Power is possessed not only by the great and mighty. Everyone has the power to think, feel, accept, reject, help someone, and even search for truth in his/her own simple way. We know the old adages or maxims—information is power, knowledge is power, wisdom is power. However, these are more than just sayings. The more information, knowledge, and wisdom we acquire progressively and over time, the more powerful we become. According to the Oxford Dictionary (2023), power is defined as "the ability or capacity to do something or act in a particular way." When we are media and information literate, we do and act in particular ways toward information, media, and digital technologies. The billions of users on digital platforms have more power over social media and generative artificial intelligence than they are led or guided to believe. The Age of Enlightenment captures these arguments with its focus on ideas, values, the pursuit of knowledge, reason, evidence, and I argue, the search for truth.

6. **Aptitude 6** is **Insight or Foresight.** Every individual possesses basic insights. If we smell food, we can logically detect that someone is cooking or eating. If the sky is dark, one can deduce that it is likely to rain. The way we search, access, critically evaluate, produce, use, and share information, as well as how we engage with digital technologies and media, gives us perception, understanding, and awareness of the family, friends, communities, nation, and the world around us. We know that there is a subtle difference between insight and foresight. However, you would agree that they are inextricably linked. Therefore, it follows that the way we search, access, critically evaluate, produce, use, and share information, as well as how we

engage with digital technologies and media, gives us forethought, anticipation, and prudence about the future. For example, economists anticipate whether stock prices will increase or decrease based on the information concerning various factors or cardinals connected to companies or environments related to those stocks. Pollsters predict the outcomes of elections based on information they gather from the electorate.

7. **Aptitude 7** is **Discernment.** Discernment is somewhat synonymous with critical thinking. Discernment is showing keen insight and good judgment, being able to grasp or comprehend the obscure, and the act of perceiving (Greek word aisthésis, meaning perception) (Pointon et al., 2022). Irrespective of our levels of education, we all possess some innate degrees of discernment or perception (Carruthers et al., 2008). We can discern danger, rejection, affection, and so forth. Media and information literate persons can objectively judge media, digital communication platforms, and other social actors based on verified information. When we become media and information literate, we are discriminatory about the type of and how we engage with information, media, and digital platforms.

8. **Aptitude 8** is **Language.** In 1964, Marshall McLuhan said the "medium is the message" (1964). He was referring to the code and conventions of media and information text or how content is packaged and presented. This is called media languages. X's (formerly Twitter) language, for example, uses emojis and a maximum of 280 characters in a tweet. Previously, it was 140 characters. I propose the question: In a digital world, is the medium the message? Or, as an Al Jazeera reporter stated some time ago, "The media are the message." The crux of MIL as a public good is that the message is all citizens—as individuals and communities of people—form or can form and disseminate messages. Citizens have and can have greater control over the message than they think or admit they do. People all over the world are challenged to apply MIL to information and messages and to counter potentially fictitious messages, disinformation, and misinformation. Sir Edmund Hillary famously notes, "It is not the mountain we conquer but ourselves" (2003). We all speak a language. Languages are also non-verbal. The arts, including music, are languages. MIL empowers people to assess what language they are speaking in their communities and online. Is the act of reading speaking languages of peace, human solidarity, respect, and love? In the context of the new information and digital

ecologies, coding, programming, or algorithms are the hidden, yet visible, languages of the Internet. Algorithms are the basis through which all human languages manage to survive on the Internet. The growing use of generative artificial intelligence online and in societies, in general, means MIL for the public good should help people not only understand how these languages are used but also have the agency, autonomy, and power to influence the development and spread of these languages.

9. **Aptitude 9** is **Interpretation.** This aptitude is related to several of the others. In the previous point, I mentioned media and digital languages as an example of this aptitude. While the type of media or digital technologies affect how information or messages are formulated and articulated, our individual background also affects how we interpret information or messages. There are proven ways to ensure that we are interpreting information correctly. Being media and information literate helps in this process.

One can observe how the 9 Aptitudes advance MIL as a public good. Hence, we turn our attention to discussing the 7 Excellences of MIL for the public good and their relationship with the 9 Aptitudes of MIL.

7 Excellences of Media and Information Literacy for Public Good

The 7 Excellences relate to the 9 Aptitudes of Media and Information Literacy. The 7 Excellences of Media and Information Literacy are ways through which we—as individuals, groups, institutions, or peoples (in the plural, with an "s")—can ensure that we, others, and everyone can take hold of and grow the 9 Aptitudes of Media and Information Literacy and demonstrate the 9 Manifestations of Media and Information Literacy (see Figure 4). Recall the example of Article 1 of the Universal Declaration of Human Rights mentioned earlier (UN, 1948).

It is like a growth process. A man and a woman procreate, seeds meet an egg, and a baby is conceived. However, some urgent and critical things must happen if that embryo is to grow and be nurtured into a healthy person. The baby is born and grows to become a toddler, an infant, a pre-teenager, an adolescent, and an adult meaningfully contributing to healthy information, digital, and media environments.

Figure 4. 7 Excellences of Media and Information Literacy
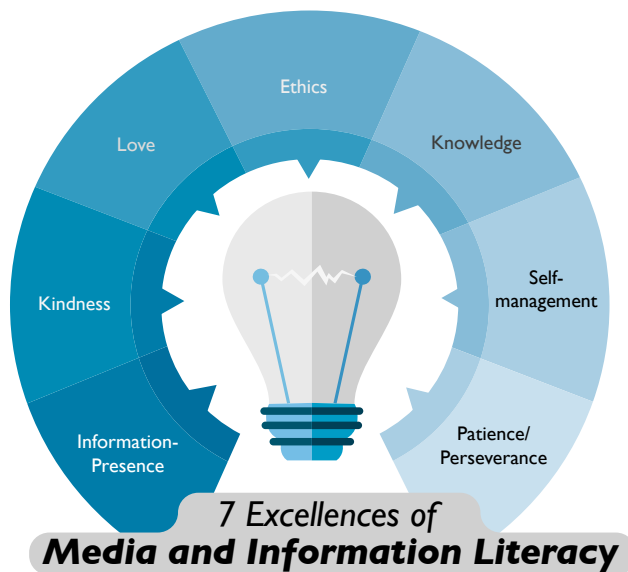
Source: Own elaboration.

The following are the 7 Excellences of Media and Information Literacy:

1. **Excellency 1** is **Ethics.** As societies, academicians, and individuals, we talk about media ethics, information ethics, transparent digital communications platforms, and so forth. Media and information literate people have at least a basic understanding of this. However, here, I focus on individual ethics or moral excellence that a person should pursue to be truly media and information literate. It relates to Paul Zurkowski (Chao-Hsi, 2021), the father of traditional information literacy, and what he calls Action Literacy. For him, Action Literacy means "the ability to transform good information into ethical actions. Being action literate means that one's ethical actions are firmly rooted in good information." The UN Secretary-General in his Our Common Agenda Report (UN, 2015) notes the importance of developing "a common, empirically backed consensus on the public good of facts, science and knowledge. We must make lying wrong again. Institutions can be a 'reality check' for societies, curbing disinformation and countering hate speech and online harassment, including of women and girls." It is key that we grow and apply ethics in producing and disseminating reliable and verified information.

2. **Excellency 2** is **Knowledge.** You would have noticed that knowledge is also Aptitude 2 of the 9 Aptitudes of Media and Information Literacy. This is done on purpose. Here, the focus is on peoples' gradual growth in knowledge of MIL. Excellency 1 recognizes that there are many different forms of knowledge. We should grow in awareness of the knowledge needed at given moments and in certain situations. It relates to Law 5 of the 5 Laws of Media and Information Literacy, which suggests that MIL is not acquired at once. It is a lived and dynamic experience and process. It is complete when it includes knowledge, skills, and attitudes and when it covers access, evaluation/assessment, use, production, and communication of information, media, and technology content. "Know yourself," suggests Aristotle (Hall, 2020).

3. **Excellency 3** is **Self-Management.** Simply put, it is about self-discipline. We cannot reach excellence in being media and information literate without having what I call information discipline. It requires practice, values, habits, and the right attitude to always execute the previously mentioned three steps that Aristotle embodied. Divina Frau-Meigs (2013, p. 183), refers to "self-management as well as engagement" in discussing MIL in the context of "civic agency." Excellency 3 is about:

   i. Pursuing the ethos of information, from within your circles as well as outside; this is the spirit or the character of information; the thinking of those who created or communicate certain information and messages.

   ii. Through self-introspection and communal exchanges, learn to appreciate differences in how information and messages are perceived. This does not imply a necessity to accept or to choose to use all information. However, one should at least embrace pathos—to empathize with the differences. Stages 1 and 2 are a combination of reflexivity and what Leeds-Hurwitz (2013) calls "seeing from other perspectives/world views, both how [they] are similar and different."

   iii. Then through true and open dialogue agree on the logos—a common word or understanding that can lead to healthy information and knowledge and exchange and cooperation.

4. **Excellency 4** is **Patience or Perseverance.** The information highway is so huge that we can easily get lost. Even experts can get lost sometimes. MIL is a GPS to navigate the troubled waters of information and digital galaxies. We can give up or be weak when we hit a brick wall in our information search or the search for truth. Some of the world's greatest scientists, innovators, and investigative journalists following stories for several decades can attest to Excellency 4.

5. **Excellency 5** is **Information-Presence.** I use this as a hyphenated word. This and the final two excellences of MIL unveil the brilliance of the light that shines on people who are media and information literate—each in his/her own way but collectively for the common good. Information-Presence, I suggest, is coming into the awareness that we are information and communicative beings. René Descartes said, "I think therefore I am" (Wikipedia, 2023). Divina Frau-Meigs (2013) calls it *Savior Devenir* (in English, *Knowing to Become*). I would suggest: Act in truth and on truth to become. Perhaps, Mahatma Gandhi said something similar.

6. **Excellency 6** is **Kindness.** Jamil Zaki in his book *War on Kindness* (2019) suggests that we need a return to kindness, including in information and digital spaces. Abigail Marsh in her book *Fear Factor* (2017) presents evidence on how literacy—I extend this to media and information literacy—can help heighten empathy and peace. She cites the very high literacy rate in Myanmar, which has been connected to the peacefulness of its people. Article 1 of the Universal Declaration of Human Rights immortalizes this truth: "All human beings are born free and equal in dignity and rights. They are endowed with **reason and conscience** and should act towards one another in a spirit of brotherhood…." The acquisition of **media and information literacy competencies can stir** this **reason and conscience in all peoples.**

7. **Excellency 7** is, dare I write, **Love.** This excellency transcends all Aptitudes and Manifestations of MIL. When a person is fully media and information literate, he/she is so transformed by verified information and the permanent and gradual search for truth that love and respect for others are found, appreciated, and bestowed on others. One who loves does not consciously manipulate, misuse, or abuse others with and through information.

Looking through the nexus of the Aptitudes and Excellencies of MIL and their interconnection through the 5 Laws of MIL, one cannot but appreciate the Manifestations of Media and Information Literacy as a public good. Follow the author for the key 9 Manifestations of Media and Information Literacy.

Conclusion

This paper states the fact that when people are well informed, media and information literate, engaged, and empowered, information as a public good becomes possible and sustainable. However, for people to be informed and media and information literate, MIL itself must be a public good and for the public good. Hence, for MIL to become a public good, individual and collective efforts are required to prioritize the 9 Aptitudes and the 7 Excellences of Media and Information Literacy as proposed in this paper. Moreover, for the MIL Aptitudes and Excellences to yield the expected impact as a means of achieving public good and its sustainability, they must be seen through the lenses of the 5 Laws of Media and Information Literacy.

This paper invites arguments for or against MIL for the public good. In its submission, it advances evidence and therefore generates debates using the 9 Aptitudes and 7 Excellences of MIL to buttress its argument that MIL is a public good that should be advanced for the public good. As a link, the paper employs the 5 Laws of MIL (adapted from Ranganathan's [1931] Five Laws of Library Science) to advance the relationship between the 9 Aptitudes and 7 Excellences of MIL.

To stimulate further deliberations, I would like to conclude with the argument that there is a need for reflections on the priority we accord to these 9 Aptitudes of Media and Information Literacy in individual and collective life. Moreover, there is a need to establish the individual and collective role with respect to the growth path of the 7 Excellences of Media and Information Literacy. It is key to determine what actions and inactions will inform individual and collective take in defense of MIL as a public good.

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Media Literacies of
the Post-truth

Media and Information Literacy as a Strategic Guideline Toward Civic Resilience: Baltic–Nordic Lessons

Auksė Balčytienė and Kristina Juraitė

The chapter informs about the increasing necessity for media and information literacy (MIL) to act as a strategic guideline toward civic resilience against the detrimental effects of digital transformation in Baltic and Nordic countries. Despite evident differences between the two regions, similarities are noted among countries in terms of the urgency of requests to adequately respond to information disruption such as information manipulation and the influx of disinformation. Nordic countries exhibit a progressive outlook on MIL with well-established institutionalized media education programs and a commitment to regularly assess and adjust MIL objectives in response to evolving digital landscapes and their flaws. However, concern is increasing about the economic and business challenges faced by conventional news media on the one hand and public trust in media on the other hand. Particularly, the latter aspect is viewed as a significant risk to informed citizenship in the near future. Precisely for this reason, a close cooperation among groups of stakeholders in each country, as well as regionally and globally, is required to achieve the goal of media-informed and resilient civics to withstand information disruption and to guarantee that the goals of democratic sustainability and well-being are ensured for everyone.

Keywords: media and information literacy, informed citizenship, digital transformation, mediated communication ecosystem, agency, civic resilience, Baltic countries, Nordic countries.

Today, the abundance of information is one of the most striking signs of the transforming public sphere (Ytre-Arne et al., 2018; Grabe & Myrick, 2016; Cardoso, 2011; Deuze, 2008). Although this attributed could be considered advantageous, it can also be detrimental to the ideal of digital civics. Truth is no longer a landmark in algorithmic governance, and information agendas are set to elicit reaction, instead of cognition, from users (Vilmer et al., 2018; Van Dijck et al., 2019; Bayer et al., 2019). In this new reality, knowledge and skills are required to address the complex and changing information and communication environment, which is furnished by technological innovation, platformization, algorithmization, and datafication (Frau-Meigs, 2022; Bennett et al., 2020; Carlsson, 2019). To protect themselves from the potential risks and dangers of information manipulation, citizens need capacities and competencies to navigate digital information landscapes, critically assess information sources, and discern manipulation.

Classical writings on democracy, which argue for a strong interrelation between the political and media systems, frequently refer to the factor of *informed citizenship*, which is necessary for the functioning of each system and their interrelations (cf. Balčytienė, 2017; Grabe & Myrick, 2016). The foundation of a democratic governance lies in the principle that citizens can choose leaders through participation in the electoral process. This idea agrees with the notion of an informed citizenship (people staying informed about politics) and the concept of the common good (people engaging in the political process and concerned about results). Ultimately, the notion of a functioning democracy refers to collaboration to ensure equal opportunities for access to quality information and engaging environments to act for all.

The idea of informed citizenship appears as a normative (i.e., idealistic) requirement that designates the logic of operation to the political and media systems. After such a provision, citizens are expected to follow and be interested in current news, while the media holds the responsibility to professionally and objectively cover reality and present it to the public. Through the problems raised and actualized by journalists and dialogue

and debates in the mediated public arena, which is accessible to all, citizens can form their opinions, which can then be used to influence policy decisions. This is the basis of informed citizenship in which the political and media systems play a role in assisting people in staying well informed and engaged.

Indeed, one can infer that it is a normative approach but never entirely attained. Even in Nordic countries with long-established traditions of democracy, the interaction between public institutions of politics and the mass media remains challenging (Meinander, 2021; Koivunen, 2021; Forsman, 2020). Regardless of the efficiency of journalists and the degree of the accountability of politicians to the public, identifying an equivalent to an entirely flawlessly functioning democratic culture is difficult.

As a moral stance, idealism emphasizes the value of high moral standards and principles and the pursuit of a perfect society. We emphasize this notion not because we seek to criticize and abolish the idealistic view as dysfunctional, impractical, and, thus, unnecessary. On the contrary, from the normative point of view, maintaining a vision of how everything should work or the aspects that require change to achieve the idealistic view is convenient. In the context of the study, idealism is a source of inspiration. We propose that news media systems together with journalistic professionalism ideals, must act as a structural framework for safeguarding the public against the challenging implications of digitalization. Therefore, we consider the following research questions: How should the individual and structural capacities of resilience against the detrimental effects of digital transformation be sought? What new competencies are required to act responsibly in the highly manipulative digital information space?

To gain a comprehensive understanding of resilience against information disruption, conceptual refinement and empirical adaptation are required. Although the body of research on media and information literacy (MIL) in times of digital transformation is growing, less evidence is available on civic agency and digital resilience based on sociocultural factors (e.g., values, knowledge, and experience) and contexts (Reuter & Spielhofer, 2016; Nielsen & Graves, 2017; Nelson & Taneja, 2018; Humprecht et al., 2020, 2021). A search for a set of relevant concepts, social and structural frameworks of media and communications, and human agency together with the ideals of informed citizenship and MIL will be integrated into civic resilience research.

In this chapter, the study firstly explains the digital features of platforms and their internal logic, which are shaped to significantly alter routines against truthfulness and accountability eminent for the news ecology, which is upheld by professional journalists and fact checkers. We will then explore the influence of these developments toward platform influence on the functioning of media in the selected geographic Baltic–Nordic region (i.e., Lithuania, Latvia, Estonia, Denmark, Finland, and Sweden), which is represented by neighboring countries with considerable contextual differences. Informed by secondary sources (Eurobarometer and Media Pluralism Monitor [MPM]), the study provides further evidence on the relationship among MIL, civic resilience, and democratic sustainability.

Platform Power and Social Vulnerability

Contemporary mediated communication environments can act as a connecting and empowering or a degrading factor in society. Digitalization has transformed the methods for communicating and sharing information and the construction of information agendas. Therefore, assuming that the ideals of informed citizenship must be re-discussed by considering registered changes and the new multilayered logics of contemporary hybrid communication is logical.

The modus operandi encoded in the functioning of platform logics radically transforms human communication practices. The accelerating trends of datafication, algorithmization, and platformization, which evolve, penetrate, and exceed customary ways and forms of social organization in modern societies, transform the activities of public institutions, including those of media and journalism, and provoke digital transformation by accelerating social changes globally (Kreiss, 2021; Kalpokas, 2019; Bennett & Pfetsch, 2018; Hannan, 2018).

Much anticipation has occurred about the potential for digitization to improve communication by providing further opportunities for participation and engagement (Dahlgren, 2005; Bennett & Segerberg 2012; Grabe & Myrick, 2016). Unfortunately, this has led to multiple disruptions, including increased surveillance, disinformation, strategic manipulation, instigation of conflict, and the structuration of human activities through opaque processes of data capture and analysis (Achen & Bartels, 2016; Foa & Mounk, 2016; Hauser, 2018; Balčytienė, 2021; Barrett et al., 2021). Ultimately, digital augmentation and the emergence of social

media platforms have opened entirely new spaces for the explication and exploitation of discourses of distrust and disappointment and the rise of radicalization and populism (Vilmer et al., 2018; Van Dijck et al., 2019; Bayer et al., 2019; Levitsky & Ziblatt, 2020: Kreiss, 2021).

Different forms of information distortion do not only confuse but also especially harm, because they operate on strategic aims to deceive, manipulate, and instigate feelings of uncertainty and helplessness. Unsettling feelings of suspicion, disbelief, and dis-trust are of exceptional damage to democracy and the sustainability of the rule-based and right-focused way of life (Brandtzaeg et al., 2015; Shah et al., 2017; Hofmann, 2019; Porpora & Sekalala, 2019; Posetti & Bontcheva, 2020; Van Aelst et al., 2017).

These critical developments imply that the rules of the operation of platforms should become a major concern for policy makers to ensure an informed public. The intended conceptualization of platform logic is actively influencing regulatory or self-regulatory approaches currently proposed and negotiated by various stakeholder groups in Europe and beyond (Siapera, 2022; Bennet & Livingston, 2018). Innovative approaches toward policy solutions and technological tools, which are applied to issues related to disinformation, digital security, digital ethics and new legal norms, and the engagement of citizens with emerging digital technologies, are, perhaps, more important than ever. As previously known, disinformation and false narratives specifically target issues that instill conflict, radicalize opinion, and lead to social divide (Benkler et al., 2018; Beauchamp, 2019; Bilewizc & Soral, 2020). As Barrett and coleagues. (2021, 11) suggest, "the ideal of social solidarity is a desire for an inclusive democratic practice where there are strong communal bonds and engagement among diverse communities, a contrast to political polarization and social division." Contrarily, disinformation feeds polarization and erodes trust within institutions and among communities (Bennet & Livingstone, 2018; Parvin, 2018; Carlsson, 2019; Freelon & Wells, 2020).

Hence, we propose that citizenship ideals need to be strategically integrated into three strands of the new communication ecosystem, namely, regulatory frames for media functioning (media policy and regulation), media content plurality (representations and inclusion), and media use, to sustain democracy in highly dynamic and fluid digital information settings. Therefore, we predict that MIL will become a guiding way of thinking, which shapes

each strand and acts as a consolidative force among them, which drives toward the common good.

MIL provides the competencies and skills required for critical thinking, creativity, collaboration, and communication; it is a framework that can contribute to social resilience, solidarity, trust, and well-being (Frau-Meigs, 2022; Jolls, 2022; Bennett et al., 2020; Carlsson, 2019). Therefore, this study views MIL as a contextually embedded phenomenon, which is strongly dependent on public and political culture, media development and professionalism, the role of the state, and the nature of a civil society.

Agency-Endorsed Conceptual Framework for Civic Resilience

Platform logic requires engagement, that is, consumers must participate in the exchange of information; otherwise, the social network engine will not ineffective. This concept is beneficial if it encourages active involvement and participation. Evidently, this logic of operation is favorable for disinformation and the goals of manipulation. Algorithms tend to create clusters of people with similar interests, which can lead to the polarization of society into clearly divided camps. In other words, this *grouping* into clusters, which is the object of support of algorithms, precisely determines the increasing polarization in society (Siapera, 2022).

With the logic of platforms, the human agency is determined via material and non-material resources, including economic capital and resources and social (social relations, networks, trust, and reciprocity), cultural (knowledge, skills, and education), and symbolic (power-related resources; e.g., authority, honor, and prestige) capital. To explain the manifestations of human agency, such as responses to disinformation, a refinement of what is conceptualized as *social* and *civic* resilience are required to consider the influence of platform-mediated communication on people. As a key factor of sustainable development, social well-being, and successful societies, social resilience is defined as the capabilities of communities to respond to, cope with, and adjust to various challenges (Brown, 2013; Hall & Lamont, 2013; Keck & Sakdapolrak, 2013; Lorenz, 2013; Haavik, 2020).

Bearing in mind that social resilience is not a uniform concept but includes structural and cognitive dimensions is important. In other words, material (institutional structure and framework) and non-material (social, cultural, economic, and symbolic) resources should be available to members of communities and societies for the adaptive potential and transformative ability of social organizations (Obrist et al., 2010). If structural resilience is strong, then it promotes the cognitive aspects of the process. If structural resilience can be considered a *safety net* that offers citizens the means and frameworks to endure systemic risks (e.g., business model disruption, inequality in media and information access), what, then, could serve as a similar safety net from the cognitive (attitudinal) perspective?

In general, discussions on resilience frequently focus on the human capacity to respond to potential threats, which require structural and agentive capacities. As previously mentioned, accessing and acquiring information in digital environments require agency. However, structural constraints may limit these acts: freedom to access information may be limited; in addition, participation in dialogic communication may be ineffective. Moreover, information plurality may be insufficient, among others. Furthermore, a crucial aspect of digital environments is the algorithmic logic of information structuration and predetermined methods for accessing and using information. Thus, the existence of structural constraints that limit the human capacity to respond to potential threats should be considered in digital environments.

When approaching civic resilience in relation to information disruption, we propose an integrative conceptual framework, which is in close alignment with a well-informed notion of citizenship and is facilitated by professional journalism and MIL as public goods (Figure 1). In this regard, a structuration approach that focuses on practice (Giddens, 1984; Bourdieu, 1984; 1986) is useful due to its dialectic relationship between human agency (open, enduring, and experience-based schemes of perception, classification, and action) and structural condition (social, political, and, for our argument, significant, media institutions). This type of relationship results in the particular formations of specific practices and representations, such as adjustment, nonconformity, and reconciliation (Bourdieu & Wacquant, 2003). These faculties converge into the modern capacity of (digital) civics.

Figure 1. Civic resilience as a capacity to adapt and transform supported by a twofold structure–agency system approach

Civic resilience

Structural affordances
Qualities of media environment
Media system openness and information plurality characteristics, and other thypes of digital media affordances

Agency features
Capacity to act individually
Media awareness, skills and critical thinking competences, and societal trust
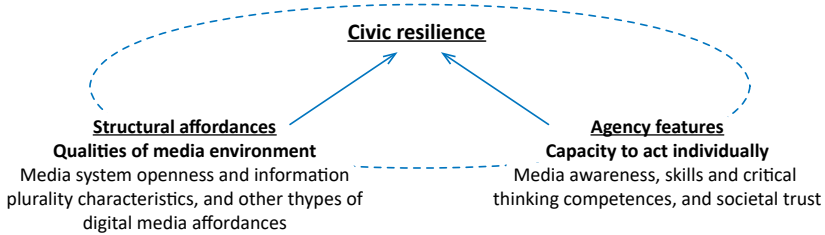
Source: Own elaboration.

Eventually, the importance of strategies of context-specific resilience cannot be underestimated. A holistic understanding of resilience requires analysis of the structural conditions (media institutions and discourses) and social actors involved in the resilience-building process. Contextual factors, such as social, political, and economic conditions, as well as institutional settings and power relations are of great importance, because they frame the social actors in a particular field of practice. The following section will further discuss the contextual specificities of civic resilience, while comparing Baltic and Nordic countries challenged by information disruption such as an influx of disinformation and information manipulation.

Lessons From Baltic and Nordic Countries

Accelerated digitization has introduced several disruptions to media markets: information abundance, decreased trust, collapse of traditional businesses, emergence of new reception practices, and, ultimately, uncertainty, which led to changes in the relationship between the media and social domains.

To approach both, namely, the structural and individual qualities of democratic practices in the studied Baltic–Nordic region, the need emerges for an in-depth analysis of macro-level indicators on the basis of available empirical data and agency-level characteristics of subjective understanding and individual perceptions. Data from News & Media Survey 2022 by

Flash Eurobarometer and MPM 2022[1] are instrumental in illustrating the major assumptions of the increasing importance of agency in changing the public sphere.

In comparative studies on politics and media, Baltic countries are frequently presented as successful examples of CEE democratization (Duvold, 2017). These countries are characterized as small and highly competitive media markets. Nevertheless, despite many successes, evident risks exist in relation to media functioning and plurality, which do not allow a determined implementation of a universalist principle that would ensure equal media reach and accessibility and availability of quality content for all (Table 1; see the rows labelled Social inclusiveness and Access to media for local/regional communities).

Another evident tendency, which is clearly visible in each of the three Baltic countries, is formulated as risks linked with limitations in media market diversity (Kõuts-Klemm et al., 2022). Such an assessment is determined by objective conditions (limitations on the size of the national market and a broad applicability of national languages) and an overtly liberal character of ownership regulation. This aspect overlooks cross-media concentration and competition enforcement, commercial and owner influence over editorial content, and the lack of transparency of media ownership (Jastramskis et al., 2017). These risks of media market plurality have been enduring and even slightly increasing in all Baltic countries (Balčytienė & Juraitė, 2022), which will most apparently remain the key area of risk in the future. Another obvious notion is that the effects of the digital revolution (e.g., the impact of global platforms on local contents) are another factor that exacerbates this (see Market plurality in Table 1).

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[1] The Media Pluralism Monitor (MPM) is a research tool designed to reflect on the monumental changes shaped by the Internet on news media and to assess information and media pluralism on and offline in all EU countries and two candidate countries: Albania and Turkey. The main indicators, covering four main areas (Basic protection, Market plurality, Political independence, and Social inclusiveness), contain variables that cover legal, economic, and sociopolitical questions measured according to a risk scale of low, medium, and high. The MPM project is supported by the European Union and coordinated by the Centre for Media Pluralism and Media Freedom (CMPF) at the European University Institute. More information on MPM is available at https://cmpf.eui.eu/

Table 1. *Risks to media pluralism in Baltic and Nordic countries*

	Estonia	Latvia	Lithuania	Denmark	Finland	Sweden
Fundamental protection						
Protection of freedom of expression	27%	29%	17%	12%	19%	24%
Protection of right to information	50%	19%	29%	26%	38%	13%
Journalistic profession, standards, and protection	31%	44%	36%	22%	30%	33%
Independence and effectiveness of the media authority	3%	18%	13%	15%	10%	3%
Universal reach of traditional media and access to the Internet	27%	27%	52%	15%	33%	21%
Market plurality						
Transparency of media ownership	**69%**	38%	25%	38%	63%	50%
News media concentration	**86%**	**86%**	**94%**	**85%**	**89%**	**96%**
Online platforms concentration and competition enforcement	58%	**88%**	**75%**	50%	**67%**	**50%**
Media viability	64%	40%	55%	49%	39%	32%
Commercial and owner influence over editorial content	52%	**80%**	**73%**	43%	63%	**68%**

	Estonia	Latvia	Lithuania	Denmark	Finland	Sweden
Political independence						
Political independence of media	35%	44%	52%	50%	55%	25%
Editorial autonomy	25%	63%	**75%**	25%	38%	3%
Audio–visual media, online platforms, and elections	25%	31%	18%	31%	35%	15%
State regulation of resources and support to media sector	25%	29%	25%	17%	33%	8%
Independence of PSM governance and funding	33%	17%	3%	25%	58%	3%
Social inclusiveness						
Access to media for minorities	33%	35%	50%	46%	57%	22%
Access to media for local/regional communities and for community media	63%	58%	52%	25%	**75%**	17%
Access to media for women	48%	47%	23%	45%	47%	20%
Media literacy	42%	**67%**	42%	3%	4%	8%
Protection against illegal and harmful speech	54%	**92%**	17%	17%	38%	42%

Source: Media Pluralism Monitor (2022).

An illustrative similarity within the mediated ecosystems of the three Baltic countries is that political independence of news media has retained a moderate risk score, except for Lithuania, due to major concerns about the lack of editorial autonomy (75% of risk) and indirect political pressure and control over media outlets, including public service broadcasters. As previously demonstrated, political interference is emblematic across the six countries under study.

Another important area of risks for media pluralism in Baltic countries is social inclusiveness. Based on measures of access to media by various social and cultural groups, including women, ethnic minorities, local communities, and disabled people, the area also covers MIL as a precondition for the effective use of effectively and, therefore, is an important element of media pluralism and citizenship. Despite increased attention to public agenda and different measures introduced at the media-policy level, MIL education and applicability remain an issue of major concern due to the lack of a systematic and comprehensive approach to MIL in the Baltic countries (Juraitė & Balčytienė, 2022).

Thus, from the plurality perspective and considering the structural and representational aspects of news media functioning, economic challenges mainly constrain the discursive arena in the Baltic countries. Evidently, the identified risks have been ongoing for years now. In addition, rapid digitization and datafication with their consequences do not eliminate but replicate it.

Alternatively, the Nordic countries are commonly discussed as a region that paints a relatively homogeneous picture about the media and democracy. Nordic countries are considered to offer robust societal structures and institutionalized professional practices attentive to civic needs (Aylott, 2017; Henriksen et al., 2018; Meinander, 2021). A strong media and education sector are considered crucial pillars, because they operate on universalist principles, that is, they offer equal opportunities to all. International studies clearly depict trends that these countries possess high degrees of interpersonal trust and that the media is widely used and that these countries generally live in a culture of mediated information welfare and prosperity (Forsman, 2020; Wadbring & Pekkala, 2017; Matovic et al., 2017). The notion of a *media welfare state* is based on high levels of media consumption, pluralistic content, and trust in the media (Syvertsen

et al., 2014). Such values are evident in the editorial policy of the media and in public policy, which is based on the principle of dialogue and agreement among stakeholders.

Conversely, a tendency is observed even in the Nordic countries, which corresponds to the processes of populist polarization and radicalization of attitudes that are globally visible. In the not-so-distant past, the information space in the Nordic region, which was created by the media, was seemingly open to everyone and supporting dialogue. Now, this scenario is far from reality. Social networks and the increased use of digital information transpose marginalized voices into a formal public space (Koivunen, 2021). It not only increased awareness of the increasing social divide between groups but also polarized the media and public space.

Table 1 provides a comparison and demonstrates that the Nordic media is less sheltered by economic and cultural (e.g., supportive media use and trust) safeguards, and a real risk exists that this sector will change significantly in the future. Although the Nordic countries maintain a progressive outlook on MIL (Table 1; Social inclusiveness and Indicator of MIL, they have well-established, institutionalized media education programs and a commitment to regularly review and adjust MIL objectives within media and education policies in response to evolving digital landscapes. Consequently, the risk level remains low. Simultaneously, the conventional news media is struggling with economic challenges, including concentration issues, which exert detrimental effects on media viability and the profession of journalism. This scenario poses a significant risk against informed citizenship in the near future.

Furthermore, media landscapes in the countries of both regions under study are facing profound economic challenges and exhibit the highest levels of risk (Table 1, Market plurality with indicators of News media concentration and Online platforms concentration). While encountering apparent economic and media governance uncertainties, news media organizations are drawn into re-structuring and re-organization. No adequate policies and regulations have been developed, at the moment, to resist the negative effects of the convergence between the operations of news media and global online platforms. Crucially, the problems emerging from such an act of convergence instill and deepen information disorders, such as disinformation.

Indeed, the latest European Union policies, which focus on information disruption and media response (e.g., the European Media Freedom Act [EMFA]), signal important changes on the way toward media pluralism and securing media functioning. Indeed, this step is a big one forward regarding support for professional journalism and public service media operations and, hence, the ideal of common good. For example, EMFA stresses the significance of communication monitoring and institutions to observe the development of pluralism in the media sphere. These guiding strategies are good at the transnational level. Once again, however, the regulation of flaws in national media, such as emergent cross ownership forms, increased media concentration, lack of ownership transparency, state/public financing, and others linked with the economic aspect of national media operations, is left to national states (Centre for Media Pluralism and Media Freedom, 2022). As previously argued, ideologies/ values enlisted in policies and media regulation are crucial for ensuring the functioning and viability of news media for serving as a public good (UNESCO, 2022; Allern & Pollack, 2019; Picard & Pickard, 2017).

In the abovementioned context, resilience and the capacity to cope with information disruptions are country-specific and highly dependent on political, economic, and media environments (Humprecht et al., 2021; Boulliane et al., 2022). The increased polarization of society and the emergence of populism as well as the low levels of confidence in news media, weak public service broadcasters, and fragmented audiences are among the key factors that limit the resilience of citizens to disinformation. We consider these features and discuss media use and the experience of the public of different news sources, including disinformation and other types of information disorders. We apply data on public opinion collected by News & Media Survey (2022) by Flash Eurobarometer to examine differences and similarities in the public perceptions of media use and news sources between the Baltic and Nordic countries.

Figure 2. Media use in the Baltic and Nordic countries

Denmark: TV 72, Online news platforms 53, Radio 32, Social media platforms and blogs 18, Youtuber or other video platforms 8, Printed press 17

Lithuania: TV 70, Online news platforms 54, Radio 28, Social media platforms and blogs 44, Youtuber or other video platforms 23, Printed press 9

Finland: TV 67, Online news platforms 67, Radio 33, Social media platforms and blogs 28, Youtuber or other video platforms 13, Printed press 25

Estonia: TV 66, Online news platforms 54, Radio 35, Social media platforms and blogs 30, Youtuber or other video platforms 16, Printed press 17

Sweden: TV 65, Online news platforms 60, Radio 35, Social media platforms and blogs 25, Youtuber or other video platforms 13, Printed press 23

Latvia: TV 51, Online news platforms 45, Radio 28, Social media platforms and blogs 41, Youtuber or other video platforms 28, Printed press 9

Legend:
- TV
- Online news platforms
- Radio
- Social media platforms and blogs
- Youtuber or other video platforms
- Printed press

Source: Flash Eurobarometer (2022).

Figure 2 demonstrates that the majority of the Baltic and Nordic populations are opting for TV and online news platforms as primary news sources with the largest number of TV viewers in Denmark and Lithuania, while the most active online news readership is observed for Finland and Sweden. Clear differences exist in the use of social media and video platforms, which are more likely to be part of the news media repertoire in Lithuania and Latvia than those in the other countries.

Figure 3. Most trusted news sources in the Baltic and Nordic countries
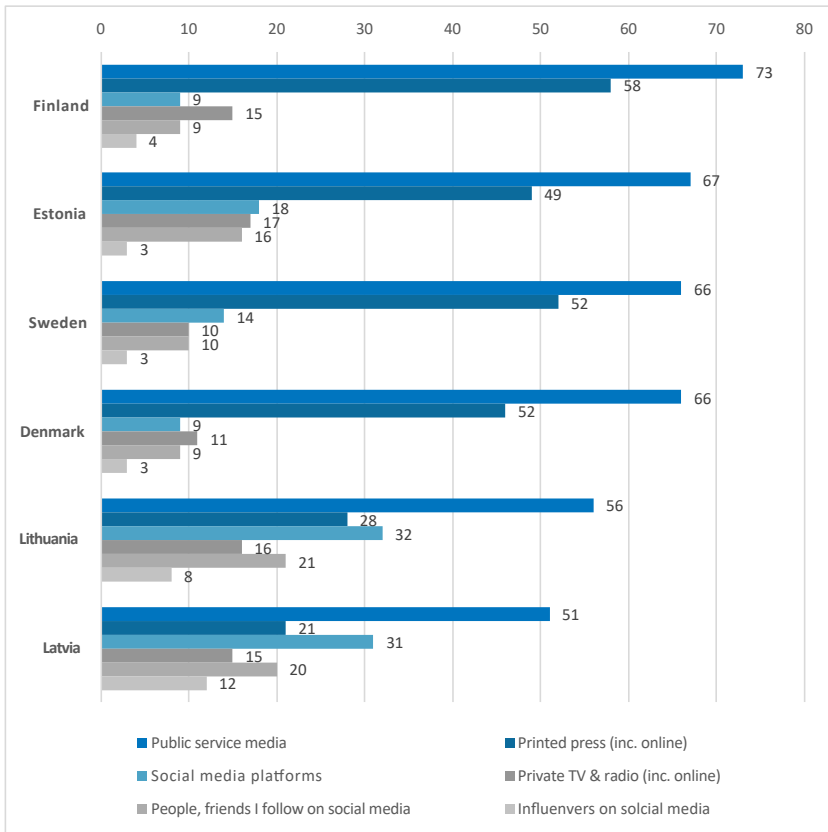
Source: Flash Eurobarometer (2022)

Public service media channels, including TV, radio, and online portals, are the most trusted news sources among the Baltic and Nordic populations in which Finland and Estonia obtained the largest number of respondents who trust these channels (Figure 3). Public service media is followed by printed and online press in most of the countries, except for Lithuania and Latvia, wherein social media platforms are more trusted than printed press, private TV, and radio. People in Latvia and Lithuania are likely to rely on the people, groups, or friends they follow on social media more frequently than those in the other countries. The increasing exposure to social media platforms and changing habits of media consumption are raising questions about the capacity and resilience of the public to confront the risks that emerge from the digital media environment. Figures 4 and 5 provides public opinion on disinformation to illustrate the Baltic and Nordic climates.

Figure 4. Exposure to disinformation and fake news over the past 7 days
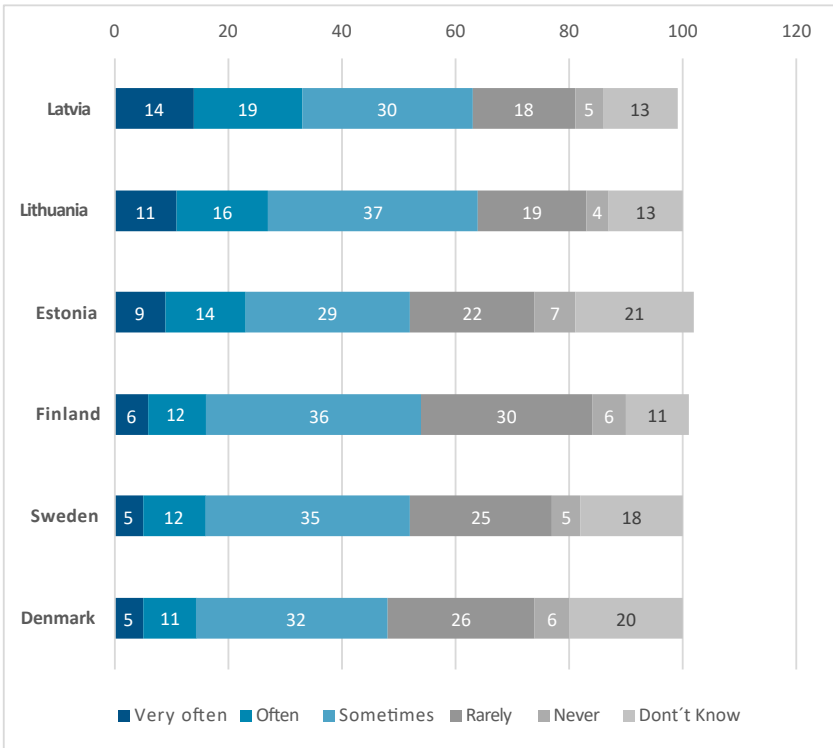
Source: Flash Eurobarometer (2022)

Comparing data on public opinions about exposure to disinformation and fake news over the past 7 days, we observe notable differences between the selected countries (Figure 4). Apparently, the Baltic respondents are overall more likely to respond that were exposed to information disorders during the last 7 days. For instance, the Latvian respondents reported that they were confronted with disinformation and fake news twice more often than those in Denmark or Sweden (Figure 4; *very often* and *often*).

Figure 5. Confidence in recognizing disinformation
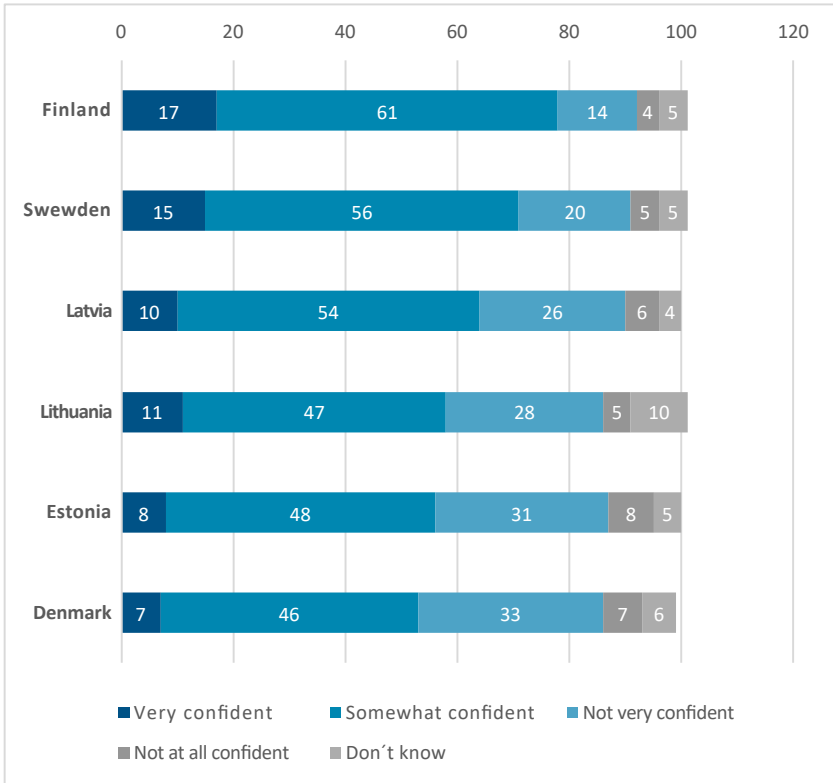
Source: Flash Eurobarometer (2022)

Figure 5 depicts the levels of confidence of the respondents relative to their ability to recognize disinformation and fake news. Once again, the study observed certain differences, because populations in Finland and Sweden seemingly displayed higher levels of confidence than those in the three Baltic countries. Interestingly, Denmark is an exception, because its population is seemingly the least confident in recognizing disinformation.

Briefly, the dynamics of media transformation and public opinion illustrate fundamental changes in the Baltic and Nordic media ecosystems. Despite the dominance of the public service media as reliable and significant news sources in these countries (Figure 3) and the proliferation of social media platforms in Lithuania and Latvia, the current study argues that perceptions of people about their degree of confidence in identifying and recognizing disinformation are insufficient. Therefore, the urgency

of developing MIL as a strategic guideline for all communication agents (stakeholders) and not only for media and education institutions remains a major concern in the Baltic and Nordic regions.

Promises to Fight Information Disruption

Although information in general and accessibility to digital communications networks in particular are well advancing and opening new forms of information access, participation, and self-expression, these altered structures of communication do not automatically lead to adequate cultures and routines of information exchange, co-habitation, and *communing* (Balčytienė & Juraitė, 2022). As argued in this chapter, we strive toward an idealist vision and normative understanding of the democratic process, which is rooted in the ability of the public to communicate, share ideas, and engage in dialogue. This democratic process has been disrupted by the rise of digital technology on the one hand and by the entrenched societal inequality on the other hand. As a result of these mixed processes, the notion of a common good has become increasingly contested, and the culture of democracy has been weakened.

Without the experience to understand how the logic of platforms are encoded in digital information distribution and without knowledge of its influence on individual choices, people become targets of strategic manipulation. Left by themselves, users tend to follow the pre-defined logic of digital communication environments (Siapera, 2022). However, the most worrisome aspect for democratic well-being is that hybrid communication arenas are highly susceptible to manipulative and propagandistic operations that are intended to deceive (Chadwick & Stanyer, 2022). Crucially, remaining safe in such an environment is unimaginable without appropriate attentiveness and strategic preparation not only to withstand but also to counter inforuption (Frau-Meigs, 2022; Tenove, 2020). In this sense, *civic resilience* is a useful conceptual apparatus.

Civic resilience, which is a user-agency focused outcome (thus, civics-centered), fits well with the objectives of UNESCO (2022), which advocates that information is a public good and requests agency and will for supporting and cherishing it. It is precisely in this aspect of civics-centeredness that a relationship between the notions of agency and MIL is viewed through civic resilience.

As envisioned in the previous sections, common good and citizenship ideals must be incorporated into the new communication ecology, that is, all layers of the complex communication ecosystem. As such, a new communication ecology perspective requires the examination of digital transformations and emerging communication environments from a specific angle, that is, by integrating several strands into one analysis. Among these strands, three aspects are significant: the structural characteristics of media functions (i.e., legal, political, and economic contexts for journalism/media to support its workings), content plurality (i.e., questions of the viability and socially inclusivity of media), and audience reception characteristics (who uses which types of news, and how they determine civics).

Briefly, we propose that informed citizenship ideals and, hence, MIL, need to be considered in the light of civic resilience and as the core focus of public operations in highly hybrid digitized environments. As demonstrated in media education research, MIL has been the topic of debates across years as a policy strategy for enhancing citizenship through certain pedagogic interventions and learnings on advancing the knowledge and awareness of the public about responsible media use (Jolls, 2022; Stix & Jolls, 2020; Carlsson, 2019). Such strategies have focused more on content aspects and functions of journalism and less on technologies and digital innovations. With intensified digitization and platformization, any outstanding attention of different stakeholders, such as policy makers, media, IT professionals, and educators, needs to be concentrated on digital transformation processes and social outcomes.

Thus, this study proposes that MIL should act as a guiding philosophy that assists different stakeholders in tackling crucial issues required to consolidate all effort toward civic resilience. Along this line, MIL policy should envision that policymakers (and stakeholders) must be active advocates of MIL by supporting relevant policies and regulatory and co-regulatory forms in the media system. Similarly, journalists must be trendsetters of innovation, teachers (designers of targeted pedagogical interventions), and citizens (responsible learners and digital media activists).

Conclusion

As ideally envisioned, democracy is a political system and a way of life, which entail the ideals of co-habitation and intends to ensure that the principles of freedom, equality, and pluralism are working for all. Such ideals of general welfare (common good) are also duplicated in the information context and media system that are unfolding via two specific aspects. The first highlights the issue of individual communication rights and freedom and how they are considered and recognized in the digital communication arena of a concrete country. The second aspect refers to the result of such collective media, information use, and participation in the realm of politics and public service.

Succeeding these two aspects, we examined and analyzed, for example, the recognition of media systems of the principle of press freedom and other fundamental rights (Table 1; the MPM 2022 project data) and explored the realization of the principle of accessibility of information to all in the countries under study. Additionally, we investigated the actual exercise of citizens of their freedom: their selection of media channels (conventional news media or social networks) for information, engagement in communication and whether or not they are interested in political or community issues, and assessment of their experiences (skills for recognizing manipulation and whether or not they responsibly use information).

This study took a normative stance and argued that maintaining all democratic principles in digital communication is important; hence, we aimed to synchronize both aspects. To illustrate emerging cultural specificities, we searched for evidence in the Baltic–Nordic region.

To respect the rights of others and to act responsibly – and to aim for a common good – one needs more than knowledge. In digital environments, a critical view on how digital logics determines one's information choices and learning and an awareness of the influence of individual actions on others, become of paramount significance. These latter competencies are within the realm of MIL.

Although obvious aspects of resilience are notable, such as media infrastructure and the individual capacities of the public framed to counter manyfold inforuptions (disinformation and manipulation) in

the Baltic–Nordic region, necessary steps in the media policies of these countries require the urgent and focused attention of multiple stakeholders. In highly integrated, hybrid, and networked communication ecosystems, possessing a clear understanding of the intentions and commitments that motivate diverse agents and stakeholders of communication arenas is essential. Conventional news channels, such as print media and television, as well as social networks, operate under the growing influence of global platforms in which every participant actively changes roles by shifting one's position from user to producer and vice versa.

Although this chapter discussed the roles of all agents in the digital communication ecosystem, such as platforms, their algorithmic functioning and business logic, policy makers, conventional news media, and citizens, utmost attention was drawn to producers of reliable and verified contents, that is, the news media and journalists. Consequently, the most important idea expressed here is that the structural aspect of overall resilience (i.e., media freedom, system viability, and accessibility) requires a new reinforcement, that is, MIL-informed guidance, which considers the new specificities and detrimental effects of the evolving information ecosystem.

Furthermore, the hybrid character of communication environments also dictates the urgency of searching for new forms of cooperation among the stakeholders involved. The collaborative aspect of stakeholderism also has a built-in logic of civics. With regard to Baltic–Nordic practices, we present good examples of collaborative partnerships in these countries, such as the Nordic Observatory for Digital Media and Information Disorder Hub in the Nordic region, the DIGIRES research initiative in Lithuania, and the Baltic Engagement Center for Combatting Information Disruptions Hub, which aim for informed public and media education in the three Baltic countries. The identification, debate, and sustainability of common goals across interest groups who joined these initiatives, such as civil servants, IT professionals, media, teachers, librarians, and citizens, remain to be revealed.

To better understand public response and civic resilience against disinformation and other communication media-related disorders, research insight and conceptual refinement of issues that are at stake for each stakeholder and require revisions are needed. For example, academics and IT groups must initiate innovative methods and projects to understand and address disinformation. Similarly, media must advance fact-checking operations to curb fake narratives, while policymakers must advance

strategic thinking and partnership at the regional and transnational levels. However, to promote the success of each specific goal, a consensus exists in the evolving information ecosystem that MIL must occur as a guarantee of resilient civics, sustainability, and well-being for all.

Acknowledgments

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Science Literacy in the Age of Disinformation: Building Bridges to Address the Complexity of the Challenge

Erasmo Moises dos Santos Silva and Agnaldo Arroio

Science education and media and information literacy (MIL) significantly contribute to the current landscape of contested knowledge surrounding science and scientists, as evidenced by movements against COVID-19 health protocols. Nonetheless, a broader view than that typically portrayed of complexity is required. This chapter aims to offer recommendations to avoid counter-productive approaches based on problematic assumptions, such as considering all types of untrustworthy information as *fake news*. Thus, this chapter aims to problematize views about the information disorder phenomenon in the context of natural science in Brazil by providing a complex and coherent vision of the issue in the context of natural science educators and education. For this purpose, the following questions are addressed: If not fake news, what concept(s) should natural science educators address in their practice? Why can not only ignorance explain the scientific informational disorders? What makes science and scientists vulnerable to information disorders? Why can (science) education not be the only solution to (scientific) disinformation disorders? To provide answers to these questions, this chapter poses scientific literacy and MIL as an urgency to sustain democracy, science, and public good in contemporary times.

Keywords: science education; information disorders; rake news; STEAM education; teaching practices.

Over the past years, scholars and teachers of science education have been grappling with a pressing question in the contemporary world: how may the natural science curricula be structured to help individuals tackle challenges in information disorders related to science such as cases of climate change denialism, anti-vaccination movement, and flat-earth belief? A number of specialists argue that the domain of natural scientific conceptual knowledge (e.g., the traditional contents of chemistry, biology, physics, and earth sciences) may help society address this contemporary challenge, because mis- and malinformation that involve science leads to erroneous scientific concepts (Fauzi et al., 2021). Others point out to the need of students to learn about the nature of science or how scientific knowledge is produced, communicated, and used to prevent the creation and spread of pseudoscientific information, which typically attempts to persuade people by claiming a false scientific status (Maia, Justi & Santos, 2021). Other debaters defend interdisciplinary approaches that connect the contents, goals, and competencies of science education to those of media and information literacy (MIL). They also advance the understanding of the role of modern media and the unforeseen possibilities of producing and accessing information (Höttecke & Allchin, 2020; Miller et al., 2021; Reid & Norris, 2016).

These three approaches for addressing information disorders – to use the concept suggested by Wardle and Derakhshan (2017) in the European context – reveal the multifaceted character of the problematic and raise the question of how information disorders require diverse pedagogical approaches. Notably, however, given the complexity of the problem, teachers and scholars in the natural science education community –influenced by references in the public political debate, which is frequently simplified – may fall for the simplification and polarization of discourse, such as taking all types of untrustworthy information under one concept, that is, the category of *fake news* (a more accurate term than "fake news," as will be addressed later). Indeed, when fake news became a catch-all term, experts have argued that it cannot encompass the different kinds of disorders related to the production, consumption, and dissemination of information, such as non-intentional misleading claims, true stories,

satires, and parodies (Habgood-Coote, 2018; Wardle & Derakhshan, 2017). In addition, the term has been observed to be contradictory in its essence. For example, in the practical handbook Journalism, *"fake news" & disinformation* (2021), specialists from different fields explain why debaters and discussants should not reiterate the concept of fake news as follows:

> It avoids assuming that the term "fake news" has a straightforward or commonly understood meaning. This is because "news" means verifiable information in the public interest, and information that does not meet these standards does not deserve the label of news. In this sense then, "fake news" is an oxymoron which lends itself to undermining the credibility of information which does indeed meet the threshold of verifiability and public interest — i.e., real news. (UNESCO, 2021, p. 7)

Apart from the terminology, other aspects of information disorders render the phenomenon increasingly complex than that typically portrayed in public. The objective of this study is to complexify the phenomenon of information disorder from the natural science perspective by providing educators with certain reflections selected to deepen and broaden the comprehension on the definition and understanding of the problem in natural science classes. The goal of this chapter is to discourage oversimplification in educational discourse in general and in science education in particular. Thus, the study challenges teachers and scholars to harbor coherent aspirations for aiding students in addressing the problem. This objective can be achieved by answering the following questions: What concept(s) should be considered instead of fake news? Why does ignorance not solely account for scientific informational disorders? In what ways are science and scientists also vulnerable to information disorders? Additionally, why is (science) education not the sole solution to (scientific) disinformation disorders?

Objective of this Chapter

This chapter aims to critically examine views about the information disorder phenomenon in the context of natural science education and/or the so-called science, technology, engineering, arts, and mathematics (STEAM) education, which provides a complex and coherent vision regarding the issue with consideration of the role of natural science educators. This text joins other initiatives on positioning scientific literacy and MIL in the contemporary world as an urgency. It prospects an adequate view on

how information disorders related to science circulate in society and – in certain circumstances – proposes what natural science teachers should (or should not) do about it. Similar to many analogous debates, at the end of the day, more questions may emerge than answers regarding the measures that should be undertaken in natural science classes given that the ultimate goal is to primarily add complexity to the issue. However, the professional discussion about the ongoing development is important.

This chapter commits to the approach of emphasizing the relevance of conventional perspectives on comprehending and addressing scientific informational disorders in line with insights from other studies. The latter advocates the transcendence of oversimplified and common-sense perceptions. To achieve this objective, this chapter draws on peer-reviewed publications dedicated to information disorder, education, and science communication. It encompasses diverse fields of knowledge, including science education, MIL, social communication, social psychology, epistemology, sociology, and philosophy of science. The chapter proposes a broad and in-depth description of "scientific informational disorder" without comprehensive intentions. The paper presents considerations from academic papers and news selected in an effort to problematize, ratify, and illustrate the arguments presented next. Lastly, it considers publications in English and Portuguese – the official language of Brazil – as well as the impact of science informational disorders on the social dynamics of this country.

First, we explore the major alternatives for the term fake news and identify the derivatives of the concept of information: disinformation, misinformation, and malinformation, as well as information disorder, which are transferred into the more particular context of scientific informational disorders. Thereafter, we proceed to the discussion of the other questions formulated to increase the understanding of science creators on potential approaches to the phenomenon. Producing pedagogical approaches requires the generation of pedagogical discourse that entails addressing values, attitudes, behaviors, and competencies, which makes advancing this type of qualitative inquiry and reflection important.

Alternatives to Fake News

As previously mentioned, although fake news has been integrated into the everyday vocabulary that stands for all types of "bad information" (Habgood-Coote, 2018) or "inaccurate things" (Tambini, 2017), the term is not based on a nuanced conceptual framework on the phenomenon of information disorders. Other terms, such as disinformation, misinformation, and malinformation, can fulfill this requirement (Wardle & Derakhshan, 2017). According to UNESCO (2018, p. 77):

> […] disinformation is generally used to refer to deliberate (often orchestrated) attempts to confuse or manipulate people through delivering dishonest information to them. This is often combined with parallel and intersecting communications strategies and a suite of other tactics like hacking or compromising of persons. Misinformation is generally used to refer to misleading information created or disseminated without manipulative or malicious intent. Both are problems for society, but disinformation is particularly dangerous because it is frequently organized, well resourced, and reinforced by automated technology.

This publication by UNESCO also makes reference to malinformation, which means "information that is based on reality, but used to inflict harm on a person, organization or country. An example is a report that reveals a person's sexual orientation without public interest justification" (UNESCO, 2018, p. 46). Malinformation is a subterfuge to play with the truth by considering a malicious goal achieved by violating a person's privacy. An example of a case of malinformation is the leakage of the personal information of Brazilian doctors by a Brazilian congresswoman – who feeds polemic against immunization – after the health professionals advocated in favor of children's vaccination against COVID-19 (Medeiros, 2022). After the leakage, groups of people attacked the professionals through social media in a clear attempt to strengthen a nonscientific point of view.

Using the two previous initial concepts and their meanings in the science communication context, Swire-Thompson and Lazer (2022, p. 125) define "misinformation as information that is contrary to the current scientific consensus and disinformation as having the added attribute of being spread deliberately to gain money, power, or reputation." However, identifying intentions from a piece of misleading information is not always unequivocal (De Ridder, 2021) such as in the case of conspiracy theorists who deeply believe (and are engaged in converting others) that

the earth is flat. Alternatively, a naive perception of conspiracy theories is not recommended, because they hold the potential to cause harm to the individual and the community aside from their real intentions. McIntyre (2019, p. 695) argues that,

> the flat earthers may not be hurting anybody directly but the confusion and doubt they spread helps to create a culture of denial that could cost lives indirectly by affecting congressional decisions about climate change and family decisions about vaccination.

Apart from the difficulty of identifying real intentions, disinformation, misinformation, and malinformation form a very useful framework for the phenomenon of scientific information disorders. The reason is that their respective meanings enable the elucidation of the people and forces involved in the occasional manipulation and misleading of others. For example, the deliberate attempts of tobacco corporations to mislead the public and deny well-established scientific knowledge about the risks of smoking are well known (Oreskes & Conway, 2011). In this previous episode of disinformation, profit-making intentions overlapped with the well-being of people.

Problematizing intentions to mislead or harm hidden in claims regarding science and scientists enables students and teachers to go beyond the simple task of marking as true and false information having scientific knowledge as rule and principle. The recent politicalization of socioscientific issues, such as climate change, vaccination, and nuclear power, confirms the importance of extending our action to more elements of information disorders. Recognizing and understanding concepts, such as disinformation, misinformation, and malinformation, can serve as an essential first step.

Scientific Informational Disorders

People engaged in consuming and sharing information disorders are typically described as irrational and highly influenced by appeals to emotions over reason; therefore, they are unable to understand natural science contents and engage in logical reasoning. In fact, the perception that information disorders are the result of irrationality and ignorance is very influential in debates on the role of natural science education and challenges related to information disorders (Goldenberg, 2016). In

summary, the image is seemingly that lay people are relatively deficient in competencies and abilities and are illiterate about certain knowledge and practices about natural science. These stereotypes extend beyond education boundaries that are very present in scientific divulgation strategies.

In this regard, in 2016, the Oxford English Dictionary selected the term post-truth as the word of the year, which denotes circumstances in "which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief" (Oxford English Dictionary, n.d.). Oxford's definition of post-truth reiterates the cited perception that public audiences are essentially irrational; nowadays, more than ever, emotion, bias, and personal conviction have crowded the rationality and objectivity of people (Feinstein & Waddington, 2020).

Nevertheless, precaution must be taken about the previous argument on ignorance, especially when the discussion in in social debates exclusively center on the attempts to label one's opponents as irrational or ignorant. In the first place, stupidity and irrationality are features that no person is normally willing to accept, and simplifying the origins of informational disorder at this extent may even lead to worse problems. McIntyre (2019) warns that "parents who have questions about the safety of vaccines are often scolded by their physicians and told they're being irrational" (p. 696). However, according to McIntyre, this approach discourages parents and typically makes them search for alternative specialists (e.g., anti-vaxxers gurus) to obtain answers to their questions. Highlighting that people who hesitate to get vaccines or vaccinate their children do so not out of ignorance or irrationality is important. Instead, they perceive the risks of vaccines in terms that differ from those than science, whose ponderings on efficiency and uncertainty considers the population level (Sharon & Baram-Tsabari, 2020). This broad scientific discourse fails to convince these people, because they consider vaccine safety in terms of the particular health conditions and other particular features of their children such as genetic heritage and first-year development (Leach & Fairhead, 2007).

Through analyses of studies that conducted interviews on British parents in community-based postnatal groups in the early 2000s, Goldenberg (2016, p. 566) states that,

> [....] This effort by parents to figure out their own children's risk of adverse events should not be read as ignorance of science or as an anti-science view. Instead parents appear to be incorporating established knowledge that immune responses do vary and are trying to fill the knowledge gap regarding preceding or causal events.

In fact, framing the informational disorder problem by establishing ignorance or the lack of scientific literacy as its roots apart from simplifying it places science education in a privileged position, because the solution would rely nearly exclusively on educating people. However, this is insufficient for the solution of the causes. Goldenberg (2016) states three reasons for the refusal of the public to accept the scientific majority opinion, which can explain their tendency to give credit to scientific information disorders. The first is the most common, which has been presented and discussed: the general population cannot comprehend the scientific content of the consensus. The second is that the lay public is unable to comprehend the epistemic values of widely-held expert opinion. Here, a common understanding is that the second reason is also related to the ignorance argument in that, thus far, it refers to the lack of knowledge or competencies regarding the elements of scientific epistemology and practices, which can be taught and learned in natural science classes (Hottecke & Allchin, 2020; Miller et al., 2021; Reid & Norris, 2016). The last reason is also the last-considered one and refers to the recent weakening of the trust relationship between science and lay people, which casts doubts on scientific consensus and its epistemics weights.

In fact, the hypothesis that lay people lack the knowledge or the cognition (the ignorance argument) possessed by scientists, such that lay people are predictably vulnerable to believe and share scientific informational disorders, has substantial evidential support (Gomes, Penna & Arroio, 2021; Roozenbeek et al., 2020). Gomes, Penna and Arroio associate low levels of formal schooling with increased chances of believing in erroneous scientific information as per the following reports (in which only one of them is true): the death of bees due to genetically modified corn, a supposed machine that separates colorful balls using quantum physics, the potential of developing eye cancer by using cell phone in the dark, and an alleged virus infection that causes ulceration in the body and originates through contact with a species of cockroaches.

Alternatively, several lines of research have reiterated the evidence that cultural, political, and social affiliations influence the interpretation of people of scientific findings, especially in the case of socioscientific issues. The cultural cognition thesis (CCT) explains this phenomenon by positing "a collection of psychological mechanisms that dispose individuals selectively to credit or dismiss evidence of risk in patterns that fit values they share with others" (Kahan, Jenkins-Smith & Braman, 2011, p. 148). Supporting the CCT propositions, Kahan and coleagues (2012) provide evidence that concerns about climate change decreased among US Americans with the increase in science literacy and numeracy. Moreover, cultural affiliation influenced positive awareness among them than did scientific reasoning capacity. The study also demonstrated that attitudes toward climate change are polarized among people with more schooling, at least in the United States.

The previous finding does not present any unedited argument, which links subjectivities and historical and cultural contexts to the sense making of people about science. For example, Boulware and coleagues (2003) identified patterns of trust in components of the US healthcare system according to the race of respondents. Basically, African Americans presented low levels of trust as a potential result of a "legacy of racial discrimination in medical research and the health care system." In Brazil, partisan affiliation also seemingly influenced the perception of the population of scientific risks regarding COVID-19. Using an anonymous mobile location, card transaction data, and election information in 2018, the researchers documented a significant decrease in social distancing in pro-government regions after president Bolsonaro most visible events in the beginning of the COVID-19 pandemic advising the Brazilians against self-isolating behavior and policies (Ajzenman, Cavalcanti & Da Mata, 2020).

Notably, the lack of scientific literacy and cultural affiliation are seemingly coherent for explaining the people's perception of and interaction with science and risks and for providing a reasonable explanation of the elements that influence the circulation of scientific information in society. For example, one may not expect that students will comprehend the role of expertise and consensus and the critical role of credibility in scientific communication without knowledge about scientific concepts and the nature of science. Such comprehension is indispensable to avoid being misguided by the idea that climate change is a scam, hoax, or fraud (Allchin, 2005).

Although this work is not dedicated to solutions to the information disorder problem, sharing preliminary insights on addressing it with consideration of unique culture and values is important to enable the science education community to view it through a broad and complex lens. Feinstein and Waddington (2020) advise that, "If we wish to change how people grapple with scientific knowledge, we must understand their social and cultural positionality" (p. 6). Kahan and coleagues (2012) add that, "as citizens understandably tend to conform their beliefs about societal risk to beliefs that predominate among their peers, communicators should endeavor to create a deliberative climate in which accepting the best available science does not threaten any group's values" (p. 734).

Scientists as Vulnerable to Information Disorders

Undoubtedly, science offers powerful insights that help people act in and understand the world. This notion explains why science occupies a privileged epistemic position in modernity. However, scientific enterprise faces a parallel set of information disorder, which affects science development and may even worsen the general scenario of disinformation and misinformation if such disorders are *leaked* to the general public (Swire-Thompson & Lazer, 2022).

One of the most emblematic and disrupting episodes of disinformation about scientific practices became known as the Piltdown Man. In 1912, an amateur antiquarian and solicitor named Charles Dawson claimed to have discovered evidence of the *missing link* between man and ape. After contacting and convincing English paleontologist Arthur Woodward about the breakthrough discovery, archaeological evidence was collected of a human ancestor that supposedly lived 500,000 years ago. The findings obtained significant acceptance from the scientific community. However, 40 year later, with the arrival of new dating technology, the remains of the Piltdown Man were identified as artificially forged by the assemblage of an orangutan's jaw and the skull of a human. According to the British Natural History Museum of London (n.d.), "scratches on the surfaces of the teeth, visible under the microscope, revealed that the teeth had been filed down to make them look human [...] Most of the finds from the Piltdown site had been artificially stained to match the local gravels." In 2016, another investigation indicated that Charles Dawson may be the mastermind behind the hoax and "his hunger for acclaim may have

driven him to risk his reputation and misdirect the course of anthropology for decades" (De Groote et al., 2016, p. 2). Notably, in the case of the Piltdown Man, science was used afterward as a remedy to unmask the hoax, although scientists were unable to identify disinformation before it was taken as a legitimate scientific theory.

One may argue that what this previous event is illustrative of scientific information disorder in that the anthropology science community was a victim of an *outsider* who was willing to put his name in the history of science by resorting to unscrupulous methods. However, this form of disorder is not rare among specialists, because "scientists compete for eyeballs just as journalists do. They face incentives to hype their work and to selectively publish those findings that are surprising and clickable" (West & Bergstrom, 2021, p. 1). In 1998, British gastroenterologist Andrew Wakefield and colleagues hypothesized a causal link between measles, mumps, and rubella (MMR) vaccine and autism in a study on 12 children, which was published in the prestigious medical research journal Lancet. The investigation was highly controversial due to its flawed methodology and speculative findings. Goldenberg (2016) underlines that Wakefield's study was developed with a nonsignificant number of patients and without a control group and departed from an uncritical approach that considered the testimony of parents who believed that MMR was the case of autism in their children. After the publication and intense media coverage, the health research community worldwide systematically discredited the study; in 2010, *Lancet* retracted the publication (Goldenberg, 2016). As a result of a four-month investigation conducted by British reporters, Wakefield was accused of receiving money as part of a legal action taken by the parents of the children against the MMR vaccine company (Embree, 2004).

Obiter, examples regarding the limitations of how science and scientists work are plenty, even among notorious professionals. The most prominent one may be Dr. Linus Pauling, a Nobel Prize winner in chemistry, who started a campaign for promoting the unsubstantiated proposition that vitamin C was an effective treatment for cancer and other illnesses. In terms of Pauling's case, Swire-Thompson and Lazer (2022, p. 128) comment that,

> … scientific expertise is extremely domain specific, and people who appear to have expertise can often do the most harm. […] if a cardiologist makes recommendations about climate change, the audience can see that this is an opinion rather than expert advice.

Without a doubt, science has problems; however, this notion does not imply that it is broken, which is an irresponsible inference made by eager denialists that depart from the failures and limitations of scientists and science. "Far from it. Science is the greatest of human inventions for understanding our world, and it functions remarkably well despite these challenges" (West & Bergstrom, 2021, p. 1).

With the emergence of the Internet, changes in the information production scenario have intensified the problems of the scientific information ecosystem. During the COVID-19 pandemic, publications with controversial claims and without systemic peer review were published online without restriction. Two cases stand out. The first was an allegedly scientific study posted on BioRxiv, which is a preprint platform for biology studies. The study alleged that SARS-CoV-2 is unlikely to be fortuitous in nature (BioRxiv, n.d.). The second refers to a two-page document shared on the academic social media ResearchGate (n.d.) and proposes that SARS-CoV-2 escaped from a laboratory in Wuhan, China. Despite the unsubstantiated arguments, the first document received intense media attention, which was retracted after intense repercussions; the second document became very influential within conspiracy circles (West & Bergstrom, 2021). Notably, MIL in cooperation with scientific literacy, which are both dedicated to the production of scientific knowledge and penetration into society, provides numerous contributions in this respect. This multidisciplinary approach may provide people with a critical view on scientific knowledge and its divulgation. The reason is that, today (maybe more than ever), scientific communication and media regulation tools (e.g., peer-review systems, paper quality parameters, and gate-keeping efforts by media outlets) dedicated to maintain a healthy scientific information ecosystem are insufficient or ineffective to a certain extent.

Indeed, science suffers from a series of limitations and problems that rarely give rise to scientific misinformation and disinformation: from predatory journals, publication bias, and pseudoscientists to misinformation and disinformation spread by legitimate scientists (for more examples and complex discussion, see Swire-Thompson & Lazer, 2022; West & Bergstrom, 2021; Saltelli & Funtowicz, 2017). However, why should the natural science education community take the problems of information disorders in scientific practices seriously? In this regard, Swire-Thompson and Lazer (2022, p. 132) make an interesting causal relation: "[…] If we do not improve the scientific information ecosystem, people will reduce

trust in all science, regardless of quality." In fact, a number of studies associate Wakefield's study and its intense repercussions worldwide to the low rates of MMR vaccine uptake and multiple breakouts of measles since the beginning of the 21st century, especially in Western Europe and North America (Hussain et al., 2018).

Despite its problems, the generalist perception that the public looks to science for accurate information even in times of constant and systematic attacks remains accurate. However, this reliance is highly dependent on trustiness, which is influenced by the production and circulation of scientific information in society (West & Bergstrom, 2021). Disinformation and misinformation produced in scientific practices could easily undermine this trustiness relation, which impacts science financing and its commitment to public good. As a result, this scenario may be catastrophic.

Science Education — Not the Only Solution

Education plays a pivotal role in helping people navigate through an era marked by significant and influential levels of information disorders. However, the expectations of scholars and educators from education are seemingly excessive, or, in certain cases, incoherently elevate education as the only long-term solution to information disorders. Problems related to the current informational age are part of a phenomenon that is sufficiently complex to not only rely on the efforts of formal education (Feinstein & Waddington, 2020).

Awareness of the extent to which science education may be effective is important given the complexity in which information disorders are embedded. For example, science teachers could cover natural science contents that will help students identify the flaws and health risks in the suggestion by Donald Trump that inoculation of disinfectants in people could kill SARS-CoV-2 and clear the lungs (Clark, 2020). In another scenario and based on the nature of the scientific approach, teachers could tackle problems associated with the lack of evidence and consensus of discourses that defend the administration of hydroxychloroquine and ivermectin in patients with COVID-19. Nonetheless, considering MIL, the last two initiatives could even be enriched by increasing the aware of students of elements that are typically used to increase the *credibility* of health-related claims such as logical reasoning and appeals to emotions

and authority (Locatelli, 2021). However, these approaches cannot be extended to elements whose actions will be more significantly affected by institutional regulation and stakeholder awareness. The Cambridge Analytica scandal, which involved the data collection of more than 50 million Facebook users to influence the 2016 US presidential election (Wong, 2019) illustrates the constraints of education and the importance of heavy regulations on data privacy and protection on the Internet.

Essentially, information disorders are not a problem exclusively for (science) education. This argument relies on scholars who link the contemporary phenomenon of information disorders to social changes such as recent partisan approaches of news media (Iyengar & Massey, 2019), the emergence of political polarization on climate and energy policies (Fraune & Knodt, 2018), and changes in the cultural status of science (Feinstein & Waddington, 2020). Therefore, caution must be taken regarding the idea that education alone can solve the problem given the complexity of information disorders regarding its cause–effect relationship. Notably, we highlight that this work does not deny education as an indispensable resource for addressing informational disorders. Once again, education plays a major role but needs to be accompanied and reinforced with the engagement of other actors and institutions.

> Education alone does not offer the long-term solution to the post-truth era. Education cannot regulate social media or prevent foreign disinformation campaigns, it cannot change laws to make policy elites more accountable to citizens, and it cannot eliminate the structural factors (entrenched special interests, gerrymandering, systematic disenfranchisement) that exacerbate political polarization. What education can do is help people cope in this fragmented and chaotic landscape of contested knowledge, in which some of the old institutional supports stand in need of repair or replacement. (Feinstein & Waddington, 2020, p. 3)

Awareness the limitation of education in this issue is crucial. Otherwise, society will be placing the onus of responsibility only on people who, once educated, will bear the responsibility to appropriately address information disorders. From this perspective, Feist and Waddington (2020, p. 2) poses a rhetorical question to the natural science education community: "If navigating the post-truth era is the responsibility of (properly educated) individuals, why fix the institutions?" Science educators need to be aware that systematic propositions are likely to exert much larger impacts and apply this awareness to teaching–learning practices.

For this reason, addressing informational disorders is also a problem for scientists, technology companies, news outlets, social media platforms, universities, research databases, and policy-makers.

However, others may expect that appropriately literate citizens will critically transform institutions and establish changes in the economical, societal, and political spheres, thus, mending the current chaotic landscape of contested knowledge. Although the previous argument makes sense, acknowledging that a citizen and critical perspective, which is subtended to a number of expected roles of education, is not an intrinsic condition to it is necessary for obtaining support in critical pedagogies (as an example). Instead, it is a political one that opposes itself to other established perspectives to maintain or drive social actors to positions of power or submission. The initiatives of Russia's so-called ministry of enlightenment in the areas they occupy in Ukraine illustrate this educational perspective. It demonstrates how an education system under state power can be used to disinform: in occupied areas of Ukraine's south, history classes are being taught differently using textbooks that make false statements about pre-war events (Devlin & Korenyuk, 2022). In other words, recognizing that education, apart from its constraints in helping citizens address information disorders, may be used to increase disarray is vital.

In this sense, Arroio (2020) reinforces the importance of education and the need to increase the number of studies on disinformation and education. In fact, these studies remain scarce, and only a few are focused on identifying disinformation among students and even less focus on teacher training and the impacts on their practices. This unfortunate scenario illustrates the urgent need for discussion on the role of MIL (Arroio, 2017), because a portion of the population with low levels of education is evident. As such, disinformation that stimulates intolerance and hate speech easily manipulates this low capacity for critical thinking (Arroio, 2019). Thus, science and MIL are imperative for nurturing *truth* in contemporary society.

Conclusion

This objective of this chapter was to address the information disorder phenomenon in the context of natural science education, which renders this phenomenon more complex that its typical portrayal even in a number of academic circles. The current study takes scientific information disorders

as objects of analysis and considers that a more complex and in-depth view about the issue may benefit the natural science education community in understanding and addressing the problem in classrooms. Importantly, this chapter, as a professional reflection, is a timely invitation to educators to acknowledge the disinformational complexity of science education and recognize the significant contribution of natural science and/or STEAM education and their pivotal role in rendering democratic societies less vulnerable to the risks of falsehood and fraud. Nowadays, fact-based thinking and inquiry do not justify themselves due to their intrinsic relationship with the natural world. Although science education requires social imagination to incorporate the social world and its structuration into its discourse. For example, deliberate attempts to segregate historical minorities, disrupt democracy, and discredit scientific knowledge are very influential and are shaping social dynamics worldwide, making some states that modernity is suffering from a *truth decay*. Therefore, a definitive need exists for additional articulated and critical approaches, which implies the fight for truth, science, and democracy.

This chapter initially intended to answer questions in a pedagogical context to resist oversimplification. It aimed to explore methods for addressing the informational disorder phenomenon in the context of natural science and/or STEAM education to strengthen the epistemological foundation of science education. As demonstrated by this chapter, this concept can be vulnerable due to the dependency on public debates. Moreover, several elements should be considered and integrated into the framework, such as the role of technology in scientific informational disorders, the expectations of people about science, facts and truth, and the relationship of science with other knowledge areas in democratic societies. The fact that the study overlooked these elements in this chapter does not mean that they are less important. Thus, we encourage readers to consider a broader perspective than that presented here. Moreover, we endeavor to contribute to driving scholars and teachers away from counter-productive approaches, which are based on problematic assumptions about scientific information disorders, and to promote effective approaches for addressing this complex challenge.

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Combating Fake News: How Increased Media Competences Can Curb Disinformation Trends in Nigeria

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This study examined how Nigerians understood fake news. It took a qualitative approach, conducting in-depth interviews with 30 journalists to determine their understanding of fake news and explore how media literacy can help combat fake news. The sample was purportedly drawn from Nigeria's six geopolitical zones to ensure representativeness. Gatekeeping Theory and Public Sphere Theory were used to better understand how journalists use their professional role of vetting information and releasing only credible information to the public. The analyzed data show that social networks facilitate the spread of false news more than mainstream media. The findings also show that fake news spreads due to factors such as time constraints, clickbait, user-generated content, and competitiveness. Media literacy is important because it serves as the foundation for being an informed and critical thinker; thus, the study recommends, among other things, that media outlets evaluate and cross-check their sources, as well as encourage politicians and government officials to be cautious in their choice of words, as they have the potential to spread rapidly and incite violence.

Keywords: disinformation, fake news, journalism; journalist, misinformation, clickbait, user-generated content, Nigeria.

The definitions of news and journalism have not changed in centuries, as they are inextricably linked. Journalism is the practice of writing news, whereas news, which has acquired a questionable qualifier as a result of the advent of Internet technology, has given rise to numerous information dissemination platforms. We now have fake news, a new type of news that is completely different from what news has always been known to be. Fake news has prompted several questions in the media industry. One such question is whether what is fake can still be called news if the term fake contradicts the very nature or characteristic of news. Fake news has also been debated whether it is a product of journalism, a profession guided and guarded by unbreakable normative boundaries (Aitamurto, 2018). Fake news has increased interest in media literacy, which is commonly defined as the ability to critically think about the information you consume and create. This includes distinguishing between facts and opinions, as well as understanding how the media can be used to persuade people.

Experts believe that the surge in fake news, which in extreme cases has resulted in death (Okocha & Akpe, 2022), has "triggered a renewed interest in various forms of media literacy" (Jones-Jang, Mortensen, & Liu, 2019). This is allegedly based on the authors' belief that media literacy intervention would help various mass media audiences be "inoculated against any harmful effects of misleading information." In an empirical study, these researchers concluded that "information literacy" can significantly increase "the likelihood of identifying fake news stories."

In an age of ubiquitous technology and media, media literacy lays the groundwork for becoming a well-informed and critical thinker. It protects individuals from undue manipulation and false information. This article does not assume that "fake news" has a widely accepted definition. News is verifiable information published in the public interest. It must be valid and truthful. Any piece of information that fails to meet these criteria is not considered news. Thus, the term fake news refers to information that does not meet the news's verifiability and public interest standards. Fake news is more than just inaccurate and misleading information

presented as news. It is a charged, weaponized term used to undermine and denigrate journalism. As a result, phrases like misinformation, disinformation, and information disorder are recommended, despite their lack of appropriateness.

While fake news is not as spectacular, Tandoc, Lim, & Ling (2018) wonder why it's become such a global topic, attracting so much attention. The primary reason is that fake news can be produced and broadcast online faster and at a lower cost than through traditional news outlets (Shu, Silva, Wang, Tang & Liu, 2017). The emergence and popularity of social media have contributed to this sudden interest (Olteanu, Castillo, Diaze, & Kiciman, 2019; Zafarani, Ahmadi, & Shahzrad, 2014). According to Uwakwe (2018), fake news began in the 12th century, when false information about Jews drinking children's blood sparked attacks that resulted in massive deaths. They reported that on Easter Sunday, 1475, fake news struck Trent, Italy, when a 2½-year-old child, Simonino, went missing and a Franciscan preacher, Bernadinho da Feltre, delivered a series of sermons claiming that the Jews had murdered the child, drained his blood, and drank his blood to celebrate Passover. The rumors spread rapidly. Even after the boy's body was discovered, the Prince-Bishop of Trent, Johannes IV Hinderback, immediately ordered the city's entire Jewish community arrested and tortured. Fifteen of them were found guilty and executed at the stake. When the story inspired people in nearby areas to commit similar crimes, the papal leadership intervened in an attempt to put an end to both the lie and the murders.

Today, with the rise of social networks, people are easily duped into believing, sharing, and even acting on false information. As a result, the demand for fact-checking and analysis has increased, and both news consumers and practitioners bear responsibility. There is a growing debate about how to address these concerns while maintaining the benefits of digital media. Individuals can improve their media literacy skills by learning to distinguish between truth, satire, falsehood, dislike, and inaccuracy, as well as understanding why fake news has become so popular.

In this paper, disinformation refers to deliberate (often orchestrated) attempts to confuse or manipulate people through dishonest information (Grange, 2019). Today, we have online journalism, which the newspaper industry had to adapt to over time and with a lot of effort. With the advent of the Internet, printing became more expensive, making online publication

an option. It became clear that people were not abandoning the news; rather, they were receiving it in different, more convenient formats. The key is to adapt or fail. Because it allows content to be distributed without the use of physical infrastructure, online newspapers have been able to avoid government restrictions and gatekeeping. Because the sources were not fact-checked, there was a chain result of disinformation and misinformation.

Journalism has grown in popularity, and news is now much more widely available. As a result, "fake news" can quickly spread to a large impact of people. It is also worth noting that as people become accustomed to receiving more and more information in real time, their demand for additional information, whether factual or opinionated, will increase. Facts are true accounts of what happened or existed, whereas opinions are interpretations of what happened, usually from one person's perspective. This could result in the spread of false information. This study examines Nigerian journalists' perspectives on fake news and its spread in the Nigerian public sphere.

Objectives of the Study

This study explores into Nigerian journalists' perceptions of fake news and how media literacy awareness can help combat disinformation and misinformation that are classified as fake news. This study is divided into two sections: empirical and theoretical, and it concludes with policy recommendations. The study has three objectives. First, the study will look into how newsroom staff perceive fake news. Second, to gain a better understanding of the phenomenon, we intend to identify the causes of the increase in fake news in Nigeria. Third, we want to look into how media literacy can help to curb fake news trends.

Theoretical Framework

The study used the public sphere theory and the gatekeeping theory. Habermas developed the concept of the public sphere in the 18th century, claiming that it was distinguished by its critical nature, as opposed to the representative nature of the feudal system (Boeder, 2005). According to Hauser (1988), it is a discursive space where people can share their

perspectives in order to reach a consensus judgment. This critical nature is jeopardized by the power of mass media, which converts the majority of society into a passive audience, the goals of consumer culture. Ajakaiye and coleagues (2019) argue that the media's classification and atomization of the public domain is central to the theory. The massification of the media simply shows how access to the media is no longer limited to professionals. Amateurs alike have free access to report happenings around them by using Web 2.0, regardless of how ethical or unethical their report is (Flichy, 2019; Jinatu, 2016; Ajakaiye et al., 2019). Despite the ambiguity of this concept, it is possible and beneficial to develop an analytical framework that reflects the complexities of the public domain in contemporary society. Even if we acknowledge this complication, we must remember that any attempt to present a systematic account of the nature of the public sphere will inevitably be contentious.

It is reasonable to conclude that Ajakaiye and coleagues (2019) made an appropriate contribution. Ajakaiye and coleagues (2019) defined the public sphere as an arena in which citizens have unlimited access to subjects of general concern, fueled by freedoms of assembly, association, expression, and publication of opinions without undue economic or political restrictions." As a result, various social media groups (Facebook, Whatsapp, Blogs) and websites have been launched on the Internet and used for chatting and uploading information, which in most cases become avenues for peddlers of fake news to carry out their misdeeds to the detriment of those who are ultimately harmed.

Democratization processes in a trending political debate between political parties are adversely affected by bloggers and subscribers to social media platforms in an unregulated public environment and are not controlled by any social gatekeeper (Grange, 2019). According to Cela (2015), it is a well-known fact that the emergence of new media and rapid development in the communication technology sector have fueled unprecedented transformations, even in terms of the public sphere and public discourse. Cela observes that social media platforms such as Facebook, Twitter, Instagram, and YouTube have become the "new communication field being used from the public factors to communicate with the audiences." According to him, the technological opportunities provided by these platforms have made it easier for message senders and receivers to "communicate in a higher level." His conclusion is that social networks have reduced visibility and eliminated barriers between information providers and consumers. Furthermore, and most importantly, social networks have

"made the communication more democratic by empowering the simple people who were very passive in the past" (Cela, 2015). However, Fuchs (2014) continues to argue that more media reforms are required to create "a social media sphere" that transcends control and represents the public interest' in order to realize the media's social potential.

In Nigeria's public domain, the rise of social networks creates a new public realm with ill-defined boundaries in terms of freedoms of assembly, association, and expression (Ajakaiye et al., 2019, p. 1675), highlighting the theory's relevance to this study. This theory is also relevant to this study because its primary goal is to assess the perspectives of media personnel as a representative of the entire population that constitutes the public sphere.

Gatekeeping Theory

Kurt Lewin proposed the gatekeeping theory in 1947. According to Harcup (2014, p.114), gatekeeping theory portrays journalists as gatekeepers who allow some events to become news while closing the gate on others. The assumption of theory is based on the professional role of vetting information and making only credible information available to the public. Thus, gatekeepers either allow or prevent information dissemination. Some people questioned the theory because of a bias that the gatekeeper could have. According to Shoemaker and Vos (2009), gatekeeping determines the information chosen as well as the content and type of messages.

> The emergence of new media appears to have removed the barriers to news distribution. The new media has enabled anyone with information to access the platform and publish stories online without being subjected to gatekeepers. Anaeto, Onabajo, and Osifeso (2008, p.93) It appears that the concept of gatekeeping has vanished with the internet. The internet and its user-friendly World Wide Web graphical overlay are the best examples yet of a postmodern medium; it provides the opportunity for the creation of a highly All relevance, all meaning, is relative to an individual perspective in a personal interface.

Gatekeeping determines why journalists use certain stories and drop others, particularly in traditional media. According to Welbers and Opgenhaffen (2018), this theory ensures that news stories are chosen and shaped based on priority and other mysterious factors used by gatekeepers. According to

these scholars, even reporters are gatekeepers because, before their reports reach the editors in the newsroom, they must make individual decisions about whether an event warrants a specific news slant or approach, or any report at all. They believe that even after a report has been posted on social media, those who comment or forward it to other groups must decide which parts of the report are worth reposting. According to Shoemaker and Vos (2009), "essentially, this makes every actor who is exposed to the content a potential gatekeeper, albeit with different levels of influence." Gatekeeping in the digital media era, with unprofessional participants in the media process, has received a lot of attention due to the unique nature of information dissemination in new media.

However, critics of gatekeeping theory believe that certain news items were prevented from reaching the public due to factors that could jeopardize the organization's business opportunities. The danger of citizen journalism stems from the amateur's potential bias as a result of the lack of someone to critically scrutinize the information/news items that will be circulated to the public. Gatekeeping is a call to conscience that embodies moral principles such as truth, objectivity, fairness, and responsibility. One of the theories used to anchor this study is gatekeeping theory, which is concerned with verifying the authenticity and value of news sources. This is one of the most effective ways to combat fake news because it only publishes verifiable information, which is why it was used in this study.

Literature Review

The Concept of Fake News

Even journalists have struggled to define false news. Pate, Gambo, and Adamkolo (2019, p. 21) define fake news as "fraudulent, inaccurate, or false verbal or visual messages disseminated for public attention via conventional or social networks to mislead, misinform, or misdirect."

It has been described as "a purposely and verifiably false news article" (Allcott & Gentzkow, 2017; Shu et al., 2017), which overlaps with fake news, disinformation, and misinformation is "a news piece or message released and promoted by the media, providing false information independent of the means and reasons behind it." (Golbeck et al., 2018). Furthermore, what news is has become increasingly difficult to define as it ranges from a dramatic narrative of something unique or deviant to an

account of a current, intriguing, and noteworthy occurrence; in particular, "the digitization of news has challenged traditional definitions of news." Nonjournalists can use online platforms to reach a large audience. (Tandoc Jr et al., 2018). Fake news is information that is intentionally false and published by a news organization. This definition supports recent studies in fake news research (Allcott & Gentzkow, 2017; Shu et al., 2017). Addresses the public's perception of fake news, particularly in the aftermath of the 2015 Nigerian presidential election. Note that deceptive news is more destructive and difficult to distinguish from carelessly false news, as the former pretends to be true in order to deceive the public more effectively. The definition emphasizes authenticity and intentions; it also ensures that the information posted is newsworthy by determining whether the publisher is a news organization.

Pate and Adamkolo (2020) and Titilayo (2019) capture the role of the Internet in promoting fake news, stating that, as it stands today, fake news would not have been able to rise in an unprecedented manner without the advent of the Internet (Livingstone, 2014). Therefore, for this research, fake news is defined as information that is falsely disseminated to the public through online or offline media in order to misinform or mislead the audience about an individual, group, or topic.

The Issue of Fake News

Fake news differs from legitimate journalism that adheres to professional standards and ethics. At the same time, they differ from examples of poor journalism that falls short of its potential. For example, continuous (and untreated) inaccuracies caused by insufficient research or careless verification are examples of problematic journalism. It entails sensationalizing for impact and hyperpartisan fact-finding at the expense of fairness. However, this is not to assume an ideal of journalism that transcends all embedded narratives and points of view, as substandard journalism is influenced by ideology. Rather, it indicates that narratives are present in all forms of journalism and that the issue with subpar journalism is not the presence of narratives, but rather a lack of professionalism. This is why weak journalism is not synonymous with disinformation or misinformation. However, poor journalism can allow deception and misinformation into the legitimate news system. However, the causes and solutions to poor journalism differ from those for "fake news."

Simultaneously, strong ethical journalism is required as an alternative or antidote to the contamination of the information environment and the consequent spillover effect of news tarnishing in general.

Journalists are no longer passive observers of the flood of misinformation and deception. They are also on the path. This means that:

1. Journalism runs the risk of being drowned out by cacophony.
2. Journalists are vulnerable to manipulation by actors who violate public relations ethics by attempting to mislead or corrupt journalists into spreading false information.
3. As communicators who work in the service of truth, including "inconvenient truths," journalists can become targets of lies, rumors, and hoaxes designed to scare and discredit them and their work, particularly if they threaten to expose those who commission or perpetrate a deception.

Furthermore, journalists should recognize that, while social media is the primary source of disinformation, powerful actors today are using fake news concerns to crack down on legitimate news networks. New and harsh laws are scapegoating news organizations as if they were the originators or lumping them together with broad new restrictions that indiscriminately ban all types of information and activities. Such regulations are frequently out of sync with international principles, which require that restrictions on expression be demonstrably necessary, proportionate, and for a legitimate purpose. Their effect, even if not usually the goal, is to subordinate legitimate news organizations to a "minister of truth" who can suppress information for political purposes. In today's climate of disinformation and misinformation, the ultimate risk is not an unjustifiable regulation of journalism, but that the public will become skeptical of all content, including journalism. People are more likely to accept content recommended by their social networks as trustworthy if it matches their emotions - however, this scenario excludes involvement with their heads. The negative effects for public perceptions of health, science, intercultural understanding, and the status of true expertise are already clear. These hazards are why journalists must confront the rise of fake news head on. At the same time, the dangers provide an opportunity to step up efforts to demonstrate the importance of the news media. They allow you to emphasize the importance of presenting verifiable information and educated viewpoints in the public interest when practicing your profession.

Fake News in Nigeria

According to Uzochukwu and Okafor (2019), fake news became prevalent in Nigeria prior to the 2015 general election, when the duo was used for political party campaigns, particularly between the ruling party and the most effective opposition party. Fake news has been a source of concern in Nigeria, particularly prior to, during, and after election campaigns, as well as during ethnoreligious farmer/farmer clashes. The trend continued in 2015, when the All Progressives Congress presidential candidate, Muhammadu Buhari, was alleged to have died in London during the peak of the campaign. This report became a pivotal moment for the People's Democratic Party (Ogboshi, Oyeleke & Folorunsho, 2019).

Lai Mohammed, Nigeria's Minister of Information and Culture, took the time in 2018 to launch a campaign against fake news and hate speech after recognizing the dangers that the country could face if fake news was not controlled. The Minister visited media organizations, including online publishers, as part of his campaign (Uzochukwu & Okafor, 2019). He described fake news as a ticking time bomb waiting to explode, given Nigeria's multi-ethnic and multi-religious configuration (Uwakwe) (2018, p. 112). The minister referred to the fact that, rather than promoting peace and development in the country, some political elite had recently "manipulated socioeconomic conditions such as religious differences, tribal differences (political differences), and poverty to disturb and possibly overthrow political enemies." (Aper, 2003, p.36) by using fake news to fuel their personal ambitions.

The minister urged media organizations not to let the public lose trust in them because of the spread of false news, which could disrupt social order and peace. He emphasized that if people lose trust in the media, society is in trouble (Uwakwe, 2018).

Fake news has been used primarily during election campaigns (Pate & Adamkolo, 2020). Thus, politicians and their allies, as well as prominent citizens, have made statements that can be interpreted as spreading fabricated or misleading information. Some of the fake stories that circulated online and in mainstream media are listed below.

1. "If the 2015 elections are rigged, the party will not recognize the outsource and will go ahead and form a parallel government" -Lai Mohammed (Ajakaiye et al., 2019).

2. Buhari has died, and Jubril Sudani is now Nigeria's president. Aside from this statement, the picture of President Buhari was placed alongside that of Jubril online (Ojebode, 2018).

3. "Breaking: We have spent one Billion Naira on SMS just to educate Nigerians-National Centre for Disease Control." The headline NCDC claims was false (@NCDCgov on Twitter 9/4/2020)

4. "Lesbians, Gay, Bisexual, and Transgender movement endorses Atiku for president, gives reason" (Segun October 26). Atiku Abubakar subsequently distanced himself from the group and declared it untrue.

The above fake news and hate speech came from both high- and low-profile sources, as previously classified by Pate and Adamkolo (2020). False news was spread through mainstream and social media channels.

Rise of Fake News Within Social Networks

Social networks are the primary driving force behind fake news in the 21st century. Social media was supposed to be a platform for individuals and groups to maintain social connections among themselves, but it has over the years become a tool for sharing information, and in most cases, those who share such information do not bother to know the source of the information; their concern is to forward the information as received (Hoque, 2022).

The digital era resulted in the rise of the audience, the removal of barriers to publication, and the transfer of production tools to individuals. Productage is the function and practice of engaging the audience as co-producers of content, such as news. Peer-to-peer material distribution (particularly on Facebook) began to disrupt traditional methods of information delivery as people developed trusting networks. Users curated their content streams, which included content from news services, journalists, and other reliable information sources, without the need for mediation. Accurate, fraudulent, malevolent, and propagandistic content masquerading as news gained traction due to distribution via "trust networks" (users and peers). According to Hoque (2022), emotional content and content posted by a friend or family member are more likely to be shared on social media.

The advantages of audience-networked journalism include the ability to crowdsource diverse sources, perform collaborative verification (useful

to correct misinformation, debunk disinformation, and identify malicious actors), and build loyal audiences (supported by direct interaction between the news consumer and the journalistic actor). They also give the audience the ability to "talk back" in order to correct the record when reporters make mistakes or to collaborate on research. The networked public sphere also helps journalists and audiences avoid arbitrary constraints and censorship (for example, layers of "spin doctors"), which can be impediments to free societies and information access. The use of social media by journalists to interact with audiences and information sources can be considered a significant new aspect of accountability frameworks that aid self-regulation (Hoque, 2022).

These interactions enable journalists to respond openly and quickly to justified criticisms of their work, to correct errors immediately, and to increase the transparency of their practice by incorporating content into the process.

The disadvantages include an increased likelihood of disinformation and misinformation spreading virally, which is aided by trust networks and emotional reactions, the ability of governments and other agencies to avoid news media interrogation and verification by "going directly to audiences," and the inability to easily retract or correct fake news once it has spread. No amount of debunking or reporting on a falsehood will diminish the impact of a fabricated story, a malicious meme, a propagandistic video masquerading as news, or an incorrect report caused by a failure to verify.

The pressure to publish quickly on social media sites can lead to the unintentional spread of disinformation, misinformation, and material from questionable sources. This means that in many cases, general social media users are unprepared to determine whether the content is genuine before sharing it. The pursuit of vitality over quality and accuracy is a problem that machine learning is likely to exacerbate.

There is no true media convergence because many journalists are now responsible for producing content for multiple platforms (from mobile to print), reducing the amount of time available for proactive reporting as opposed to reactive strategies such as repurposing public relations content without proper analysis. Reporters are increasingly expected to subedit and publish their stories without proper review. Social-first publishing is common; practices such as "live tweeting," "Facebook Live" videos, and other journalistic acts that do not necessarily involve

editorial oversight (similar to live to broadcast) may result in a "publish first, check later" mindset.

Clickbaiting practices, defined as the use of misleading headlines to entice readers to click on links under false pretenses, are intended to increase traffic but have been linked to a loss of trust in professional journalism.

News and Media Literacy

News literacy refers to the ability to understand the language and traditions of news as a genre, as well as recognize how these elements can be abused with evil intent. Increasing individuals' awareness and their responses to news materials is an important aspect of media literacy (Livingstone, 2014). It allows people to gain insight into their own identities. This empowerment enables people to recognize and resist being duped by fake news that masquerades as news.

Sloppy reporting and insufficient publication processes can result to news that fails to meet ethical standards, as well as news that is purposefully false and thus fraudulent. Media literacy is required to understand the distinction and how such cases compare to professional and ethical news. Today, people get the majority of their news from social media, traditional media websites and blogs, and mobile devices. It is difficult, if not impossible, to define professional journalism.

People with media literacy can learn to recognize that even authentic news is always composed and consumed within larger narrative frameworks that give meaning to facts while also involving broader assumptions, ideologies and identities. This includes the ability to distinguish between various journalistic attempts to capture and interpret salient reality and instances of deception that exploit the news format while violating professional verifiability standards. Multilingualism plays an important role in achieving this goal. Media literacy can also help to dispel stereotypes and promote intercultural dialogue. However, much more needs to be done in practice to mitigate the impact of fake news (Abu-Fadil, 2007).

Inflammatory political propaganda has thrived on social media platforms. People all over the world are concerned that fake news and other forms of inaccurate information will misinform voters, prompting government

action in some nations to address the problem. Despite being largely overlooked in the emerging empirical literature on digital disinformation and fake news, the concept of media literacy captures the skills and competencies required to successfully navigate a complex and fragmented information environment. Most people struggle to assess the quality of information they receive online because they lack the necessary skills and contextual knowledge.

Two related but more specific approaches are somewhat effective at combating misinformation. First, inoculation interventions have been used to protect audiences from misleading content by alerting them to false claims and correcting or identifying the strategies used to spread them. In specific domains, this strategy has been shown to reduce the prevalence of misinformation. Furthermore, several studies have examined the efficacy of issuing specific warnings about misleading information. As a result, we want to see if efforts to promote media literacy can improve respondents' ability to accurately assess the precision of content across issues. The findings would determine whether a lack of media literacy is a major contributing factor to people falling for fake news.

We examine the effects of Facebook's "Tips to Spot False News," which were developed in collaboration with First Draft and then promoted at the top of users' news feeds in 14 countries in April 2017 and printed in full-page newspaper advertisements in the United States, United Kingdom, France, Germany, Mexico, and India. According to Via (2018), WhatsApp (a Facebook subsidiary) advertised a variant of these tips in India and Pakistan.

Guess and coleagues (2020) investigated whether media literacy interventions reduce belief in false news, increase belief in mainstream news, and improve respondents' ability to distinguish between them. The findings show that a lack of media literacy is an important factor in why people believe misinformation found online. We found that simple and scalable media literacy training can reduce people's perceptions of the veracity of fake news while distinguishing it from mainstream media news. The study also suggests that media literacy campaigns could be an effective strategy for combating misleading news. Second, the study found that the effects faded over time, indicating that social media educators should reinforce these lessons on a regular basis. Third, while the intervention increased overall discrimination between true and misleading news

headlines, it had a minor but significant negative impact on the perceived accuracy of mainstream news articles. They lack sufficient evidence to conclude that the intervention affected the consumption of false news in the real world, "perhaps because information habits are ingrained and difficult to alter." Evidence indicates that treatment increased respondents' desire to share mainstream news while decreasing their desire to share hyperpartisan news, implying the possibility of changes in social media behavior. According to the findings of the study, media literacy may be a contributing factor to the widespread dissemination of fake news; however, it can also be used to prevent and combat the spread of misinformation.

Research Methods

For this study, a qualitative research method was used. The primary goal of qualitative research is to understand rather than measure. This research method is considered the most appropriate for the study because according to Lewis and Thornhill (2009), qualitative research is commonly used as an exploratory tool when there is uncertainty about the subject under investigation (Hague, 2002). This approach "…allows individuals under investigation to respond freely using their linguistic codes and displaying their natural behavioral forms…" (Gunter, 2000:277). It was motivated by the desire to obtain firsthand information from media practitioners about their experiences. The purpose-sampling technique was used to select participants from the pool of practicing journalists.

An in-depth interview was conducted with each of Nigeria's 30 practicing journalists to collect the necessary data for this study. The interview format was chosen for this study because it was flexible, allowing for more follow-up questions due to its informal nature. Participants were able to provide more information on the issues thanks to this format than they could have otherwise. Participants were drawn from Nigeria's six geopolitical zones. These six geopolitical zones encompass all 36 states as well as the federal capital Territory. The goal was to ensure that no zone was excluded in the process (Okocha & Akpe, 2022). Although not all zones produced the same number of participants, each participant was a representative sample of their respective zones. Three key areas derived from the study's objectives were selected for data collection based on responses to semistructured questions posed by the researchers. Data collection lasted 29 days (May 1–29, 2022). It featured both male and female active journalists.

Data Analysis

Data were gathered using semistructured interviews. Using a semi-structured approach, the interaction remained focused while also allowing individual perspectives to emerge. The data was compiled by recording phone conversations using a transcription app. Otranscribe. The researcher extracted themes from the interviews by reading through the transcripts and highlighting participant comments, and notable exceptions were outlined. A list of common and recurring themes from the interviews was compiled, and each theme was coded and used to create headings for the analysis section. The results are then discussed. The researcher reviewed the identified themes to see if the research questions had been answered as the final step in the data analysis procedure. Participants in the following analysis are coded as J1-J30.

Demography

This study identified each participant by geopolitical zone, state of origin, place of residence; sex, and age bracket.

Table 1. *Distribution of participants and gender*

SN	Geopolitical Zones	Number of Participants	Males	Females
1	Northwest	3	1	2
2	North East	2	2	
3	North Central	7	4	3
4	Southwest	8	5	3
5	South-South	5	3	2
6	Southeast	5	2	3
TOTAL	6	30	17	13

Source: Field Study (2022).

Fake news perception

This question stemmed from the study's first objective, which was to investigate how journalists perceive fake news. The 30 media personnel were not only unanimous in their individual responses, but also equally captivated by the subject of fake news. All interviewees agreed that fake news is an increasingly serious issue that must be addressed. Almost all of them shared the same perspective on the definition of fake news and how it has affected professional journalism. They wished for the days

when real gatekeeping was the norm in media houses, with gatekeepers performing their duties. Gatekeepers were people who were authorized to double-check every claim made in stories and, if necessary, drop any report until the claims could be verified.

J13 and **J16** clearly stated that fake news is more of an avoidable virus that has come to contaminate journalism practice in Nigeria because there does not appear to be an effective cure. Both agreed that, as with everything Nigerian, fake journalists were determined to maximize the negative impact of fake news. J15 believed that political workers were responsible for the spread of fake news in Nigeria.

Fake news as a new phenomenon?

The majority of participants agreed that fake news isn't a new phenomenon. **J5** believes that, contrary to popular belief, fake news did not begin in Nigeria recently or during the 2015 general elections. He claimed that fake news began when news media professionals began to pay less attention to content and instead focused on sensationalism. He asserts that

> People think it just happened but it's not a new thing. Its journalist's own fault—our fault. We devalued journalism when we accepted free means of media. Fact-checking resources were no longer available. We worshipped the sensational at the expense of factuality

J3 agreed when he noted that there was nothing new about fake news except the freedom and speed of its spread:

> Fake news has always been around, but the way it is being portrayed as if the news media has never done it before is deceptive.

J17 and **J21** agreed that they hardly noticed fake news in the past until the invention of the Internet, which gave rise to the creation of multiple news platforms. **J21** noted:

> For me, all the news was authentic as long as it appeared in the electronics. and print media that were fully recognized by law. It was always believed. that the gatekeepers took care of the fact check;

J17 agreed that it took a personal experience for him to notice that the creation of social media platforms also created fake news.

J10 suggested that individuals used to be less prone to believing fake news, but times have changed and people are now evaluating information differently. She is actually worried that the rate of seeming acceptability of fake news was alarming.

> I don't believe false news is a new occurrence, but what is new is that people aren't questioning the news critically.

Three participants (**J19, J22,** and **J27**) agreed separately that the Internet only hyped what was previously an ignored phenomenon, which was also labeled junk journalism. This position was echoed by more than 80% of the participants.

Why is fake news on the rise?

The participants unanimously agreed that the rise of digital media was primarily responsible for the phenomenal rise in fake news. They argued separately that fake news began to gain traction when social media enabled people to write and publish freely. This resulted in two uncontrollable events: unethical behavior and unprofessionalism. They believed that while fake news existed in the past, it was not as widely distributed as it is now.

The collective view of the participants was captured by **J14:**

> We used to call it junk or gutter journalism. Others labelled it propaganda. It attracted less attention as it has become now. But that does not mean it did not exist.

The rise in fake news has been attributed to a number of factors, the most common of which is the "clickbait" phenomenon. Although fake news is not new, the motivations behind it are, according to **J11**. Another participant, **J2**, stated that the most important incentive he sees is to increase website traffic for monetary gain, as follows.

> Fake news has always existed, but what's new today are these rogue websites that publish nothing but trash and are only interested in getting clicks and traffic... that didn't exist before.

J7 agreed with this position when he stated:

> I believe it's about clickbait, where headlines are generated based on click-through numbers and then presented as news sites, but they have no news gathering system and are sourced from fiction for profit.

J8, conversely, contends that the rise of fake news has been aided by user-generated content that appears on social media. She analyzed previous news reporting, which was fact-checked and monitored by editors, to current news reporting.

J12 believes that a lack of evaluation skills contributes to the spread of false information, as he notes:

> Some people aren't excellent at spotting fake news; therefore, I suppose the key question is: what's the difference? The difference now is that fake news is likely to be a little more sophisticated, and I believe that people lack critical thinking skills.

J5 noted that even with high evaluation abilities, it is becoming increasingly difficult to spot fake news on social networks due to the complex nature of fake news.

The rise in fake news has been attributed to a number of factors, including time constraints. In terms of news dissemination, some J1–J15 members believe that timing is critical. They also noted that news organizations do not devote enough time to evaluating, verifying, and assessing material for news stories.

Curing Fake News

The study's third goal was to determine how media literacy can help combat fake news trends. To address this, participants revealed that fake news is a problem in Nigeria's media ecosystem, and that it must be addressed with the urgency it deserves. It was agreed that unless journalists educated the public on what not to believe through media literacy, ignorant members of the public would continue to be misled into believing that all news is news as long as it appears in the mass media. Three participants, J16, J23, and J27, alluded to the need for a law to regulate the use of social media. The remaining participants were undoubtedly opposed.

Participants agreed that fake news is a growing problem and suggested additional ways to address it. **J3** states:

> Teaching effective independent verification abilities could help to combat the problem of fake news. By emphasizing the necessity of fact-checking; for example, if someone gives you false information, never trust it and always try to verify it in another way. Also, double-check your sources.

J15 and **J18** discussed how to evaluate websites based on their URLs, as well as other fundamental evaluation techniques commonly taught in media literacy courses.

Others appear to agree that more efforts should be made to combat fake news in media literacy education.

J29 states:

> Fake news, I believe, will have to be discussed in media literacy classes. Definitely, and in terms of our strategy, we need to talk about it... Addressing fake news, in my opinion, requires its own area, not just for kids, but for all of us.

J1 believes that journalists and media professionals can help solve the problem, but it is too large for them to handle alone. Educators have an equally important role to play.

The participants' belief that Nigeria lacks, but urgently needs, a regulatory body to enforce entry requirements into journalism appeared to be the most important aspect of their response. As part of media literacy, the majority of the participants declared that statutory enforcement of entry qualification into the profession, as obtained in other professions, would reduce the level of quackery that has resulted in unprofessionalism, which eventually leads to publication of information that does not meet the standards.

In specific terms, **J9** declared that

> It is only in Nigeria that journalism that does not have a strictly regulated statutory entry requirements. Medicine is different. Engineering is different.

Even nursing and other professional fields are different. But journalism has been turned into an all-comers affair because any of the people in these other professions can decide to be a journalist without any level of literacy in media management.

J11 observed that since the introduction of the Internet, it has become more difficult to define who a journalist is, because anyone who can write and publish has become a journalist without any additional training. **J10,** along with **J30**, stated that people with no media literacy have flooded the profession, and that those whose duty it would be to educate the public on fake news are now contributing to its rise rather than reducing it.

Discussion

The first objective of this study was to investigate how media professionals perceived fake news. The findings revealed that journalists are well aware of the existence and increasing negative impact of fake news in Nigeria. They also acknowledged the uncontrollable damage that fake news has caused to ethical journalism. Furthermore, they are aware that fakes have not only occurred in Nigeria; they existed prior to the emergence of social networks, but they were not given much attention because their spread was not widespread or their impact was not significant. These findings confirmed Okocha and Akpe's (2022) earlier conclusion that Nigerians had encountered fake news several times before, and that social media only accelerated its spread and broadened its scope.

The findings also confirmed the need for continuous media outlets to eliminate all unverified information. Participants see the enforcement of normative boundaries by media organizations and individual journalists as an antidote to fake news. This assertion justifies using gatekeeping as a theoretical framework to analyze the study's findings. It also confirms Welbers and Opgenhaffen's (2018) assertion that reporters are gatekeepers, capable of making individual decisions that can reduce or eliminate fake news.

The second goal of the study was to identify the causes of the rise in fake news in Nigeria. The findings showed that the emergence and widespread spread of digital media is the primary cause of the escalation of fake news in Nigeria, as well as around the world. Participants unanimously agreed that prior to the invention of the Internet, which resulted in the proliferation

of social media platforms—a virtual environment that allows everyone to gather and express their opinions - fake news was limited to a few junk publications or was regarded as gossip that could be easily traced and ignored. However, the trend has stalled due to the rise of ubiquitous social networks. This finding supports the use of the public domain as a theoretical framework in this study.

The findings also show that the rise of fake news is due to social media platform operators' insatiable desire to gain an advantage over one another by publishing false but sensational information that will attract public attention and increase traffic to their websites. This easily results in increased advertising revenue. The very nature of social networks, which allows published information, whether true or false, to be sent to any recipient, has also been identified as a contributing factor to the widespread spread of false news in Nigeria. This supports Hoque's (2022) hypothesis that both emotional social media content and content posted by friends or family members are more likely to be shared by recipients.

Another aspect of the discovery revealed that the attitude of political jobbers seeking an advantage over one another has resulted in the proliferation of fake news. This is because such publishers have exploited the democratic nature of digital media to disseminate information that is hardly news, as long as it gives them an advantage over their political opponents. These findings support Pate and Adamkolo's (2020) claim that fake news is primarily used during election campaigns for selfish reasons, with no regard for the negative impacts on journalism or the public.

The third and final objective, which focused on how media literacy can be used to combat fake news, yielded some interesting results. Media literacy was found to be effective in combating fake news trends. The investigation's findings also emphasized the importance of understanding how to analyze websites by looking at the URL, as well as other basic evaluation strategies taught in media literacy sessions. This supported Guess and colleagues (2020) conclusion that a lack of media literacy accounts for increased victimization of inexperienced media consumers by those spreading fake news. The findings also supported Livingstone's (2014) claim that media literacy would increase awareness among media audiences and result in deliberate and acceptable discrimination against fake news.

The findings highlighted an aspect of media practice that has been overlooked in Nigeria: the need to enact enforceable statutory requirements for those wishing to practice journalism. This study discovered that the absence of such requirements in a law passed by the National Assembly has allowed anyone with something to say to claim to be a journalist. This has contributed to the profession's toxicity and transformed every writer into a journalist. This study highlighted the importance of enacting legislation that would require every registered journalist's activities to be monitored in order to combat the rise of fake news.

According to the study's findings, gatekeeping by mass media operators, whether traditional or digital, is another way to reduce the spread of fake news. This informed the decision to use gatekeeping theory to analyze the study's findings. Starting with journalists as the primary gatekeepers, training all media practitioners in the art and craft of the profession is viewed as the first step. This supports Harcup's (2014) claim that journalists are better suited to lead media literacy campaigns through their practices.

Based on our findings, we recommend the following. First, before distributing material obtained from third parties, media outlets should thoroughly check and verify its authenticity. Second, any content that appears to promote false news inadvertently should be immediately retracted, and the media outlet responsible should apologize. Third, formal and informal education of media consumers on media literacy is recommended as a critical step toward combating fake news in Nigeria because if there is no patronage for such news, there will be no producers.

Conclusion

The findings and discussion reveal that citizens and media professionals have many similarities and beliefs. The ongoing debate over fake news has drawn attention to the issue of news media and citizen evaluation and critical verification skills. Despite all of the negative features of the spread of false news, it can be determined that it has placed a positive focus on media literacy and initiated a dialogue about the importance of excellent evaluation skills, not just for media firms but for civil society as a whole.

Although journalists were initially hesitant to discuss the causes of the rise of fake news in the media, their enthusiasm soon showed that they were interested in finding ways to combat fake news. By focusing this study on the problem of false news and how media literacy can help to reduce it, significant similarities have been identified, which will contribute to increased skills and professionalism in journalism practice in the future. As a result, it has been suggested that media literacy can help address the issue of fake news in Nigeria.

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Do Fake News Catch Our Attention?
A Study of Visual Attention
Applied to the Consumption of
Fake News About COVID-19 in Brazil

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The development of technologies aimed at people's daily communication allows for greater access to information. However, much of this content is the result of disinformation campaigns. Despite efforts to combat fake news, how people read content to identify false messages and make decisions is still not well understood. This study aims to use eye-tracking technology to identify and understand differences in the reading patterns of fake news and real/authentic news sources. Therefore, an experiment was conducted with 23 participants, who had their ocular behavior data measured while watching two types of content in the Brazilian scenario: real news and artificially produced news (fake news). The main results suggest differences and similarities in the way that people read and pay attention to content elements, such as headlines, main text, images, and news sources. The importance of using eye tracking in new studies aimed at combating disinformation is verified.

Keywords: eye-tracking, fake news, health communication, visual attention, Brazil.

The development of new forms of digital communication and the gradual expansion of Internet access and connection speeds have significantly increased the opportunities for people to interact in the digital environment (Castells, 2017). Facebook has approximately 2 billion active users (Data Report, 2022). Meanwhile, Instagram currently has 1.5 billion users. TikTok, a rival platform, is gaining popularity, with over 1 billion people using it globally. At least 80 percent of Brazil's 200 million inhabitants use WhatsApp daily (Matsue, 2021).

These platforms have favored the distribution of unique content, including family, professional, and commercial (e-commerce) interactions, as well as entertainment and information content. According to Data Senado (2019), 98 percent of Brazilians who frequently use the Internet use a cell phone as their primary access device. Respondents also stated that they had already decided who they would vote for based on information gathered from social media (54%).

Specifically, fake news has become a major source of concern in the news industry, as the aforementioned dynamics facilitate the spread of this content. In March 2020, the pandemic caused by the SARS-CoV-2 created a high demand for information among Brazilians. The pandemic caused a serious health crisis in the country, resulting in the deaths of over 700,000 people[1] (Brasil, n.d). During this time, ill-informed content on the seriousness of COVID-19, its symptoms, prevention methods, and aspects related to the effectiveness of the vaccines that arrived in Brazil became widespread on social media or was published on the Internet, indicating a serious problem in terms of not only communication but also public health.

However, although there have been studies on fake news in Brazil, empirical research on understanding the consumption of this type of information and the differences from the consumption of genuine news in the context of COVID-19 in Brazil is scarce. The present study aims to use an eye-

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[1] Deaths until October 4, 2022.

tracking methodology to identify and understand the differences in the pattern of viewing fake news and authentic news on COVID-19.

The first section of this study provides a brief history of fake news and Brazilian reality. Next, we discuss how media and information literacy (MIL) can help mitigate the effects of fake news, and then we present the eye-tracking methodology and previous studies that used this tool to study the theme. The remaining sections detail the study's results and conclusion.

Fake News: Historical Context and the Brazilian Reality

Fake news is defined as false information propagated through communication, whether in a traditional or digital format, with the intent of instilling fear, generating financial effects, inciting political and social unrest, or opposing a statement with which its creator disagrees. This statement is consistent with Kalsnes' (2018) understanding of the term. Kalsnes (2018) also mentions that one of the concerns about fake news is that the volume of false content polluting the debate on socially relevant topics can affect democracy itself.

The concept of fake news is associated with what was previously classified as a rumor, gossip, lie, or misinformation because it lacks veracity and, in many cases, circulates without being able to identify who produced it (Meneses, 2018). Gordon Allport and Leo Postman (1953) investigated the causes of unconfirmed information dissemination in their book *The Psychology of Rumor*. They began by affirming that rumor is always a problem, but especially during times of crisis. One example was the rumor that Hitler would die within the next six months, which spread throughout England in 1942. The soothsayer would have made the prediction. According to the researchers, this type of story persists and spreads because of its bizarre aspects, which make it easy to repeat. The importance of the character in question and the wish that it is true are also important considerations. Some people may find the rumor plausible (Allport & Postman, 1953).

This study distinguishes between rumor production and the spread of lies from conversation to conversation. False content circulated as news is intended to deny the truth and win a public debate with opposing

viewpoints. Therefore, the creation and sharing are part of an ideological war (Alves & Maciel, 2020).

Gelfert (2018, p. 90) emphasizes that "the falsification of news has been around for a long time and all the technological advances, from the telegraph of the 19th century to the contemporaneity in media algorithms, has launched new possibilities of fabrication" of this type of material. However, according to Gelfert (2018), this phenomenon is not novel. In fact, since the inception of printed newspapers, fanciful or inaccurate reports were often the subject of publication in the press. From the 17th to the 19th centuries, newspapers frequently reported on mythical shipwrecks, sea monster discoveries, and bizarre cases.

The difference between early journalism and modern journalism is that today, journalism is based on principles, such as objectivity, exemption, and plurality, to validate content publication. Wardle and Derakshan (2017) argue that the term "fake news" has a set of inaccuracies and should be replaced with "disinformation." The expression refers to false content that can appear in videos, satires, deliberately false translations, and other digital materials, as well as in news. Therefore, the authors categorize the processes associated with fake news as follows: incorrect information (false connections and erroneous content); disinformation (false, doctored, manipulated, and fabricated content); and bad information (leaks, harassment, and hate speech).

According to the authors, the content that achieves the best propagation results plays with the receiver's emotions and instills feelings of superiority, anger, or fear. These characteristics encourage the spread of these messages, resulting in a sense of community among those who identify with each discourse. Moreover, Wardle and Derakshan (2017) stated that the use of emotion facilitates the rapid dissemination of disinformation content and serves as a defense against content produced by verification agencies, which are dedicated to verifying authentic news and debunking wrong, false, or inaccurate information.

Alzamora and Andrade (2019) highlight the transmedia nature of fake news: "the circulation of false or distorted content (…) favors the development of points of contact between related actions, stimulating the passage from engagement through adherence to activist engagement" (pp. 119–120). They

argue that because social networks are digital spaces for relationships, they also serve as a platform for sharing beliefs. In this way, experiences, tastes, and a vast network of information shape opinions, including political and social views.

Table 1. *Summary of key aspects related to fake news.*

Authors	Expression	Prominent aspect
Allport and Postman (1953)	Rumor	An issue of particular importance during times of crisis
Wardle and Derakshan (2017)	Fake news	Not limited to news. Can be categorized into wrong information, disinformation, and bad information
Gelfert (2018)	Falsification of news	Century-old process that encompasses various technologies
Kalsnes (2018)	Fake News	Affects the debate on topics relevant to society
Alzamora and Andrade (2019)	Fake News	Strengthens the risk of activist participation, with a prominent role for social networks

Source: Own elaboration.

Fake news has become especially prevalent in Brazil during the COVID-19 pandemic. Since March 2020, when the World Health Organization and local governments issued a high alert for the disease, false content has rapidly spread via WhatsApp and other social networks, such as Facebook and YouTube.

Barcelos and colleagues (2021) discovered 329 fake news stories by June 2020. The main stories focused on vaccines (20.1%), epidemiology and statistics (number of cases and deaths (19%), and prevention (16%). The fake materials also addressed, among other topics, the effect of the pandemic on the economy, which was discussed in reports on the closure of large chain stores; xenophobia and racism against Chinese people; and virus behavior when researching methods to eliminate SARS-CoV-2.

In another analysis based on data available up to September 2020, Falcão and Souza (2021), in addition to categorizing the most common types of

fake news about COVID-19, point out that, in Brazil, fake news depicted President Jair Bolsonaro as a kind of sounding board, when he called the disease a "little flu" in an official radio and television address. Along with this statement, the discourse that the disease was a "fantasy" discouraged social distancing and isolation. On April 20, 2020, the president made a controversial statement: "I am not a gravedigger." This sentence was uttered when asked about the increase in disease-related fatalities. With hospital bed occupancy increasing, the president encouraged his followers to enter hospitals and verify the capacity during a live Facebook event. The Federal Government also directed the army to dispatch chloroquine to hospitals across the country for early disease treatment, a procedure that health experts opposed.

> Fake news is not a Brazilian peculiarity. All over the world, fake news about COVID-19 has been disseminated. What stands out in Brazil is the fact that much of the false information about the disease was spread by the president himself, Jair Bolsonaro, and his supporters. This adds even more seriousness to the phenomenon of fake news in the country, as Bolsonaro occupies the position of head of state and achieves great visibility–including on the national radio and television network. (Falcão & Souza, 2021, p. 67.)

The spread of fake news and the president's speeches affected Brazil's vaccination nation. According to Galhardi and colleagues (2022), people wanted to choose their vaccine brand in at least 70 percent of Brazilian municipalities, and 53.1 percent of people refused to take the Coronavac vaccine. The researchers specified that President Bolsonaro's refusal to be vaccinated and his distrust of the immunizer produced by a Chinese laboratory fueled opposition to Coronavac. The statements were made when Brazil's death toll reached 200,000 in January 2021.

It is important to note that the president's speech, as a head of state, appeared to validate the fake news that circulated at the time, making it difficult for the public to recognize the erroneous or inaccurate nature of the information. For example, in October 2021, Facebook and WhatsApp groups reported that people contracted AIDS after receiving two doses of the vaccine. Bolsonaro brought up the subject during a live Facebook event the same month, asking his followers to look for the text containing the false information online. The transmission file was later deleted by the platform (Struck, 2021).

MIL Contributions to the Fight Against Fake News

Wardle and Derakshan (2017) identify 34 initiatives that technology companies, governments, schools, and civil society can support in the fight against false, misleading, or untrue content. Measures include regulating online advertising to prevent funding for web pages and channels that disseminate this type of content, ensuring high ethical standards in the media, and establishing clear criteria for changing algorithms on web platforms.

The authors also make recommendations in the field of MIL, suggesting the development of resources to promote MIL and educate the public about disinformation. For Wardle and Derakshan (2017), teaching people about image manipulation's form and power is important. They present a Stanford University study in which even qualified researchers and students were misled by information available on fake pages bearing official logos, names, and website appearances.

MIL requires training that can provide citizens with technical and theoretical knowledge to understand how the media works, how information is distributed throughout the nation, and how digital resources are used to create content. MIL aims to position the individual as a potential creator and producer of information. MIL teaches individuals about discourse analysis, information source analysis, editorial viewpoints of news vehicles, data collection, and independent media.

According to Soares (2011), communication and education projects allow young people to expand their vocabulary and cultural repertoire while also developing communication skills. Such opportunities can be found within the school through discipline-related projects or outside projects that emphasize the importance of putting information and media at the center of the school and academic debate.

The key term for understanding media literacy's potential is "critical thinking." According to Sayad (2019), one of the current educational challenges is developing the ability to critically read information in the context of the digital universe. He recalls that popular education and ecclesial movements in Latin America have been discussing the interrelationship between media and education since the 1950s. However, disseminating fake news has increased its urgency in recent years. Sayad

(2019) emphasizes the importance of subject-specific teacher training to fully promote MIL, as well as digital resources in schools and a curriculum organization capable of meeting these objectives.

Barros (2019, p. 23) lists several measures implemented in Brazil to promote MIL in order to combat fake news, such as the inclusion of MIL aspects in the National Curricular Common Base, a document that guides schools across the country on the content to be covered in each grade for the respective years of basic education. Teaching students to analyze news and photos published on the Internet and social networks is a mandatory item in schools. According to the researcher, "for the student to analyze the media, it is necessary for him to develop the ability to be a researcher and to position himself critically" (Barros, 2019, p. 23).

Another measure mentioned by Barros that combines communication and education in the perspective analyzed here is from the Instituto Palavra Aberta. Instituto Palavra Aberta is a civil society organization that defends free expression as a fundamental right and advocates, among other things, training for elementary school teachers to promote skills in how to "access, analyze, create and participate in the informational environment and media in all formats ––from print to digital" (Palavra Aberta, 2022). The institution also offers lesson plans, a media education guide, and guidelines for implementing work in schools.

Grossi and colleagues (2021) discuss developing in students a "healthy skepticism" capable of raising doubts about specific contents as they critically read the information in front of them. These authors elaborate on a proposal for implementing activities in basic education that can help identify fake news. The test entails examining the nature of the information, the date of publication, textual genre, authorship, and the structure of the text; reading the entire news; observing the coherence between parts of the text; considering the objective of the news; noting if the facts are plausible; seeking additional sources of information; and using other sites to determine the veracity.

Eye-tracking: Possibilities for Understanding the Consumption of Fake News

Eye-tracking is a method of data collection and analysis in which hardware records the participant's eye movements during a given visualization of a scene, which can be a static or dynamic stimulus. This capture, which is usually made by webcams or equipment based on infrared sensors, can be used to identify some metrics about the participant's visual attention (Wedel & Pieters, 2008).

Some of the data generated include (i) the number of fixations within an area of interest (AOI[2]), (ii) the time a person fixed their gaze on a communication element (title, image, or news source information), (iii) the viewing order of scene elements, and the time until the first fixation within an AOI.

Regardless of the various possible metrics, there appears to be a consensus in the literature that such metrics help to bring important information from the communication process that would not otherwise be possible, because there are limitations and other cognitive biases (Kahneman, 2012) that make it difficult for a person to estimate, via self-report, how long an item in a message was observed.

In addition to quantitative metrics, the methodology supports qualitative data analysis by observing individualized or grouped heatmaps or scanpaths among individuals, as illustrated in Figure 1.

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[2] Region demarcated by the researcher within a stimulus, from which ocular behavior metrics are obtained.

Figure 1. Scan path of a research participant, indicating the path of eye movements on one of the research sites

Note. Reprinted from *Children's exposure to and perceptions of online advertising* (p.337)

Source: Sandberg, Gidlöf & Holmberg (2012).

The importance of this type of data in communication and other areas of social science has increased the use of ocular behavior in various areas of knowledge in recent years (Kawano, 2019). The 1980s saw the first use of eye-tracking technology in advertising studies (Kroeber-Riel, 1984).

Eye-tracking technology can help understand how people read and consume information, particularly for health-related messages. In the case of fake news within this theme, understanding whether there are behavioral differences and where they occur from an attentional standpoint can provide clues that deepen knowledge about the phenomenon and eventually help create strategies for citizens' literacy about disseminating and detecting this type of content.

Furthermore, as shown below, using eye-tracking in conjunction with traditional research methodologies can effectively contribute to this

process. The following section discusses previous studies that used the tool to study the topic of fake news, with different objectives.

Previous Studies

Despite the scarcity of scientific literature on fake news and eye behavior (eye-tracking) in health communication, some recent research works demonstrate how methodology can contribute to a more comprehensive understanding of the subject.

Sümer and colleagues (2021) conducted a study in which 25 participants were asked to observe a series of content that could be true or fake news. In addition to declared measures like the perceived credibility scale, the authors compared data on total viewing time, fixations, and saccadic movements between two variations of the same news and found that fake content had higher values for the three metrics they analyze. Because the experiment simulated a content format on social networks, the results aid in understanding how eye behavior can indicate the nature of specific news and readers' cognitive and interpretation processes.

Meanwhile, Wojdynski and colleagues (2019) conducted a slightly different experiment, using eye-tracking methodology and presenting four scientific news items as either fake or genuine. News items were not obtained from known sources to account for the source effect. Furthermore, half of the participants were warned that the information presented could be false. One of the most significant findings was that early warning increased the correct rating of fake news.

Simko and colleagues (2019) simulated a social networking environment (Facebook) and presented participants with a feed that included both fake and authentic news. By using eye-tracking technology to study the stated perceptions of 44 participants, the researchers discovered that the research volunteers who rated the news correctly gave lower values of visual attention to the news title, whereas the volunteers who made the most mistakes in the same rating focused on the news headline for the longest period. No statistically significant differences were found in visual attention for other elements of the content, such as the image and the first paragraph of the news.

These results corroborate the considerations of Hansen and colleagues (2020). The authors conducted a study with 55 participants, who were asked to examine more than 100 news headlines that could be false or authentic. Hansen and colleagues (2020) show that, as one of the main results, fake news headlines received less visual attention than real news headlines, and that this difference was statistically significant. Furthermore, researchers used the data to create a model that predicts the veracity of news based solely on eye behavior metrics such as total viewing time, number of fixations, average fixation time, and first fixation time, with an accuracy of approximately 63 percent. Bozkir and colleagues (2022) investigated a less trivial metric in this field of study: the number of saccadic regressions. Saccadic regressions are eye movements directed at an AOI located before the participant's current fixation point, which may indicate confusion or misunderstanding of the content. In this regard, the authors discovered that participants made more regression eye movements when confronted with fake news than when reading real news.

Finally, Šuminas and Jastramskis (2020) conducted a study to determine how knowledge about MIL influences young people to consume true or false/fake information. To accomplish this, the authors divided the participants into two groups: journalism students with prior MIL knowledge and advertising students without the same level of MIL knowledge. Eye-tracking technology allowed for a clear distinction between the two groups. Journalism students focused more on key elements that indicate credibility, such as authorship data, image caption, and source. This distinction between the groups was evident in the initial reading of the content and subsequent readings, in which the readers read the content with greater attention and depth.

Methodology

Data were collected at the Laboratory of Technologies in Communication and Applied Neuroscience (LTCN&NA) of the Federal Institute of Southern Minas Gerais, which is equipped with an Eye Tribe® eye-tracker. The study included 23 volunteers, 13 men and 10 women (mean age = 26.1 years, SD = 10.3). We used the following exclusion criteria: (1) a documented history of neurological problems, and (2) uncorrected vision issues. The study's conditions and objectives were based on the informed consent form, which was explained and signed before the experiment began.

The experiment was developed using OGAMA® version 5.0.1 software and then pretreated with LTCN&NA Eye-tracker DB®. The images were displayed on a 17-inch LCD monitor located 65 cm away from the participants. The eye-tracker was placed below the monitor that displayed the experiment. The ambient light conditions were controlled and maintained consistently. The stimuli were presented as follows: Each participant read four of eight possible pieces of news, presented in random order; half were real, and the other half were fake news (Appendix I and II).

All the news stories focused on COVID-19 in Brazil (e.g., the disease's severity, quarantine's effectiveness, and vaccine problems). The fake news items were extracted from messages and publications shared in Facebook or WhatsApp groups between March 2020 and May 2022. The original news items were sourced from the Estado de Minas news portal. After reading the entire content, participants were asked to rate each news item on a 5-item Likert scale, answering the question "How credible do you rate this news?", as described by Sümer and colleagues (2021).

To improve control over the experimental variables, each news item was redesigned with the same layout and visual identity (simulating an online news item), as shown in Figure 2. Four areas of interest (headline, main text, image, and source) were defined for eye-tracking analysis using the metrics compete fixation time (CFT) and number of regressions.

Figure 2. Layout and an example of stimulus

Source: Own elaboration.

Results and Discussion

The results of the study are presented below. Note that after inspecting the data obtained with eye-tracking, which revealed poor information accuracy, one participant's data was removed from the ocular behavior analysis. The first two figures represent general and descriptive data. Figure 3 depicts the preliminary analysis of reading time for each of the eight news items used in the study. As shown, the average reading time ranged from 15 to 25 seconds. Despite this, there was no discernible difference between the two types of content (real news and fake news).

Figure 3. Reading: Total reading time (s)

Fake News 1	24.7
Fake News 2	24.2
Real News 1	21.8
Real News 3	20.5
Fake News 4	20.3
Real News 2	19.2
Fake News 3	16.8
RealNews 4	15
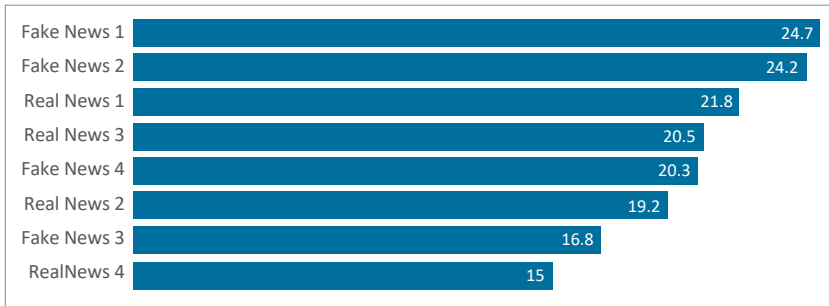
Source: Own elaboration.

Taking the declared scale of five points, where 1 indicated "not believable at all" and 5, which measured "how credible the news was," we observed that, in general, the number of ratings of true news in higher scores (4 or 5, very credible) was higher when compared to fake news, which were concentrated in lower evaluations, with 74 percent between grades 1 and 2 in the latter case.

Figure 4. Total number of evaluations according to type of content

	Real News	FakeNews
1 - Not believable at all	1	20
2	3	11
3	9	6
4	15	5
5- Totally bilievable	20	0
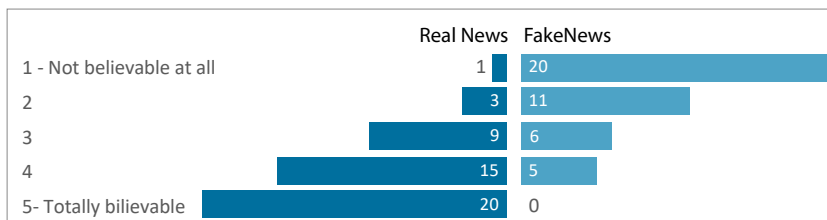
Source: Own elaboration.

Complete Fixation Time

The CFT is the amount of time, in milliseconds, that each participant focused on one of the analyzed elements: headline, text, image, or source. Thus, higher values in this variable indicate greater levels of visual attention. Given the nonsupposition of normality in data distribution, the Wilcoxon nonparametric test was performed on paired samples, except for title data, which had a normal distribution. FIELD (2009) used the paired t-test in this case.

The tests showed that fake news received significantly more attention than real news concerning the headline (Median: fake news = 3,158 ms, SD = 1,434 ms vs. Median: real news = 2,585 ms, SD = 1,484 ms, t= −2.09, p <.05, two-tailed test) and the main text (Median: fake news = 6,155 ms vs. Median: real news = 5,909 ms, W = 207, p <.01, two-tailed test) at a significance level of α= 5%, as indicated in Figure 5. No statistically significant difference existed between the "text" and "image" content types.

Figure 5. Complete fixation time (CFT; ms) between real news and fake news
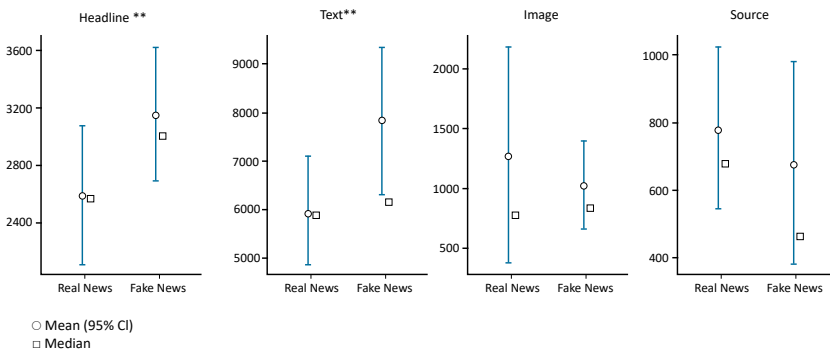
Note. ** Indicate significant differences.

Source: Own elaboration.

The results found by Sümer and colleagues (2021) that show more fixations on fake news than real news partially align with the data. However, in this study, we divided the metrics by news element to provide greater detail and control. The lack of verification of differences in visual attention given to "images" is also consistent with the observations made by Simko and colleagues (2019). In contrast to the results confirmed here, Hansen and colleagues (2020) found lower rates of visual attention paid to fake news headlines. The latter results support the notion that additional studies are required to deepen knowledge in the field.

Finally, because the size and layout of the elements analyzed in this study were changed, the possible effects identified by Pieters and Wedel (2004) were somewhat controlled, allowing the variations in visual attention to be attributed solely to the content of the messages analyzed.

Number of Regressions

A regression in ocular behavior indicates that the research participant reexamined a specific aspect of the news item. The news headline, for example, may be read once or several times. As a result, a higher number of regressions can indicate whether a person is unsure or if he analyzes the content more carefully.

Given the lack of normality in the data distribution and the observed independence between groups in regressions, the nonparametric Mann–Whitney U test (FIELD, 2009) was used. At a significance level of $\alpha = 5\%$, the results showed that the "source" in fake news received a higher number of regressions (median = 2.0) compared to real news (median = 1.0), with a significant difference between groups (U = 1.50, p <.05, two-tailed test), as shown in Figure 6. The other three items (headline, text, and image) showed no difference between the two types of content.

Figure 6. Number of regressions between real news and fake news
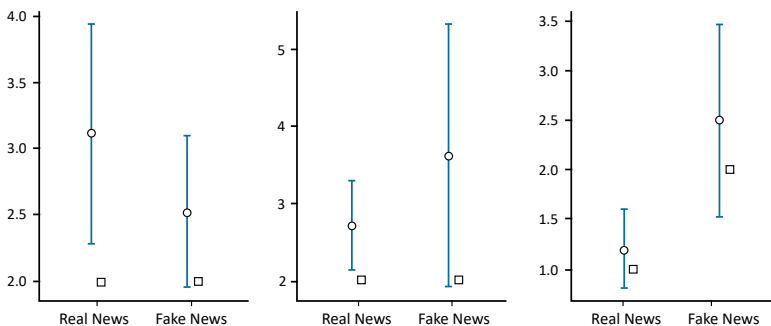
Note. ** indicates significant differences. The data had no dispersion, so the regression graph to images was absent.

Source: Own elaboration.

Bozkir and colleagues (2022) discovered more regressions in fake news without regard for content elements. Furthermore, the data provide pertinent information for the context of fake news, indicating that all items, except the source, are viewed similarly for this ocular behavior metric. On the contrary, the news source appears to be an important reference for people when determining whether a news item is fake. This "source" element is frequently absent in the daily circulation of misleading content.

According to Šuminas and Jastramskis (2020), another aspect that can be considered for future studies is controlling participants and segmenting the analysis based on MIL knowledge. Including data that assess the effect of visual attention given to fake news on short- and long-term memory, similar to Carvalho's (2013) studies in the context of advertising content, may also be an option for deepening knowledge in this area.

Conclusion

This research aimed to identify and understand the differences in viewing patterns of fake news versus real news regarding COVID-19. The results showed that people read fake news content differently, particularly as observed by eye-viewing behavior metrics. These differences were observed in the higher number of fixes and visits to the source and regressions to the fake news title. Furthermore, the eye-tracking methodology proved useful and feasible for understanding how people behave when confronted with various news items circulated in Brazilians' daily lives.

One of the study's limitations is the restricted topic (COVID-19), which prevents us from knowing whether such differences occur in other subjects of public interest, such as education and economics. Moreover, the study was conducted only a few months after these news items were published for operational reasons. This time interval may have resulted in the news being read in a different context than if it had been analyzed in real time. Future studies that address this process in subjects other than health and different social settings (whether in Latin America or other continents) are encouraged and can help to validate the processes described here.

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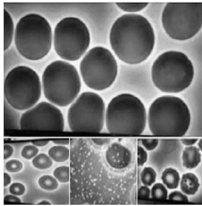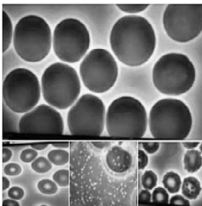
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Appendix I–Fake News

Original	Translation
Uso de máscara deixa sangue ácido e causa câncer. Isso se dá pelo acúmulo do gás. Se uma criança ficar respirando por muito tempo assim, há acúmulo de CO^2, tornando o sangue ácido, ocasionando câncer e outras doenças. **Fonte:** Publicação – WhatsApp	**The use of a mask makes the blood acidic and causes cancer.** This is due to the accumulation of gas. If a child breathes like this for a long time, there is an accumulation of CO2, making the blood acidic, causing cancer and other diseases. Source: Publication - WhatsApp.
Vacinas contra COVID-19 intoxicam células sanguíneas A imagem mostra nanopartículas estranhas logo após a injeção. O corpo nunca pode desintoxicar-se disso. Essas nanopartículas eventualmente entrarão em todas as células do seu corpo. **Fonte:** Publicação – Facebook	**COVID-19 vaccines intoxicate blood cells** The image shows strange nanoparticles soon after the injection. The body can never detox from this. These nanoparticles will eventually enter every cell in your body. Source: Publication - Facebook.

Original	Translation
Companhias aéreas da Espanha e Rússia alertam vacinados para não voar Em diferentes partes do mundo, as companhias aéreas agora aconselham pessoas que foram vacinadas a não voar, após a "morte" de pilotos devido à vacina. **Fonte:** Publicação - Facebook	**Airlines from Spain and Russia warn vaccinated citizens not to fly** In different parts of the world, airlines are now advising people who have been vaccinated not to fly, following the "death" of pilots due to the vaccine. Source: Publication - Facebook.
CDC dos EUA registra 12 mil mortes relacionadas a vacinas contra covid-19 Mais da metade das mortes relacionadas a vacinas nos Estados Unidos é de pessoas que tomaram um dos imunizantes desenvolvidos contra a covid-19. Os dados são do Centro de Controle e Prevenção de Doenças do país. **Fonte:** Revista Oeste	**CDC in the USA records 12 thousand deaths related to vaccines against COVID-19** More than half of the deaths related to vaccines in the United States are those of people who took one of the immunizers developed against COVID-19. The data are from the country's Center for Disease Control and Prevention. Source: Revista Oeste.

Appendix II–Real News

Original	Translation
Cansaço pós-covid: por que fadiga pode durar mais que curso da doença Passados quase dois anos desde a chegada ao Brasil, a ciência determinou que a SARS-CoV-2 causa uma doença sistêmica que pode afetar diferentes áreas do corpo simultaneamente. **Fonte:** Estado de Minas	**Post-COVID fatigue: why fatigue can last longer than the course of the disease** Nearly two years after its arrival in Brazil, science has determined that SARS-CoV-2 causes a systemic disease that can simultaneously affect different areas of the body. Source: Estado de Minas.
Não vacinados têm chance cinco vezes maior de morrer pela COVID-19 Pessoas que não tomaram a vacina contra a COVID-19 têm uma chance cinco vezes maior de morrer pela doença do que aquelas que já tomaram ao menos três doses do imunizante. **Fonte:** Estado de Minas	**Unvaccinated have five times higher chance of dying from COVID-19.** People who have not taken the COVID-19 vaccine have a fivefold greater chance of dying from the disease than those who have taken at least three doses of the vaccine. Source: Estado de Minas.

Original	Translation
Jovem trata COVID com ivermectina e pode precisar de transplante de fígado Paciente desenvolveu hepatite medicamentosa após tomar o remédio por uma semana para tratar a infecção leve pela COVID-19. Parcela de médicos vem receitando o remédio no enfrentamento inicial da doença. **Fonte:** Estado de Minas	**A young person treats COVID with ivermectin and may need a liver transplant** The patient developed drug-induced hepatitis after taking the medication for a week to treat a mild infection by COVID-19. A segment of doctors has been prescribing the remedy in the initial confrontation of the disease Source: Estado de Minas.
Stanley Gusman, apresentador da TV Alterosa, morre de COVID-19 O apresentador da TV Alterosa Stanley Gusman morreu em decorrência de complicações da COVID-19. O comunicador, estava internado em estado grave em Nova Lima, na Grande BH. **Fonte:** Estado de Minas	**Stanley Gusman, the TV Alterosa presenter, dies of COVID-19** TV Alterosa presenter Stanley Gusman died from complications from COVID-19. The broadcaster was hospitalized in serious condition in Nova Lima, in the Greater BH area. Source: Estado de Minas.

Post-pandemic
Media Literacies

Capturing the Contours of the Field of Media and
Information Literacy (MIL) Research: A Systematic
Literature Review of Studies Conducted at Swedish
Universities in 2021
Maarit Jaakkola

Transforming University Students into Library Users:
Influence of User-Education Programmes on the
Information and Study Skills of First-Year Students in
South Africa
Katlego Petrus Chiya and Omwoyo Bosire Onyancha

Oportunistic Media and Information Literacy: A Case
Study of the Implementation of E-Commerce in the Food
Retail Sector in Italy
Michele Filippo Fontefrancesco

Post-Pandemic Financial Literacy in Social Media: How
Microblog Posts Reflect Citizens' Opinions about Taxes
Yolanda Berdasco-Gancedo

Capturing the Contours of the Field of Media and Information Literacy (MIL) Research: A Systematic Literature Review of Studies Conducted at Swedish Universities in 2021

Maarit Jaakkola

This chapter attempts to answer a commonplace question posed by authorities and practitioners seeking information on media and information literacy (MIL): What is MIL research, and, consequently, where can it be found? After the Swedish government formed a national network of MIL stakeholders in the public sector in the country with a common vision to strengthen policy work, it has become a crucial question how to identify and access the field of MIL research. The current study presents the results from a systematic literature review of scientific studies published in 2021 to identify the disciplinary structures of the research most relevant to MIL. The findings indicated that most of the relevant extant research was qualitative, conducted by women, written in English to an international audience, and focused on educational sciences, library and information science, and media and communication sciences. Student theses tended to adopt the policy-initiated concept of MIL more likely than original research papers. While the article probes whether the term MIL translates appropriately into scholarly literature, it also highlights the significance of establishing structures to further monitor related research projects and identify changes in research.

Keywords: media and information literacy (MIL) research, policy work, systematic literature review, scientific publishing, Sweden.

Media and information literacy (MIL) practitioners, promoters, and stakeholders need fact-based information and scientific knowledge to ground their activities. Typically, they must precisely define MIL research to localize it within the disciplinary structures of the academy. Accordingly, MIL stakeholders often express the need to identify researchers with profiles relevant to this scholarly discipline. Similarly, the question of identifying a research field and linking research to ongoing policy-related work becomes germane when the MIL framework is being built or reinforced within a nation. I refer to the representatives of authorities and practitioners in different fields such as libraries, archives, and museums as *MIL actors*. These professionals may lack the due knowledge of the internal structures of science and research and may not have a direct access to university resources. MIL remains a relatively new term with substantive local variations in its establishment, especially in the academy. Therefore, the support staff employed by universities cannot necessarily help university stakeholders find the relevant researchers and information.

This article attends particularly to Sweden and its national MIL ecology. The Swedish government launched a nationwide effort in 2018 to strengthen, organize, and map MIL in the country. Subsequently, questions about the character of MIL research, its locus, and its findability became topical. Well-documented groundwork has been performed on the concept and outlines of important MIL-related issues have been circulated in several academic publications (see e.g. Carlsson, 2014; 2018). However, no systematic concept-based overview of the actors involved in MIL research existed in Sweden. This difficulty stemmed from the lack of systematic evidence on the concept's use across disciplines and the absence of a common forum or network for related research. In other words, no national association of MIL actors monitored and collected research or connected researchers in Sweden, unlike in many other countries. Examples of such for a include, to name but a few, the Finnish Society on Media Education, the Italian Association for Media Education (MED), and the Association for Media Education in Scotland.

In this chapter, I present the findings of a systematic literature review that focused on research conducted in a single year.[1] I performed this review to acquire baseline evidence of the structures and forms of scholarly investigations that could constitute *MIL research*. I will argue in this chapter that the concept of MIL research does not necessarily exist in academic structures as a field. Rather, the term denotes an analytical construction intended to apprehend a body of research that can be positioned in relation to equivalent policy work (see Jaakkola, 2022). Indeed, MIL must be construed as a policy-based term that is not directly, or at least not exhaustively, adopted in academic literature. The term's appearance and frequency of use in published academic literature can nonetheless be investigated to determine the varied ways and contexts in which the term is explicitly applied. I refer to research that overtly harnesses the MIL framework by explicitly using the term MIL or another equivalent phrasing such as "media literacy" or "information literacy" as *explicit MIL research*. In contrast, *implicit MIL research* connects more indirectly to the concept of MIL and does not necessarily mention the term or its parallels. The current study investigated the explicit MIL research through a systematic literature review of the relevant studies published in Sweden in 2021.

UNESCO's (2013) policy framework recommendations and guidelines explain that research is central to policy work because it represents the dynamic space of knowledge production. Therefore, the comprehension of how MIL translates into academic research is acutely pertinent for all nations engaged in the construction of national MIL frameworks. In order to discuss the translatability of this concept in research in the country ecology under study, I will first describe MIL in the context of Swedish policy and national MIL ecology and thereafter present the methodological design of the current study. The examination of the Swedish MIL policy and education context makes an interesting case because, unlike other Nordic countries, Sweden has directly adopted the English-language UNESCO-concept MIL and applied it to the national language and culture. The results of this study are expected to yield information on the fundamental disciplinary structures of research initiatives that most closely resemble the academic domain that we can label *MIL research*.

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[1] A previous version of the study was written in Swedish and titled *Forskning inom medie- och informationskunnighet (MIK): En översikt över 2021*. This version can be accessed at https://gupea.ub.gu.se/handle/2077/73711.

The adoption of the concept of MIL policy in the literature would elucidate the disciplines most intensively engaged in implementing the concept. It would also allow us to determine which disciplines tend to work closely with the policy-based and practical fields that actively use the term MIL. Moreover, such adoption would reveal potentially apposite disciplines that have not yet adopted the term.

The Operationalization of MIL and its Translatability into Research

The term "media and information literacy" and its catchy and pragmatic abbreviation MIL were coined by UNESCO in 2011 (Wilson et al., 2011). While numerous terms and related definitions continue to co-exist (see e.g. Potter, 2022), MIL has attained worldwide popularity as a policy concept. Gradually, the term has been adopted in many countries as a core concept that essentially guides and directs policy. With core concepts (Jaakkola, 2020) I refer to the most frequently used terms that have been established in the official discourse of a country and accepted by the most actors relevant for MIL, conveying certain meanings and connotations, while, at the same time, excluding or ignoring others. The core concepts, in other words, direct our attention to certain dimensions of the media-related competencies, and the choice of terms, such as "digital literacy" or "media competence", may highlight different aspects of what the expected competencies are and what is needed to promote them. Across sectors, the term MIL has gained ground as *the* word to refer to the abilities to use, receive and create media in different forms.

Based on early definitions from media education (Masterman, 1985) and the U.S. Aspen Media Literacy Leadership Institute's definition from the 1992 media literacy conference (Aufderheide & Firestone, 1993; see also Livingstone, 2004), UNESCO has taken a leading role in defining MIL as 'the ability to access, evaluate, analyse and create media in a variety of forms' (UNESCO, 2011; Wilson et al., 2011; UNESCO, 2013). This definition, the outcome of extensive consultation processes, has been agreed upon and applied by the major media education agents around the world. As outlined as in the Fez declaration (UNESCO, 2011), it is a compound concept comprising both 'media' and 'information', which basically brings together disciplines from two directions, from 'media

studies' and information studies' (Livingstone et al., 2008; Leaning, 2019). More specifically, the definition encompasses three essential dimensions: (1) a production chain from a sender or encoder to a receiver or decoder (the communicative process), (2) different cognitive processes to manage media and their content (competencies) and (3) a variety of media forms (media types). Significant emphasis has been placed on the component of textual analysis: decoding and deconstructing messages within a context. More recently, MIL abilities have been examined in the context of digital media landscapes, and more emphasis has been placed on digital-native phenomena, such as disinformation, copyright, digital content creation through hybrid production forms, algorithms and algorithmic cultures and artificial intelligence. This shift may place more emphasis on alternative concepts related to the digital, such as digital literacy and digital competence, and make the umbrella concept of MIL valid in more disciplines and interdisciplinary settings. Moreover, in alignment with the basic human rights, upon which the framework is based, the pursuit of the United Nation's (UN) sustainability development goals has been advanced as a central objective:

> MIL equips citizens with the following competencies: the ability to understand information for public good: the ability to critically engage with information, media and digital communication for participation in sustainable development goals; and the ability to seek and enjoy the full benefits of fundamental human rights' (Grizzle et al., 2021).

The umbrella term MIL has been critically examined and questioned regarding its explanatory potential and ability to function as a coherent concept, considering the diverging technological focuses, preferred methodologies and disciplinary vocabularies of media- and information-oriented sciences (Livingstone et al., 2008; Koltay, 2011; Frau-Meigs, 2012; Wuyckens et al., 2022; Haider & Sundin, 2022). Despite the breadth and complexity of the concept, policy discussions have a tendency of reducing the term to a vaccine towards global problems such as disinformation, regarding it as a 'cure' or 'solution' 'for everything' (Buckingham, 2019). Since it has also been strongly associated with all 'good aims', such as intercultural dialogue, justice, and peace education, the term has been criticised for uncritically and overoptimistically regarded seen as a solution to democratic problems (McDougall, 2017). Because of this policy-oriented and instrumentalising treatment, many scholars do not identify as MIL researchers but, rather, approach MIL-related questions from their own disciplinary traditions. Rather, MIL appears as a more relevant concept

of translating and collecting ideas in encounters between disciplines and between the academy and society.

To operationalise the concept of MIL, MIL actors make choices regarding the central components of MIL, such as the type of media that is addressed, genres that are represented, the target group of the MIL or the intended learners, and so on. Some of these choices are more conscious than others, but, nevertheless, the result of these choices manifest in a specific profile of MIL. A similar set of choices is included in every study that has the intention to address MIL: researchers are examining, for example, toddlers' skills in using a tablet computer, or primary school teachers' attitudes towards using a tablet in their teaching. In the first case, the learners are defined as small children under the age of 6, and in the second case as adults representing a certain profession, perhaps within a certain geographical area or limited to a certain school type, a distinct app on the tablet or discrete communication situations, and so on. Moreover, research is double-mediated in terms of MIL, as a research design includes choices related to both the manifested MIL in the object of study and choices related to the research design itself. A point of departure for examining MIL research thus constitutes the assumption that MIL research typically relates to some basic components that locate it in the sphere of media and communication, as well as related disciplinary traditions, as depicted in Figure 1. In the operationalised concept of MIL involves a demarcation of the media type, genre and communication type, as well as expected communicators and learners, in a specific learning context. Some categories may be more clearly defined than others; there may be some normative assumptions about the learners, the media, or the type of communication in a way that there are no limitations mentioned to them.

Figure 1. Choices for the operationalization of the concept of MIL

Media-related choices:		Research-related choices:

Media types related to MIL: Written text, visual, audio, audiovisual, or multimodal technology

Individual researcher profiles and scholarly trajectories: personal interests and collaboration networks of scholars conducting the research

Media genres: Journalism, strategic communication, literature, etc.

Disciplinary contexts: Specifying the discipline or interdisciplinary areas, etc.

Communication types: Professional, professional-amateur, amateur.

Discipline-specific issues or topics: e.g., screen time, mental health, etc.

MIL

Groups of MIL learners by age: infants (0–2 years), toddlers (3–6), school children (7–12), 13–17, adolescents (18–25), young adults (26–35), adults (36–65), seniors (66+)

Methodologies: specifying research techniques such as qualitative, quantitative, or mixed methods

Groups of MIL learners based on other factors such as geographical areas, socioeconomic positions, professions, educational backgrounds, or lifestyles

Positionings of the researcher: descriptive/objective, normative/prescriptive, interventional etc.

Learning contexts: School, library, home, etc.

Language/linguistic contexts: the target and reference audiences of research projects

MIL mediators: teachers, educators, librarians, parents and caregivers, colleagues, peers etc.

Types of published material: journal articles, monographs, anthologies, reports, essays, etc.

Source: Own elaboration.

There is, in other words, always a gap between the manifested MIL that comes into being through the operationalization and the general concept of MIL that is outlined in the general discourse. Therefore, when studies are addressing MIL, it is relevant to ask what kind of a manifested MIL profile they actually examine. The semantic uses of the MIL-related concepts in policy and practice have been examined in different regions, both in national or linguistic or cultural ecologies (Parola & Ranieri, 2011; Abu-Fadil et al., 2016; Trültzsch-Wijnen et al., 2017, Bonami & Le Voci Sayad, 2020; Palsa & Salomaa, 2020) and in a comparative manner (Frau-Meigs et al., 2017; Dhiman, 2021; Jaakkola, 2022). Academic research on the key concepts of media literacy, media and information literacy and digital literacy, as well as their mutual relation, has aroused the scholarly interest to trace the conceptual landscapes around MIL (Koltay, 2011; Hicks et al., 2022; Wuyckens et al., 2022). The Nordic countries exhibit a strong tradition of promoting MIL but have not adopted a shared framework that would include the use of identical terminology to refer to MIL (Carlsson, 2018, 2019; Forsman, 2020). Finland was the first to introduce a national MIL strategy (for the updated policy, see Palsa & Salomaa, 2019) while Sweden has worked intensively on mapping existing MIL actors to recognize their connection to a MIL framework that is intricately connected to UNESCO's policy framework. I will describe the Swedish policy work context in more detail in the next section.

The Swedish Policy Context

Policy work refers to theoretical development, policy formulation and strategy development related to a certain thematic area. It encompasses the components of policymaking, capacity-building and stakeholder management. According to UNESCO's policy and strategy guidelines (Grizzle et al., 2013), a successful and effective MIL policy relies on a shared vision of MIL. In addition to this vision, which implies a strict understanding of MIL, five more elements are required: consensus, incentives, resources, competencies and an action plan (ibid., 101).

In Sweden, the MIL concept was adopted with a domesticated term with high similarity to the global English term: MIK, from the composite Swedish-language term *medie- och informationskunnighet*. The inclusion of the word *kunnighet* is a rather unique choice since it is otherwise not

widely used in the Swedish language, unlike its derivatives *kunskap* (knowledge) and *kunnande* (competence). Semantically, the word *kunnighet* falls between *kunskap* (knowledge) and *kompetens* (competence), though it is not reducible to either of these terms. The national school curriculum, while mentioning 'media' several times, applies the term digital competence (Skolverket, 2018), while libraries endorse the term MIL as a carrier of information literacy (KB, 2022), and MIL has also become the established term on the national media policy agenda (Carlsson, 2016).

UNESCO released its MIL curriculum for teachers (Wilson et al., 2011), and this model curriculum was translated and transferred into the national Swedish context. Nordicom, in collaboration with the Swedish Media Council, Swedish Film Institute, Swedish National Agency for Education, and a film literacy association, prepared a Swedish report that translated the model curriculum, which it labeled the "framework" (*ramverk*) (Carlsson, 2013). This pedagogical scaffolding applied the UNESCO model curriculum and can therefore be considered a translation of the global framework to national conditions. An anthology (Carlsson, 2014) contributing to the establishment of MIL (or the Swedish variant of MIK) as a core concept followed as an outcome of a Nordic expert summit. These documents frame MIL as an issue pertaining to democracy and democratic citizenship. The concept's connection to democracy and freedom of speech continued in two later publications, an edited collection in Swedish (Carlsson, 2018) and an amended and adapted English version published jointly with the UNESCO MIL Feature Conference in Gothenburg (Carlsson, 2019). These academically driven discussions and anthologies also included contributions from policymakers and educators and served to consolidate the utilization of the term across numerous political, practical, and pedagogical sectors. The Swedish government's (SOU 2016:30) review of media politics (see also the Swedish Ministry of Culture, 2016) addressed the need for MIL and used MIK as the umbrella term for "understandings of media and communication society, source criticism, ethical and critical thinking, uses of information, communication with others, create content and express oneself in different forms of content and dissemination, understand technology and relevant legislatory frameworks" (Carlsson, 2016, 504).

Consequently, the Swedish government's democratic strategy principally anchored the significance of MIL in democratic societies (the Swedish Government, 2018). Accordingly, the Ministry of Culture (2018) launched

a committee directive to review the national MIL landscape to arrange a venture through which an authoritative body could coordinate and promote MIL-related endeavors at the national level. The final report on this review was published in 2020 (Heath, 2020). Based on this review, the Swedish government (2019) tasked the Swedish Media Council with national coordination and with intensifying efforts to strengthen MIL in the country. The term MIL was in frequent use in policy discourse at this juncture.

The Swedish Media Council was launched in 2011 under the aegis of the Ministry of Culture, after the merger of two regulatory agencies that had, among other things, supervised the provision of audiovisual programs promoting children's safety. This council embarked on the journey of structuring national MIL efforts and was reconfigured, after another merger with the Swedish Broadcasting Authority in 2024, into one single media authority, the Swedish Agency for the Media. Its governmental assignment (the Swedish Government 2019) stipulates that the structuring of MIL work encompasses the tasks of creating a multistakeholder network; constructing a platform to disseminate MIL-related knowledge and information; mapping and monitoring MIL development; and developing MIL capacities of the Swedish authorities.

In 2020, the Swedish Media Council launched an MIL network labeled Network MIL Sweden (Nätverket MIK Sverige). Conjointly, a research network named the Academic Forum for MIL Research (Akademiskt forum för MIK-forskning) was launched to collaborate with the Network MIL Sweden, and its coordination was assigned to Nordicom at the University of Gothenburg. The Network MIL Sweden comprised 22 members in October 2021[2] and the Academic Forum for MIL Research was constituted

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[2]　The members included the Digidel Network, the associations Filmpedagogerna and Folkets Bio, the Swedish National Council of Adult Education, the association Filmregionerna, the Swedish Internet Foundation, the Swedish Consumer Agency, the National Library of Sweden, Mediekompass by TU, The Swedish Press, Radio and Broadcasting Authority, the Swedish Civil Contingencies Agency (MSB), the Swedish Agency for Accessible Media (MTM), the Swedish Agency for Youth and Civil Society (MUCF), Nordicom, the National Agency for Special Needs Education and Schools (SPSM), the Swedish Media Council, the Swedish Agency of Education, the Swedish Library Association, the Swedish Film Institute, the Swedish Association of

approximately of 50 active researchers. The members of the Network MIL Sweden included representatives of institutions undertaking public sector MIL tasks; corporations and the private sector were thus excluded. The objectives of the networking activities focused on capacity building: to collaborate and identify needs, support the work of fellow members by sharing knowledge and developing methods, elucidate the need for MIL, and raise awareness of MIL in internal and external contexts (SMC, 2021). One of the most recent undertakings of these networking bodies has entailed mapping MIL initiatives among publicly funded stakeholders (Wagner, 2023; Wagner & Bucht, 2023).

In sum, the Swedish concept of MIL policy was consolidated through multistaged policy development endeavors centered on anchoring the concept's legitimacy among stakeholders. Thus, the country adopted a bottom-up rather than a top-down approach to the organization of its MIL framework. The groundwork was conducted by identifying actors focal to MIL and engaging them in common networking activities instead of creating and imposing a centralized strategy on existing and potential stakeholders.

Research Questions

This study investigates explicit MIL research published in 2021, aiming to identify the production and publication venues and contexts of this type of research activity. In other words, I seek to answer the following questions:

- Where, in terms of dicsiplines, can MIL research be located on the basis of published studies that explicitly use the concept or the most frequently use related concepts?
- Where is MIL research published?
- Who produces MIL research?
- What are the key topics and objectives of MIL research?

Local Authorities and Regions, the Swedish Museum Association, Sveriges Utbildningsradio (UR), and Ung Media Sverige.

A focal motive of this study is to test a data collection method with national and international research databases for future attempts to regularly encapsulate MIL research of explicit character. The groundwork requires the identification of the general structures of MIL research: its key disciplines, types of published material, channels of dissemination, and the forms of authorship evident in its production and publication. However, further analyses can attend to the narratives, themes, and tendencies, and address other less significant concepts, discourses, and frames within this framework.

Methodology

Data were systematically collected from the literature published in 2021 to conduct a systematic literature review (e.g., Xiao & Watson, 2019) on MIL research. I rejected automated bibliometric analysis using prevalent data tools such as Bibliometrix, Wordmancer, or VosViewer (see Moral-Muñoz et al., 2020) because these tools retrieve data from databases dominated by the natural sciences and do not sufficiently cover pedagogical, media, and cultural studies relevant to national-level MIL. In other words, these tools do not record the popular publication channels for MIL research; instead, they are based on bibliometrics and altimetrics that rank MIL studies low or even omit them from their valid results.

I conducted the literature search in May 2022 using the national academic literature database DiVA Portal and the publication registers of four universities that had not joined DiVA portal.[3] DiVA (Digitala Vetenskapliga Arkivet) is an open online search service that collects published work from 50 Swedish educational and research organizations. I used identical search phrases and functions for all the databases. Moreover, I searched the National Library of Sweden's scientific database Swepub and the international databases Scopus, Web of Science, and PubMed to complement and validate the results obtained from the national databases. Swepub, Web of Science, and PubMed did not identify any published items that had not been included in the sample retrieved from the national databases. However, Scopus, Elsevier's database for the life sciences, social sciences, physical sciences, and health sciences, returned some complementary

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[3]   These institutions included the University of Gothenburg, Lund University, Chalmers University of Technology, and Stockholm School of Economics.

findings of English-language studies to which Swedish researchers had contributed as members of multinational teams.

I used the following search phrases along with their truncations: the Swedish terms *medie- och informationskunnighet*, *mediekunnighet*, *mediekompetens*, *informationskompetens*, *mediepedagogik*, *medielitteracitet*, *mediemedvetenhet*, *and digital kompetens*, and the English terms *media and information literacy*, *media literacy*, *information literacy*, *media competence*, *information competence*, *media education*, *digital literacy*, and *digital competence*. I also utilized fields or functions to identify search phrases in all metadata, including the titles, abstracts, and keywords of studies. MIL was assumed to be incorporated within the key components of a study if the term constituted a central concept in the published work.

The initial literature search identified 398 published studies from the national databases. Duplicated and irrelevant titles were manually excluded. The excluded items included the search terms but did not display any connection to MIL. To exemplify, such published work included studies in the health sciences that discussed health literacy in a mediatized world but omitted the focal aspect of media and media literacy. For instance, an article could address parents of asthmatic children and probe their awareness of new medicines. Indeed, health literacy represented a relatively substantial research field that was excluded along with some other applied literacy areas addressing cultural heritage, design, and plant literacy. The study sample comprised 211 published items after the exclusion of such material. The complementary literature search conducted using Scopus for studies published in 2021 yielded 49 published items from Sweden, of which 14 were deemed relevant and added to the sample. The final sample comprised 225 items, as presented in Table 1.

Table 1. *Published studies identified from different databases before and after manual selection*

Database	Total number *(N)* of published studies	Total number *(n)* of selected published studies
DiVA	300	187
GUP	52	16
Lund	28	4
Chalmers	18	4
Scopus	49	14
Combined databases	*447*	*225*

Source: Own elaboration.

This study used a published study as its unit of analysis. Each article was coded for the variables to perform a simple content analysis. Departing from the choices depicted in Figure 1 to manifest a certain type of MIL within a research unit, the categories applied for the published works included the author name(s), number of authors, author affiliation(s) (for up to four authors credited sequentially), author gender (a binary 'male' or 'female' based on the author's name), title, discipline, type of published work, language, and method of analysis (theoretical or empirical). The categories applied to the study object – MIL – included the groups of people who were labeled as "MIL carriers" with regard to their ages and roles. the context of learning.

Disciplines

The 225 published items in which the author(s) explicitly used the term MIL or discussed a closely related concept were grouped according to their disciplines before categories were constructed from the data and compared against the bibliometric metadata. Figure 2 shows that most of the sampled published studies belonged to the pedagogical or educational domain (35%), followed by research initiatives in the library and information (23%) and media and communication (14%) sciences. Thus, MIL research was found to be most closely related to pedagogical studies and social sciences. Other disciplines present in the sample included domains related to technology, the humanities (e.g., literary studies), economics, medicine, and health sciences. Typically, the published works were located in sociologically or societally oriented subdisciplinary areas such as sociolinguistics (as an aspect of linguistics), consumption research (economic studies), and

educational gerontology (medical studies), or were directed toward the analysis of power structures.

Figure 2. Discipline-based distribution of the published studies

Medicine and health studies 2; 3%
Language studies 3; 3%
Economic/organizational studies 3; 3%
Sociology 4; 5%
The humanities 4; 5%
Technology studies 7; 8 %
Media sciences 12; 14%
Library and information sciences 20; 23%
Educational sciences 31; 35%
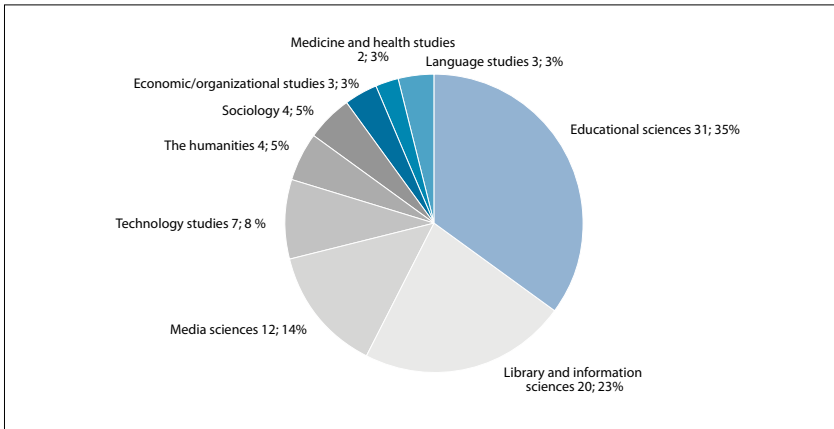
Source: Own elaboration.

Educational sciences, library and information sciences, and media sciences, the three most voluminous disciplines in the sample are defined by *MIL as a topic*. They "own" MIL by treating it as a theme that is inherently connected to the sets of objects of study that their disciplines are expected to examine. MIL is essentially expounded by these three disciplines: It is approached in educational sciences as a question of teaching and learning and the use of media for pedagogical purposes; it is probed in library and information sciences as a means of handling information; and it is explored in media studies as an issue pertaining to the use and production of media. Hicks and colleagues (2022, n.p.) describe the relationship between library and information science and information literacy as follows: "it forms the focus of scholarship, conferences, journals and teaching librarian practice, alike." Conversely, we can also identify disciplines defined by MIL as an aspect. These domains are represented in Figure 2 as the minor disciplines. The ontological focus of the central infrastructures of these minor disciplines is perpetually situated elsewhere than on MIL. However, MIL can occasionally be examined under their purview because it is experienced as domain-relevant. For example, the health sciences principally study health and health-related issues among a population as their research objects, but reading or creating media messages can denote a factor contributing to health awareness or behavior. Finally,

interdisciplinary research initiatives tend to fluctuate between the topic and aspect definitions, as may be observed in studies concerning topics such as literacy, children's culture, and civic or citizenship education.

The three major disciplines focusing on MIL applied slightly varying core concepts. The educational sciences diverged substantively in the concepts outlined in the keywords of their published studies: media and information literacy were the most used keywords but digital competence, digital literacy, and academic literacy were also often utilized. The most frequently employed core concepts in the library and information sciences were information literacy and information competence. Published works in media studies tended to employ media education, media literacy, and digital literacy as keywords. Disciplines designated to the aspect position often attempted to describe the study object through kinship concepts such as participation or added specifying epithets to an established concept: for instance, "intercultural digital literacy" or *med(ie) vetenhet*, "media knowledge or consciousness", which refers to a play with the words *mediemedvetenhet* (media consciousness), *vetenhet* (knowledge), and *medvetenhet*, (consciousness).

The methods noted in the sample of published studies methods were categorized primarily as theoretical or empirical. Theoretical studies presented conceptual constructs of MIL, reflected on previous academic literature, and represented a minority in the sample. This finding was unsurprising, given the empirical inclinations of the three previously stated leading MIL disciplines, educational sciences, library and information sciences, and media studies. Theoretical research constituted 21% ($n = 19$) of the study's subsample, whereas 79% ($n = 70$) of the results were derived from empirical evidence collected as a part of the research design. Most of the studies (84%, $n = 51$) employed a qualitative methodology and some (11%, $n = 7$) used a mixed methods (both qualitative and quantitative) approach. Therefore, very few studies (only 5%, $n = 3$) were quantitative. Thus, the ethos of the MIL research included in the sample was significantly qualitative.

MIL-related research is often conducted in proximity to the domains of MIL promoters. Such scholarly investigation is labeled *strategic research*, *applied science*, or *practice-based research* across disciplines. MIL-related research often involves and engages people and organizations outside academies and employs collaborative, participatory, or interventionist

methods such as ethnography, action research, citizen research, or cocreation. Even research areas focusing on professional domains tend to develop an organic relationship with the MIL-promotion work performed by the authorities and civil society actors. Research domains linked to pedagogy and targeting professionals such as teachers, librarians, sociologists, and journalists may be cited as examples. Some research approaches are descriptive, seeking to document activities and identify functional practices, while others are more normative or prescriptive, outlining norms and models for activities. Researchers can facilitate the amelioration of the relevant practices and services by conducting interventional studies.

Types of Published Materials

The sample ($N = 225$ studies) was categorized by the types of scholarly investigations, revealing that many of the collected titles were student theses: 136 (60%) of the 225 titles in the sample were written by students as part of their education. Thus, student theses definitively constituted the largest category of the total material, implying that students represented the cohort most inclined to follow the policy debates, public discussions, and pedagogical discourses of organizations in which the MIL concept is typically evoked. Students could also have encountered the concept of MIL in their studies in media, school, or library sciences, typically via authority figures and strategic documents ranging from school curricula to library plans. This exposure could have served as an entry point for students into the MIL domain. The concept of MIL could certainly offer novices an easy entry point because newscomers generally lack a fully developed theoretical repertoire of concepts and discourses from which to derive alternative terms. Many student theses also demonstrated a pragmatic approach because of the ambition to develop a certain professional practice or area. For instance, MIL appears conceptually appropriate in the context of collaborations between school teachers and librarians. Most of the reviewed student theses were written at institutions offering teacher education: Malmö University ($n = 18$), Uppsala University ($n = 14$), Linnæus University ($n = 13$), and Karlstad University ($n = 10$). The student thesis category included two doctoral theses and one licentiate thesis.

Figure 3 presents the categories by the types of published materials. Original research was most often published as journal articles, which

comprised 17 percent (n = 39) of the entire sample and 44 percent of the published research subsample (from which student theses were excluded). A large proportion (80%, n = 31) of the journal articles and book chapters (n = 39) in the sample were peer-reviewed. Of the total sample of published studies, 12 percent (n = 26) were conference papers, 4 percent (n = 10) were book chapters, and 4 percent (n = 8) were full books or reports. The residual category "other" (3%, n = 6) comprised academic book reviews and popular texts such as essays written by academics in cultural magazines or newspapers.

Figure 3. Types of published studies
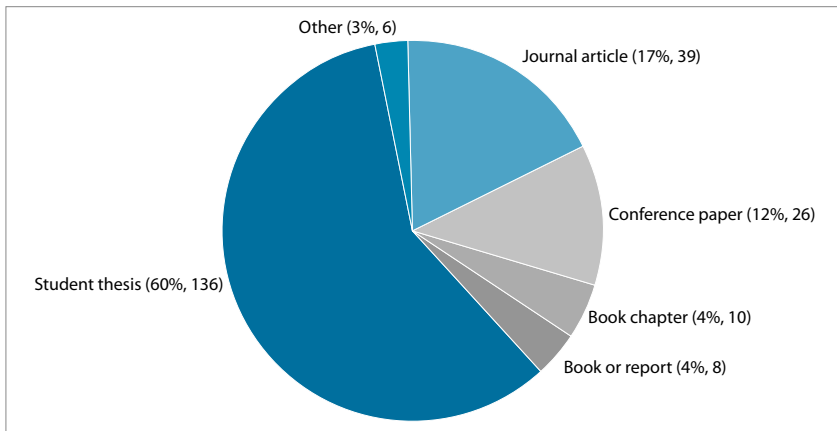
Source: Own elaboration.

Most of the published material (70%) was written in Swedish, and only one-third were inscribed in English. However, more than half of the remaining texts (68%) were revealed to have been written in the academic lingua franca English when student theses were excluded from the sample. Nevertheless, the share of English-language research can be deemed relatively low. The present-day Swedish academy is very international: on average, 35 percent of the students enrolled at Swedish universities hailed from non-Swedish backgrounds in 2021 (SCB, 2022). Additional studies that are not included in the sample are expected to have been internationally published. The sizable proportion of studies published in Swedish in the sample may be attributed to numerous media aspects being bound to the national structures and languages of the media landscape along with debates conducted in the national public sphere. Moreover, impactful MIL research could target MIL agents in a given country to

influence its policies, pedagogies, and practices. Policy-oriented research is closely connected to the field, and this feature could induce researchers to publish in a national language. Further, discrete disciplines evince varying traditions of international publishing; some disciplines could prefer to publish their studies in national languages.

The three journals in the sample with MIL as their focal theme were international peer-reviewed publications: *Journal of Media Literacy Education (JMLE)*, *Media Educational Research Journal (MERJ)*, and the *Nordic Journal of Digital Literacy*. Table 2 reveals that the sample also included journals on library and information science, educational research, media research, technology research, medical research, and health science.

Table 2. *Journals in Sweden and abroad that published the studies included in the sample*

Discipline	Journals published in Sweden	Journals published abroad
MIL as the primary topic	-	*Journal of Media Literacy Education, Media Educational Research Journal, Nordic Journal of Digital Literacy*
Library and information sciences	*Information Research* (University of Borås), *Tidskrift för ABM* (Uppsala University)	*Information, Journal of Documentation, Journal of Information Science, Education for Information*
Pedagogical research	*Högre Utbildning* (Stockholm University/ Cappelen Damm)	*Scandinavian Journal of Educational Research, Education Inquiry, British Journal of Educational Technology, Athens Journal of Education, Viden om literacy, Revista Electrónica de Investigación y Evaluación Educativa, Classroom Discourse, Education and Information Technologies, Early Childhood Education Journal*
Media and communication sciences	*Nordicom Review* (Nordicom/University of Gothenburg), *Journal of Digital Social Research* (JDSR) (DIGSUM/Umeå University)	*Media, Culture & Society, Explorations in Media Ecology, Media and Communication*
Technology research	-	*Computers and Education Open, Telecommunications Policy, Technology and Education*

Discipline	Journals published in Sweden	Journals published abroad
Medicine and health research	-	*Acta Pædiatrica, Educational Gerontology, Journal of Medical Internet Research, Patient Education and Counseling*
Cultural research	-	*Journal of Music*

Source: Own elaboration.

With respect to academic journals, two types of scientific journals publish MIL research: those with MIL as their principal theme, and those for which MIL was one possible topic. The main aims and scopes of the former type mention or specifically focus on MIL: for instance, the internationally published *Media Education Journal* or *Nordic Journal of Digital Literacy*. The aims and scope of the second type of journal allow the publishing of MIL research as one aspect of a more expansive publication strategy: for example, the Nordic journals *Educare*, *Information Research*, and *Nordicom Review*. Journals of the first type are most often published for the international market and include several MIL-focused periodicals such as the *Media Education Journal* and the *Journal of Media Education* published by the Broadcast Education Association, MERJ issued by Auteur Publishing in the United Kingdom, *JMLE* circulated by the National Association of Media Literacy Education in the United States, and *The International Journal of Media and Information Literacy* printed by Issledovatel' in Slovakia. No scientific journal in Sweden explicitly focuses on media education or literacy. All journals in the domains of media and communication sciences, library and information science, cultural research, and linguistics consider manuscripts related to MIL aspects if they also address their specific discipline-related aspects.

Authorship

Table 3 evidences that most authors of the study sample of published studies were affiliated with the universities in Gothenburg on the southwestern coast of Sweden, Borås, and Uppsala in the north. The University of Gothenburg is Sweden's largest university, and the University of Borås operates a library and information science school. The remaining researchers were affiliated with other universities scattered across the country.

Table 3. *Affiliations of the authors of the works included in the sample of scientific research*

University	N	%
University of Gothenburg	23	12%
Uppsala University	17	9%
University of Borås	16	8%
Lund University	14	7%
Umeå University	13	7%
Malmö University	11	6%
Chalmers University of Technology	9	5%
Karlstad University	9	5%
Stockholm University	7	4%
Linnæus University	5	3%
Linköping University	5	3%
University of Gävle	4	2%
Halmstad University	2	1%
University West	4	2%
Jönköping University	3	2%
Södertörn University	3	2%
Other	7	4%
University abroad	43	22%
	195	100%

Source: Own elaboration.

Accounting for the first four authors of each published study in the sample, the authors represented 20 different affiliations. Of the authors, one-fifth were affiliated with a university abroad and had collaborated with scholars employed at a Swedish university.

The number of authors of published studies averaged 2.9 in the sample, implying that MIL research is often conducted collaboratively by colleagues. However, working in researcher groups or labs probably remains less common in the disciplines in the sample that most represented MIL research than in the natural or "hard" sciences. One noteworthy article in the sample represented a medical science investigation that remarkably credited 59 coauthors.

Keywords, MIL Learners and Learning Contexts

All published scientific studies in the sample contained keywords that were typically determined by their authors. Conversely, the metadata in the databases, such as the descriptions of themes and disciplines, were inserted by information specialists at libraries. Figure 4 displays a word cloud containing the keywords used in the published research subsample obtained after the student theses were excluded. The word cloud demonstrates that the most frequently used keywords in the published studies in the subsample included *fake news*, *learning*, *reading promotion*, *school library*, and *teaching*. The words *fact-checking*, *disinformation* and *misinformation*, *critical thinking*, *higher education*, *COVID-19*, and *information search* appeared less frequently. The major keywords are extremely illustrative of source criticism, recognize the value of validated information, and emphasize fact-checking practices in the context of libraries and higher education, which seem to characterize the Swedish MIL research orientation in general. In addition, the promotion of reading is prominent as a policy and practice that has received scholarly attention. The global coronavirus disease 2019 (COVID-19) pandemic that persisted until 2021 formed an essential context for such studies.

Figure 4. A word cloud of keywords included in the subsample of published studies obtained after student theses were excluded

Source: Own elaboration.

Children and young people are often prioritized in public discussions on MIL-related issues and seen as the primary group of MIL learners – the carriers of MIL or those who are expected to acquire and possess MIL competencies. However, in this study, the groups of learners whose MIL skills were studied in the sample were more often university teachers, school librarians, university students, adult citizens (neither young nor elderly), and professional groups other than teachers and librarians, rather than children and young people. The stated populations of MIL learners were typically employees studied in the organizational context of workplace learning. Most research projects (74%, $n = 66$) dealt with adults, and only 11 percent ($n = 10$) concerned children and youth aged under 20 years. In addition, the MIL target group was not identifiable in 11 percent ($n = 10$) of the study sample. The roles studied as MIL learners included students (20%, $n = 18$), citizens (16%, $n = 14$), teachers (12%, $n = 11$), librarians (6%, $n = 5$), employees (7%, $n = 6$), patients (3%, $n = 3$), pupils (4%, $n = 4$), researchers (2%, $n = 2$), and consumers or customers (1%, $n = 1$), and around 25 percent could not be identified. As the MIL mediators (see Fig. 1) were often implicit in the study designs, such as the parents and caregivers when it comes to children or minors as MIL learners, these were not separately examined in the studies.

As for the operational contexts of MIL, seen here as the contexts of learning, the highest number of published studies in the sample were centered on media use in everyday contexts. These investigations comprised around one-fourth of the research subsample and indicated informal learning occurring during leisure periods. Approximately 19 percent ($n = 17$) of the published studies discussed higher education, and approximately 18 percent ($n = 16$) addressed children's education in contexts such as schools, preschools, and afterschool clubs. Such a high volume of research related to academic literacy and higher education practices could indicate two eventualities: first, considerable research related or relevant to MIL is produced through pedagogy courses conducted at universities for academic personnel, and second, many scholars are willing to study personal activities or, at least, activities closely related to their work. This aspect of MIL-related research is significant because it implies that MIL can function focally in supporting the continuing education and workplace learning of academics. Such assistance encourages researchers to become more reflective and media literate as practitioners and simultaneously produces knowledge on media-related issues in academies and societies. In other words, MIL research is not only a discipline or a field of inquiry for researchers, but also a learning domain. In addition to school contexts,

10 percent ($n = 9$) of the published studies in the sample discussed MIL in the archives, libraries, and museums sector and 4 percent ($n = 4$) discussed MIL in healthcare.

Discussion

The reviewed literature published in 2021 implies that research on MIL is predominantly qualitatively oriented, directed toward international academic audiences, and generally adapted to the conditions prevailing in academic publishing. Contrary to a common belief, MIL is not regarded only as a concern pertinent only to children and the media; rather, the topic of literacy more generally penetrates academic and work life. MIL research is a way to study academic environments; thus, it promotes the academic and professional reflection of many researchers and generates new published work for their institutions. All disciplines have not equally endorsed the policy-based concept of MIL; however, the scholarly domains of education, information, and media have addressed this issue most frequently. Evidently, besides explicitly employing the term MIL, research strains have generally attended conceptually to MIL without explicitly mentioning it. Therefore, the shape of MIL research can never be strictly delimited. Despite such shortcomings, literature reviews such as the present chapter help to localize explicit MIL research in academies and are therefore valuable.

The limited sample size may be admitted as a drawback of his study. This sample was compiled via a pilot study intended to develop a methodology for further systematic monitoring and encompassed a single year of published material. Moreover, scholarly publishing in 2021 could might have been affected by the pandemic in one of two ways. First, fewer research initiatives may have been published because female researchers reportedly suffered the most from pandemic conditions (e.g., Shomotova & Karabchuk, 2022). Second, the productivity of researchers could have increased by working remotely or from home. Therefore, the monitoring of MIL research must be upgraded according to the guidelines tested in this study, and the volumes and variations of this study must be reviewed by considering a longer period.

Since this chapter's findings indicate that most of the explicit MIL research is conducted in disciplines that do not generally rank highly in major international databases such as Scopus or Web of Science but is qualitative and relatively small-scale, further literature reviews emphasising national databases and compatible data collection can be recommended. Unfortunately, this approach could preclude the direct applicability of common research tools developed for literature reviews and bibliometric analyses. Instead, the recommended literature reviews may mandate a lesser reliance on automated data collection, despite the fact that it would be worthwhile to develop automated tools to regularly monitor research conducted using national MIL frameworks.

Regular documentation of MIL research represents an important function of a national MIL framework. Therefore, policy work in a given geographical area should systematically and longitudinally monitor such research. Policymakers and practitioners could benefit from more limited thematic overviews when the research structures are known. Policy and research must remain in continuous dialogue; however, this discourse must maintain sufficient distance between societies and academies and respect the autonomy of academic investigations. Moreover, the disuse of the term MIL by researchers should not be interpreted as problematic: it could simply reflect a sound, indirect, but mediated relationship between research and policy work and indicate that research primarily builds upon its traditions instead of adopting and becoming subject to external influences.

Conclusion

This chapter's systematic literature review of research published in Sweden in 2021 indicated that scholars of the educational sciences, library and information science, and media studies come closest to "MIL researchers" and, besides, do not restrict MIL to children and youth populations. This finding also implies that these disciplines incorporate the subdisciplines or research areas most closely associated with MIL policy. Researchers in other disciplines such as sociology, linguistic studies, and literary studies could orient themselves toward the concept using other vocabularies. Indeed, the roots of the conception of MIL in policy and politics must be recognized in examining explicit MIL research.

This study was designed for a distinctly national context in which the MIL concept is more dominant and is potentially used more consistently across societal sectors than in some other countries. Nevertheless, the design of this study could offer valuable insights for the systematic study of MIL research in countries other than Sweden. In any case, research reviews must consider specific national discursive traditions and avoid data collection tools developed for sciences other than those for which MIL is standard. Also, cross-country comparisons could yield interesting information about specific national characteristics of research related to MIL.

To conclude, it is crucial to discover the general structures of the conducted research. However, policymakers and practitioners could also derive added benefits from more detailed information than can be presented via a systematic literature review similar to the study at hand. Popularizing and pedagogizing research remain extremely important. Researchers must continue to elaborate on the findings of their originally published research through collaborations achieved with the support of universities as well as third-party science communication and mediation organizations.

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Transforming University Students into Library Users: Influence of User-Education Programmes on the Information and Study Skills of First-Year Students in South Africa

Katlego Petrus Chiya and Omwoyo Bosire Onyancha

The study aimed to examine the influence of user-education programmes on the information and study skills and competencies of first-year students at North–West University, Vaal Triangle Campus (VTC), in South Africa. The study adopted a quantitative approach and employed the case study method. The respondents consisted of 1,885 first-year students across two faculties with a sample size of 320, which were selected using the systematic sampling technique. The self-developed questionnaire was then distributed among the respondents. Out of 320, 266 students responded to the questionnaire, which produced a good response rate of 83%. The collected data were analysed using frequency and percentages and presented in tables and charts. The results revealed that a substantive number of first-year students never attended training on library use, including high school, public, college or any other academic libraries, prior to their arrival at the university. However, after attending the user-education programmes, they became independent users of the library and its resources, which was of great importance to lifelong learning and, thus, increased the usefulness of the library. Moreover, the majority of the students (60.1%) agreed that their information literacy skills improved. The findings further indicated that user-education programmes improved their skills in searching for information relevant to their studies. The study observed that although the VTC library conducts user-education programmes, they are not integrated into the university curriculum. Consequently, they are not formally evaluated. Thus, the study recommended that library management should ensure that user-education programmes should be fully integrated into entire university programmes. Furthermore, programmes should be regularly evaluated to ensure that they remain relevant in content and scope.

Keywords: information literacy, study skills, higher education, South Africa.

Ranganathan (1931, p. X) observed, in what was to become one of the five principles of librarianship that books (information resources) are for use. Lamptey (2010) argues that the use and demand for library resources will most likely be increased by improving the awareness of students and equipping them with the competencies and skills required to explore and use library resources. Similarly, Punchihewa et al. (2018) propose that libraries are made for use and, as such, any programme geared towards the optimal use of the library and its resources validate all effort exerted by librarians in acquiring and organising information resources and justify the budget allocation for libraries. The optimal use of information resources stored in libraries demands a concerted effort on the part of librarians and other stakeholders to create not only awareness among and a conducive space for users but also appropriate education and information literacy programmes for users to equip them with competencies and skills.

User-education programmes are seemingly significantly associated with the use of libraries and library resources. However, the term *user-education programme* is occasionally synonymously used with information literacy instruction programmes (Anunobi & Ukwoma, 2016). Other scholars (e.g. Chen & Lin, 2011) consider information literacy to constitute a major component of user-education programmes whereas others (e.g. Wooliscroft, 1997) perceive information literacy as evolved user-education programmes. Hence, his paper was entitled *From library user education to information literacy: Some issues arising in this evolutionary process*. Nevertheless, the majority (if not all) of commentators agree on the ultimate goal of user education programmes and/or information literacy programmes. Moyane and Dube (2015) contend that user-education programmes are intended to develop the independence and sophistication of users of libraries and information resources. In its statement on the standards and objectives of information literacy instruction, the Association of College & Research Libraries (ACRL 2001) goes further and includes the aspect of lifelong learning by stating that information literacy

forms the basis for lifelong learning. ... It enables users to master content and extend their investigations, become more self-directed, ... assume greater control over their learning... [and] develop a metacognitive approach to learning, making them conscious of the explicit actions required for gathering, analyzing, and using information (ACRL 2001).

In another statement on the definition of an information-literate person, the ACRL (2001, p. 4) stated that

an information-literate person is one who is able to: (a) recognize and understand an information need or problem, (b) discern the appropriate sources to satisfy the information need or problem, (c) evaluate, synthesize, and apply the information as it applies to the need or problem, (d) discern when enough information has been gathered to satisfy the need or problem, and (e) use information and information technology appropriately.

Agnes and Popescu (2010) added their voice by opining that information literacy programmes should be geared towards helping students to develop skills for recognising types and forms of information sources and to use information appropriately. The authors further argued that user-education programmes (including IL programmes) should equip students with skills to enhance their understanding of library services and departments/sections, how the library supports research skills and how to find information sources and apply ethical principles to the consultation and use of information resources. Therefore, equipping users with skills and competencies to maximise the use of the libraries and information resources for lifelong learning is seemingly the common denominator that explains the objective of user-education programmes, including information literacy, in the publications of many scholars. Libraries and librarians must evaluate the extent to which their user-education programmes have achieved this purpose. We concur with the assertion of Bello (2003) that one of the features of user-education programmes that must be evaluated is the degree to which the skills and abilities of students have changed as a consequence. By so doing, the results can be used to inform decisions on whether or not to continue, improve or terminate an existing user-education programme.

A dearth of literature exists on the impact of user-education programmes on the skills and competencies of first-year university students. However, studies that assess success or failure in the pursuit to enable users to acquire relevant and appropriate skills and competencies for lifelong

learning or pursuing their education are few. Several studies reveal that user-education programmes have empowered students in their pursuit of the use of different sources of information in libraries. For instance, Punchihewa et al. (2018) reported that library user-education programmes at the University of Moratuwa have enabled students to effectively locate and access library resources and services. They divulged that the library programmes have improved the ability of patrons to use the library; as a result, it enhanced the quality of their academic work. Moyo and Okemwa (2022), who examined the perceptions of students of information literacy at two South African universities, supported this notion. The authors found that many students acknowledged that the information literacy programme offered at the two universities have considerably academically helped them. Based on these findings, Punchihewa et al. concluded that user-education programmes can minimise *library fear* among first-year students by acquiring skills essential for the utilisation of library resources and services. Of particular interest was their conclusion that the programmes increased the visibility and exploitation of the resources available in the library. To *measure the importance of library user education*, Liu, Lo and Itsumura (2016) noted that the library programmes in Fudan University and the National Taiwan Normal University equip and enable students with skills and competencies necessary to make the best and maximum use of available library resources. Portman and Roush (2004) found a statistically significant increase in library use among students after undertaking library instruction. Moreover, Manuwa, Agboola and Aduku (2018) found that one of the most popular user-education programmes in Nigeria, namely, library orientation, positively influenced the students' use of the library and its resources, which, in turn, influenced academic performance. In terms of the assessment of the influence of the library in general and user-education programmes in particular and academic performance, scholars observed a positive correlation between user-education programmes and academic performance. For example, Barkey (1965) found a high grade point average for users who checked out books from the library, while Allison (2015) noted a significant correlation between library use and the GPA scores of students. Shao and Purpur (2016) cited that IL skills are positively correlated with writing scores and final course grades.

The current study provides a partial report on the findings of a broad study entitled 'The Role of User-Education Programmes in the Information Literacy Skills and Competencies of First-Year Students'. Specifically, this study focuses on the influence of user-education programmes on

the information and study skills and competencies of first-year students at North–West University (NWU), South Africa. We use user-education programmes in the broadest sense to include contemporary information literacy programmes offered at the NWU. The focus on the first-year students is based on the acknowledgement by many scholars that many first-year students enter universities with little or no basic academic and information literacy skills to successfully undertake their courses at institutions of higher learning as well as skills and competencies to use the information resources and services of libraries (Titi et al., 2016; Philip, 2015). Pretorius (2011) observes that such a deficiency may be attributed to a number of reasons, including staffing problems and the fact that the majority of VTC students are partially computer literate, especially older students originating from previously disadvantaged areas. Evidently, this deficiency could also be a result of a much broader problem, as Jiyane and Onyancha (2010:11) explain: 'the low functional literacy rates, in sub-Saharan Africa in general and South Africa in particular, profoundly impact on the information literacy skills of the general population'.

The objective of the current study is to explore the influence of user-education programmes on the information and study skills and competencies of first-year students at the NWU, South Africa. Specifically, the study examined the influence of user-education programmes on the following:

1. competencies and skills of students;
2. competencies of students in using information and communication technology (ICT) in libraries; and
3. the studies of students.

Research Methodology

The study investigated the influence of user-education programmes on the study skills and competency of students at NWU. To achieve the objective of the study, the researchers examined the (i) influence of user-education programmes on the competencies and skills of the students, (ii) influence of user-education programmes and the competencies of students in using ICT in libraries, (iii) influence of user-education programmes on the studies of the students. The study asked the following questions to the students:

1. Do you agree that the library orientation, training and workshop helped you to effectively use the library and its resources?
2. In your opinion, how have they helped you use the library?
3. Do you think the information literacy skills training you received has improved your information literacy skills?
4. Which skills were improved as a result of the user-education programmes and training you attended?

The study adopted the quantitative approach and employed the case study method. A quantitative research approach is intended to quantify and analyse variables to produce results (Apuke, 2017, p. 41). It involves utilising and analysing numerical data using specific statistical techniques to answer questions such as who, how much, what, where, when, how many and how. The study used a self-developed questionnaire to collect data from first-year students across the two faculties (i.e. the Faculty of Economic Sciences and the Faculty of Humanities). The NWU consist of only two faculties. A structured questionnaire was prepared in relation to the study objectives and was distributed to 320 respondents between January and March 2020, to obtain information on the influence of user-education programmes on study skills and competency in using the library. The questions were asked to establish the influence of user-education programmes on the information and study skills and competencies of first-year students. The target population consisted of 1,885 first-year students at the NWU, Vaal Triangle Campus (VTC), who underwent one form or another of user-education programmes at the university.

Table 1. *Target population*

Stratum	Stratum Size
Faculty of Humanities	1113 (*N*1)
Faculty of Economic Sciences and Information Technology	772 (*N*2)
Total Population	**1885 (*N*)**

Source: Own elaboration.

The study drew a sample population of 320 using the systematic sampling technique. Out of the 320 students that were surveyed, 266 responded to the questionnaire, which led to a positive response rate of 83%. Data were analysed using frequency and percentages and presented in tables

and charts. The study found that 150 students from the 266 respondents attended user-education programmes upon their entrance at the university.

Results

Influence of User-Education Programmes

This section intends to explore the influence of user-education programmes on the skills and competencies of the students in using the library and its resources, specifically those who had undergone at least one user-education programme. The following questions were posed to achieve the objective:

- Have you attended user-education programmes at NWU library?
- Do you agree that the library orientation, training and workshop have helped you to effectively use the library and its resources?
- How have they helped you to use the library?
- In your opinion, do you think the information literacy skills training you received has improved your information literacy skills?
- Which skills have been improved as a result of the user-education programmes and training you undertook?

The researchers first determined the number of first-year students who attended the user-education programmes since becoming students of NWU VTC. Figure 1 indicates that 150 (56.4%) of the respondents attended at least one user-education programme (i.e. library orientation, library training, information literacy skills and workshops) offered at the library. Alternatively, the figure depicts that 116 (43.6%) did not attend any of these programmes.

Figure 1. Attendance in user-education programmes by the library (n = 266)
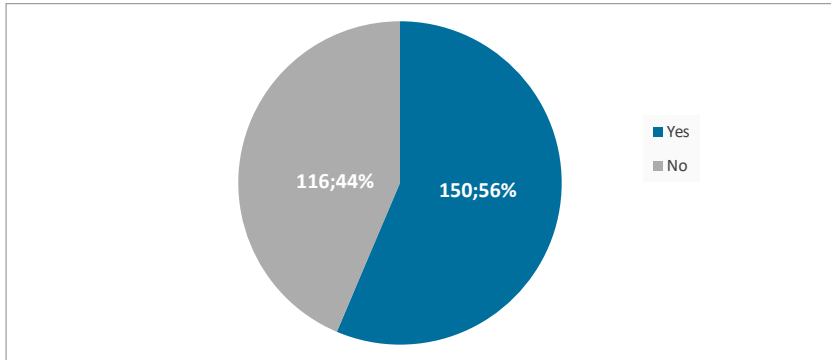
Source: Own elaboration.

On the question that sought to determine whether or not user-education programmes comprised of library orientation, training and workshops offered at the NWU have helped the students to be competent in using the library and its resources, Figure 2 revealed that 61 (40.7%) of the respondents agreed that the programmes helped them, while 42 (28%) of the respondents strongly agreed with this view. Thirty (20%) respondents neither agreed nor disagreed with this statement. Only six (4%) of the respondents strongly disagreed with this view. These results demonstrate that many first-year students admitted and recognised the importance of library orientation, training or workshop to help them use the library and its resources.

Figure 2. Positive changes on the competencies of students in using the library and its resources (n = 150)
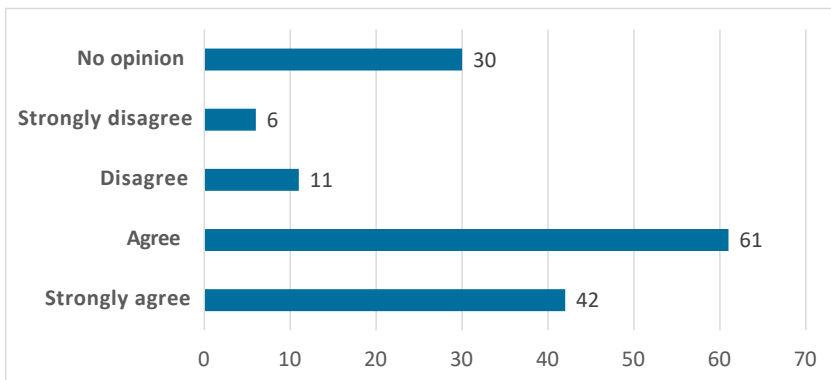
Source: Own elaboration.

The second question sought to determine the level of agreement of the students with statements that explained the specific skills with which user-education programmes have equipped users in using the library. Table 2 indicates that out of the 150 students who reported attending the user-education programmes at the NWU library, 77 (51.3%) strongly agreed that attending these programmes enabled them to search for scholarly articles through the library. The results also demonstrate that 62 (41.3%) agreed that the programmes enabled them to effectively use entire library services, while 60 (40%) agreed that the programmes allowed them to use the catalogue to search for books. These findings indicate the great influence of the user-education programmes on the information literacy skills and competencies of the first-year students. In other words, they are now competent and perhaps confident in using library services and their information literacy skills greatly improved, because they can independently search for scholarly articles, among other skills.

Table 2. *Influence of user-education programmes on the use of the library for students who attended user-education programmes (n = 150)*

		Freq.	%	Grouped responses		
				Freq.	Freq.	Mean
Enabled me to search scholarly articles	Agree	43	28.7%	Agree	120	80%	
	Strongly agree	77	51.3%				
	Never	5	3.3%	Disagree	30	20%	4.38
	Disagree	25	16.7%				
	No comment	0	0%				
Enabled me to effectively use the catalogue to search for books	Agree	60	40%	Agree	109	72.7%	
	Strongly agree	49	32.7%				
	Never	10	6.7%	Disagree	41	26.0%	4.36
	Disagree	29	19.3%				
	No comment	2	1.3%				
Enabled me to use all the library services effectively	Agree	62	41.3%	Agree	107	71.3%	
	Strongly agree	45	30%				
	Never	7	4.7%	Disagree	43	21.3%	4.22
	Disagree	25	16.7%				
	No comment	11	7.3%				
Enabled me to know how to reference works correctly	Agree	62	41.3%	Agree	119	79.3%	
	Strongly agree	57	38%				
	Never	10	6.7%	Disagree	31	17.3%	4.55
	Disagree	16	10.7%				
	No comment	5	3.3%				

Source: Own elaboration.

The most favourable option was the ability of the students to understand how to reference or cite sources correctly. The responses generated a weighted mean of $\bar{x} = 4.55$ followed by the ability to search scholarly articles ($\bar{x} = 4.38$), ability to effectively use the catalogue to conduct searches ($x^- = 4.36$) and the ability to effectively use library services ($\bar{x} = 4.22$). The grouping of the responses into two broad categories of Agree or Disagree revealed that the user-education programmes helped the students to acquire different but relevant skills and competencies in effectively using the library. High scores were obtained for the agreement of the students agreed that the skills enabled them to search scholarly articles (80%) and properly reference their work (79.3%).

Uses of Library ICT

ICT has become an integral part of the facilities and resources of the library. The shift in information environments from previously mainly reliant on paper-based resources to a hybrid environment that consists of paper-based, electronic and digital resources has propelled the importance of ICT in libraries to high levels. For example, electronic or online information resources have become the major sources of information of academic libraries. Consequently, the study posed several questions to ascertain whether or not the user-education programmes exerted an influence on their competencies and skills in using ICT and ICT-based resources housed at the NWU library. Examples of these questions are as follows: 'How do you rate your ability to use ICT facilities and ICT-based resources before joining the university?', 'How do you rate your current ability to use the ICT facilities and ICT-based resources in the library?', 'Does your ability to use technology in the library influence the type of information and information sources you use in the library?', 'Which ICT are you likely to apply when accessing information in the library?' and 'Which electronic resources are you likely to use in the library as a result of the knowledge gained through the user-education programmes on ICT and ICT-based resources?'

Figure 3 illustrates that 98 (36.8%) of the ability of the students to use ICT was good prior to joining the university, while 95 (35.7%) considered their ability to use ICT was fair. The results demonstrate that 38 (14.2%) rated their ability to use ICT was poor, while 31 (11.6%) reported that their ability to use ICT was excellent. After completing the user-education

programmes at the NWU, 34% (i.e. 51) of the 150 respondents who had attended the programmes cited that their ability to use ICT and ICT-based resources was excellent, while 70 (46.7%) disclosed that their ability to now use ICT was good. The result also indicates that the abilities of 13 (8.7%) were fair in terms of ICT use, while 11 (7.3%) rated their ability to use technology as poor and 5 (3.3%) declined to comment. The study also compared their abilities before joining the university and before undertaking the user-education programmes on the one hand and after undertaking the user-education programmes using the weighted means on the other hand. The results demonstrated improvement in that the abilities of the students. The percentage representation in the two categories of responses indicates that although 36.8% of the students considered their abilities as good before undertaking user-education programmes at the NWU, 46.7% mentioned that their ability was good after attending the user-education programmes. The study observed similar patterns for the other responses, which were ranked from poor to excellent.

Figure 3. Ability to use ICT before joining the University and after attending user-education programmes (N = 150)
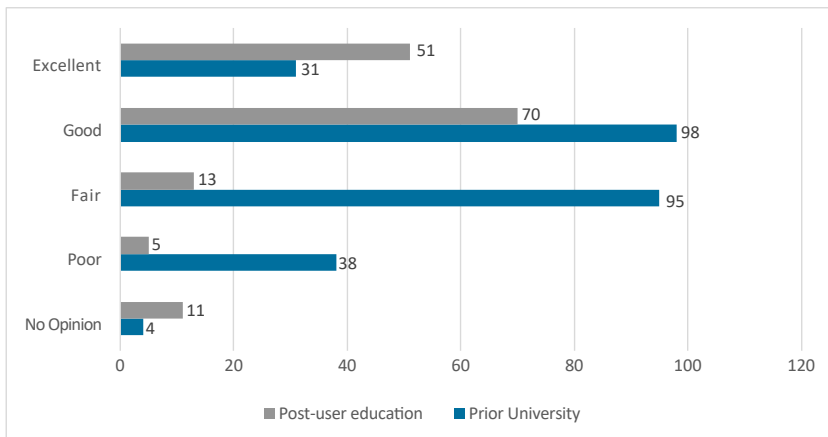
Source: Own elaboration.

Figure 4. Impact of ability to use ICT on the type of information and information sources used in the library (N = 150)
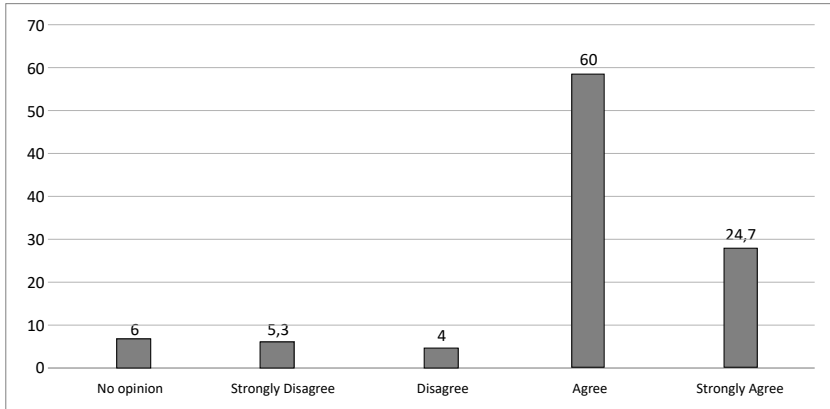
Source: Own elaboration.

The study posed a follow-up question on whether or not the abilities of the students to use ICT as a result of user-education programmes exerted an impact on their use of different types of information and information sources accessed in the library. Only students who attended the user-education programmes (N = 150) were asked this question. Figure 4 illustrates that the majority of the respondents (N = 90 or 60%) agreed that their ability to use ICT exerted an influence on the different types of information and information sources they use in the library. The results also demonstrate that 37 (24.7%) respondents strongly agreed with the suggestion that their abilities to use ICT impacted the type of information and information sources they use. Furthermore, 9 (6%) neither agreed nor disagreed with the impact of ICT use on their usage of information resources, while 8 (5.3%) strongly disagreed that their ability to use technology exerted an impact on the type of information and information resources they use in the library. Evidently, user-education programmes seemingly exerted an indirect influence on the use of information resources and, particularly, e-resources, as a result of the abilities of users to use ICT, which is an ability gained through user-education programmes.

Table 3. *Likelihood of using different ICTs to access information in the library after attending user-education programmes (N = 150)*

Type of ICT				Weighted mean	Grouping responses		
	Response	Freq	%		Response	Freq	%
Library computers	Never	15	10%	4.07	Never/ unlikely	40	26.67
	Very unlikely	10	6.7%				
	Unlikely	15	10%				
	Likely	20	13.3%		Likely	110	73.33
	Very likely	90	60%				
Cellphone	Never	23	15.3%	3.58	Never/ unlikely	58	38.67
	Very unlikely	20	13.3%				
	Unlikely	15	10%				
	Likely	31	20.7%		Likely	92	61.33
	Very likely	61	40.7%				
Personal computer	Never	21	14%	3.75	Never/ unlikely	52	34.67
	Very unlikely	15	10%				
	Unlikely	16	10.7%				
	Likely	27	18%		Likely	98	65.33
	Very likely	71	47.3%				
DVD/ CD-ROM	Never	97	64.7%	1.86	Never/ unlikely	124	82.67
	Very unlikely	20	13.3%				
	Unlikely	7	4.7%				
	Likely	9	6%		Likely	26	17.33
	Very likely	17	11.3%				

Source: Own elaboration.

Another follow-up question sought to determine the likelihood of the students to use different ICTs to access information in the library. Table 3 indicates that 90 (60%), 71 (47.3%) and 97 (64.7%) of the respondents are more likely to use library computers, more likely to use personal computers, never likely to consult DVD/CD-ROM, respectively. After grouping the responses into two broad categories, namely, Never/Unlikely and Likely, the study observed that the majority of the respondents were likely to use library computers (73%), personal computers (65%) or cellphones (61%). The weighted means produced similar patterns in which the majority of the preferred ICTs were computers. The students reported that they are unlikely or never likely to use DVDs and/or CDs. Notably, DVDs and CDs are rarely used to store information in the current information environment. Finally, we assessed the most frequently used electronic resources that students are likely to use to access information.

Table 4. *Types of electronic resources likely used to access information (N = 150)*

Electronic resources		Freq	%	Weighted mean	Response	Grouped responses	
	Response					N	%
E-thesis/ dissertation	Never	52	34.7%	2.70	Never/ Unlikely	94	62.67
	Very unlikely	18	12%				
	Unlikely	24	16%				
	Likely	35	23.3%		Likely	56	37.33
	Very likely	21	14%				
E-books	Never	10	6.7%	3.92	Never/ Unlikely	43	28.67
	Very unlikely	11	7.3%				
	Unlikely	22	14.7%				
	Likely	45	30%		Likely	107	71.33
	Very likely	62	41.3%				
E-journals	Never	8	5.3%	3.99	Never/ Unlikely	42	28.00
	Very unlikely	15	10%				
	Unlikely	19	12.7%				
	Likely	36	24%		Likely	108	72.00
	Very likely	72	48%				

Electronic resources		Freq	%	Weighted mean	Response	Grouped responses	
	Response					N	%
CD-ROM	Never	82	54.7%	2.19	Never/ Unlikely	114	76.00
	Very unlikely	18	12%				
	Unlikely	14	9.3%				
	Likely	11	7.3%		Likely	36	24.00
	Very likely	25	16.7%				

Source: Own elaboration.

The respondents were further asked about the electronic resources that they were likely to use to access information in the library as a result of attending user-education programmes. Table 4 indicates that 72 (48%) are very likely to use e-journals. while 62 (41.3%) are very likely to use e-books. These results are unsurprising because VTC librarians always encourage students to use e-journals and e-books when seeking information. The facilitators of user-education programmes frequently promote journal articles as the most reliable sources of information. Thus, noting that this type of information is the most preferred one after the completion of user-education programmes at the NWU is unsurprising. Once again, the least likely resources to be used are CD-ROM. The weighted means in Table 4 reveal that the students frequently preferred e-journals and e-books compared with e-theses/dissertations and CD-ROM. Therefore, the user-education programmes offered at the NWU seemingly influenced the use of e-resources with a high premium placed on e-journals and e-books.

Influence on the Studies of the Students

The last part of this investigation involved the exploration of the influence of user-education programmes and training on the studies of first-year students. Towards this end, we asked the students the following questions: 'As a new student at the NWU, do you think the training on the use of the library and its information resources is important for your studies? If yes, in your opinion, how is the training important to your studies?' and 'To what extent do you think your ability to use the library has influenced your studies?'

Figure 5. Importance of the user-education programmes and training on the studies of students (N = 150)
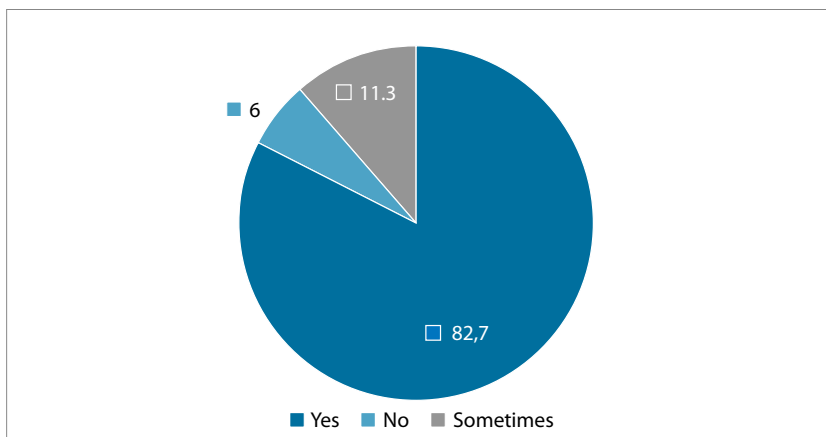
Source: Own elaboration.

Figure 5 reflects that a resounding 124 (82.7%) respondents considered that the training is important to their studies, while 17 (11.3%) felt the training is occasionally important and only 9 (6%) rated the training as not important. Their appreciation of the programmes is a manifestation of the importance of these programmes to the students.

Table 5. *Extent of the importance of the library education of users to their studies (N = 124)*

Importance of user training		Frequency	Percentage	Simplified response	Percentage
Helps me find relevant information for my studies	Important	15	12.1%	Important	60.6%
	Most important	60	48.4%		
	Slightly important	9	7.2%	Not/ slightly important	39.4%
	Not important	9	7.2%		
	No comment	31	25%		
Helps me learn how to use information effectively	Important	24	19.3%	Important	70.9%
	Most important	64	51.6%		
	Not important	6	4.9%	Not/ slightly important	29.1%
	Slightly important	15	12.1%		
	No comment	15	12.1%		

Importance of user training		Frequency	Percentage	Simplified response	Percentage
Helps me distinguish between scholarly and non-scholarly information	Important	34	27.4%	Important	77.4%
	Most important	62	50%		
	Not important	9	7.3%	Not/ slightly important	22.6%
	Slightly important	12	9.7%		
	No comment	7	5.6%		
Helps me to perform a proper citation for my assignment	Important	28	22.6%	Important	79.8%
	Most important	71	57.2%		
	Not important	4	3.3%	Not/ slightly important	20.2%
	Slightly important	12	9.7%		
	No comment	9	7.2%		
Helps me to analyse information effectively	Important	26	21%	Important	80.6%
	Most important	74	59.6%		
	Not important	4	3.2%	Not/ slightly important	19.4%
	Slightly important	14	11.2%		
	No comment	6	5%		

Source: Own elaboration.

The students who believed that the user-education programmes and training sessions were important for their studies were then asked to explain the specific areas to which this importance was applied. Sixty (48.4%) respondents reported that the training was most important in helping them find relevant information for their studies. Table 5 reveals that 62 (50%) respondents indicated that the training is most important in helping them distinguish between scholarly and non-scholarly information, while 57.2% (71) rated the training as most important, because it helped them provide appropriate citations for their assignments. The results also demonstrate that 74 (59.6%) revealed that the training was most important, because it helped them analyse information effectively, while 64 (51.6%) perceived that the training was most important, because it helped them use information more effectively.

Figure 6. Influence of ability to use the library and its resources on the studies of the students (N = 124)
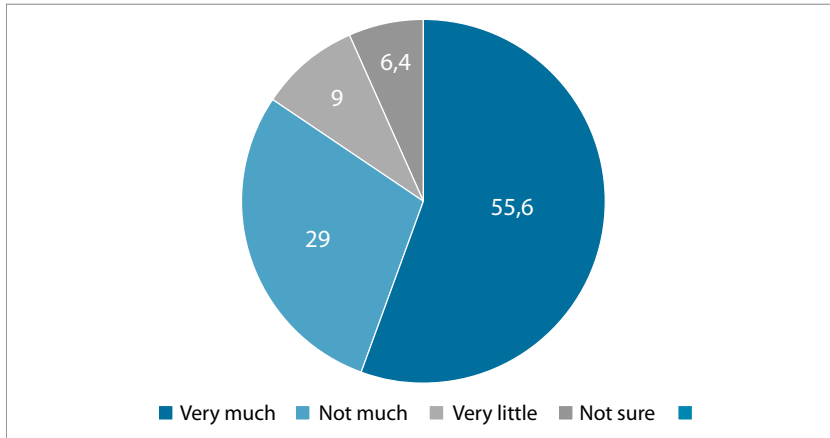
Source: Own elaboration.

The respondents considered the training important to their studies were then asked to determine the extent to which their ability to use the library has influenced their studies. The results reveal that 69 (55.6%) of the students perceived that the ability to use the library has 'very much' influenced their studies. However, 36 (29%) strongly felt that training on the use of the library and its resources exerted little influence; these students selected the option 'not much'. Eleven (9%) and eight (6.4%) students cited that their ability to use the library exerted very little or no influence on their studies, respectively.

Figure 7. Influence of the ability of students to use the library and its resources on academic performance (N = 150)
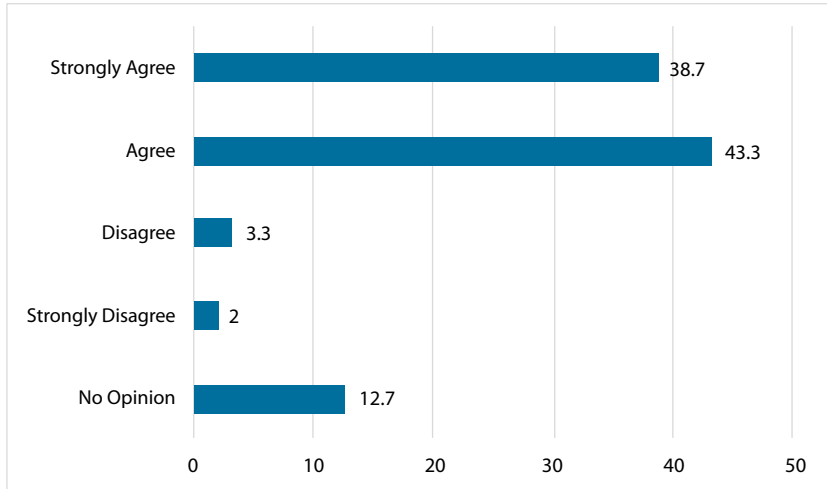
Source: Own elaboration.

Finally, the students were asked whether or not their ability to use the library and its resources influenced academic performance. Figure 7 presents the results. A total of 65 (43.3%) students agreed that this ability exerted a direct influence on their academic performance, while 58 (38.7%) strongly agreed with this view. Nineteen (12.7%) respondents provided no opinion on this question, while five (3.3%) disagreed with this view.

Discussion

This study aimed to explore the influence of user-education programmes on the information and study skills and competencies of first-year students at the NWU in South Africa. The study noted that a substantive number of the respondents never attended training on library use (high school, public, college or any other academic libraries) prior to joining the university. According to Pretorius (2011), the majority of students enrolled at NWU originate from environments that, relatively speaking, lack libraries or adequate libraries. This background heightens the importance of continuing to offer user education and information literacy programmes at the NWU. As Curd (2010) emphasises, previous experiences of library use determine how first-year students relate to the library and how quickly they learn to

orient themselves in a new library in which they would now need to study after becoming university students. Scholars have been acknowledged that students who join a university for the first time are ill-prepared to use the library and its resources due to the lack of exposure and training in high school (Kimani & Onyancha, 2015). Furthermore, Philip (2015, p. 1) argued that the majority of first-year students lack the basic library and literacy skills prior to entering institutions of higher education; therefore, receiving certain forms of orientation about the library and its resources is important. Notably, the majority of the respondents concurred that user-education programmes, such as library orientation, information literacy skills and workshops, have helped them effectively use the NWU library and its resources. A total of 51.3% agreed that these programmes greatly helped them to search for scholarly articles, while others (40%) mentioned that the programmes assisted them in effectively searching the library catalogue.

Consequently, we believe that the programmes ultimately enabled the students to be independent users of the library and its resources, which is of great importance to lifelong learning and, thus, increases the usefulness of the library. As Uwakwe, Oneneke and Njoku (2016) opined, the usefulness of any library is measured by the utilisation of its resources and services. Uwakwe et al. (2016) advise that the maximum use of libraries justifies all efforts exerted by librarians to organise user-education programmes. Chen and Lin (2011) argued that first-year students will need introduction and guidance in strengthening their awareness of the significance of library resources and services as well as their capability in using them. Moreover, they need to be persuaded to use a particular approach for the acquisition and use of information, which indicates a total cultural change.

Therefore, the library of the NWU VTC organises user-education programmes for this group of users to equip them with the necessary skills and competencies after entering the university environment. After attending information literacy training, the majority of the first-year students (60.1%) agreed that it improved their information literacy skills. This finding echoes that of Karimi, Ashrafi-rizi, Papi, Shahradi and Hassanzadeh (2015) who found that the information literacy skills of students were greatly improved after attending training. The authors also found that 40% and more than 36.7% stated that the information literacy training improved skills in searching the library catalogue and databases, respectively. Another 40% stated that the training helped them to effectively locate books from shelves.

The findings of Parirokh (2007) on measuring the effectiveness of information literacy workshops support that of the current study. Parirokh demonstrates that nearly all first-year students require information literacy skills and further reveals that a substantial difference exists between the information literacy skills of first-year students before and after participating in the programme. The results also reveals that the programme and the approaches used to teach information literacy were effective and very useful; however, the author argues that additional training is required to identify the information needs of the students and their ability to transform these needs into understandable questions. Bashorun, Aboderin and Lawal (2020) find that attending user-education programmes improved the skills of students. The study found that 92.4% of undergraduate students agreed to have acquired several skills in using the library and seeking information.

Therefore, effective training on information literacy can also equip first-year students with the necessary skills at the university level, given that they come to the institution with little prior training, as reported in the current study. This notion agrees with that of Kimani and Onyancha (2015) who reported that the majority of first-year students were not accustomed to various tools for information retrieval available in libraries or the applications of these tools. They further point out that the majority of the students did not know the meaning of the acronym OPAC and were unaware of the importance and objective of a call number. Onyancha stressed that many of them knew the purpose of a catalogue and the resources that could be found in the library catalogue.

The effective use or application of ICT in library systems demands good exposure to and training on ICT facilities (Uwakwe, Onyeneke & Njoku, 2016). The study found that a substantial number of first-year students improved their overall ability to use technology during their first year. According to Jamogha, Jamogha and Godwin (2019), the ICT skills of students are a relative measure of their capacity to appropriately use ICT for educational and learning purposes. These authors stressed that ICT skills are required to critically evaluate information content and explore it effectively. The majority of first-year students at the NWU indicated that the ability to use information technology influenced the types of information sources they use in the library. This result is in line with that of Adebayo, Olayinka and Adeniran (2018) who emphasised that the emergence of ICT has greatly influenced the quality of information provided through libraries. These scholars highlighted that using ICT

in libraries improves the information services provided. In other words, the application of ICT in libraries enables students to access timely information with ease.

The introduction and use of ICT have brought a number of tangible benefits to academic libraries together with users (Agyen-Gyasi, Lamptey & Frempong, 2010). Agyen-Gyasi et al. (2010) argued that perhaps the most evident benefits are those that emerged from the provision of facilities for electronic journals, which enabled library users to speedily access current and archival journal literature and to become aware of otherwise unknown literature sources. These findings illustrate the importance of being familiar with technological advancement to survive in today's academic world, which, thereby, reinforces the importance of user-education programmes. It further implies the importance of equipping students with ICT skills to use the library and its resources. This finding is supported by Johnson (2007) who considered that, ultimately, user education will be considered successful if users become self-reliant and information literate and consequently optimise the library and its resources.

Furthermore, this study demonstrated that the majority of students are at ease when using library (60%) and personal (47.3%) computers to access information as opposed to using other means of accessing information, such as cellphones (40%) and DVDs or CD-ROM (11.3%), upon their completion of user-education programmes at the NWU. Abubakar, Gupiyem and Banwar (2017) illustrated that the level of use of e-resources was very low on the part of the students. This finding echoes that of Mungwisi (2015:37) on the 'role of librarians in teaching information literacy in Zimbabwean and South African universities'. This author found that the majority of universities in Zimbabwe and South Africa reported that the increase in the use of e-resources after information literacy training is minimal. He also found that the majority staff and students are still more inclined to use print resources.

However, the current study revealed that e-journals (48%) and e-books (41.3%) are the most popular electronic resources that VTC students are likely to use compared with e-theses/dissertations (14%). This result is understandable, because first-year students are scarcely referred to these resources (e-theses/dissertations) and are not overly involved in research. In summary, the majority of the first-year students reported that technology has rendered access to information in the library easy for them. Abubakar

and Cholom (2017) inferred that students with high levels of computer literacy skills may use the library environment with computers and ICT with ease but not those with low levels of computer literacy skills. Consequently, user education and computer literacy could enhance the performance of students in a computerised library environment.

Recently, studies examined the link between user education and academic performance. A number of authors argued that no correlation exists between the two, whereas others claimed that a link exists between the two. Soria, Fransen and Nackerud (2013) claim that libraries need to collect data related to the use of library services by students; consequently, the lack of data collection leads to a shortage in studies that examine the link between library use and student outcome. Portmann and Roush (2004) assessed the effects of library instruction and found that measuring changes in student behaviour and skill development provided the greatest challenge in their academics. The authors predicted that it is likely to pose the same challenge for researchers in the future. However, Uwakwe, Oneneke and Njoku (2016) found that user-education programmes positively influence the use of the library of law students as well as their academic performance. Although the VTC library conducts user-education programmes, they are not integrated into the curriculum of the university and, consequently, are not formally evaluated.

The challenge for the VTC library is to integrate user-education programmes into the university curriculum, such that this programme can be ultimately measured according to its impact on the academic performance of students. Despite this shortcoming, the current study has established that the majority of the first-year students (82.7%) at VTC believe that the training they received in user-education programmes is significant to their academic performance. This result is collaborated by Molepo (2018, p. 97) who conducted a study on the impact of information literacy training on academic achievement and the success of first-year undergraduate students at Tshwane University of Technology (Polokwane Campus library)'. The author found that information literacy training exerted a positive impact on the academic success and achievement of first-year students. Furthermore, the study reported that students were ignorant of information resources, such as journals, databases, library catalogues and library resources, prior to information literacy training. The researcher conducted focus interviews post-training and found that the students demonstrated that they exploited library resources to

successfully complete assignments. This finding was in line with that of Ahemba and Terwase (2018) who found that the students greatly improved their ability to retrieve the needed information, they can effectively use catalogues to retrieve information and they were aware of the scope of the library among others.

The current study revealed that many of the VTC students (48.4%) perceived that the training they received in user-education programmes helped them to find relevant information for their studies. Mungwisi (2015) supported the finding that the quality of the projects of students improved (based on the perceptions of lecturers as reported in faculty board meetings). The findings also depict that many of the students (50%) reported that the user-education programmes helped them to distinguish between scholarly and non-scholarly information. This is important for students, especially with the over-proliferation of information available in the Internet today. In other words, one needs to know which information is scholarly and discard that which is not. A more significant aspect in user-education training was the capacity to equip students with the knowledge to effectively analyse the information they find from library sources and the Internet. This perspective is imperative for any student to excel in academia. According to Nithyanandam, Kanniyappan, Dhanakar and Rajasekar (2016, p. 450), if study programmes are to be based on the active search of students for knowledge, then they must acquire sound knowledge of searching for evaluating and utilising scientific and scholarly information.

Moyane et al. (2015) conducted a study at the University of KwaZulu-Natal on evaluating user-education programmes for post-graduate students in the School of Management, Information Technology and Governance. The authors found that all post-graduate students at the university considered user-education programmes essential to education. In other words, the positive response from these students indicated that they recognise that user education can be essential in improving their ability to use the library and its resources, which, as a result, can also exert a positive impact on their academic performance. Moyane et al. further argued that if these students, as per their admission, recognise the value of user education, then one can assume that they will ultimately recognise the relationship or interconnectedness between the use of the library and their academic success. This notion is in line with that of Ahemba and Terwase (2018) who state that user-education programmes exerted a positive impact

on the quality of education, because a significant relationship exists between library user education and academic performance. As such, the effective and efficient use of the library and its resources is the bedrock of academic excellence.

The abovementioned assertion is also true in the context of the current study, that is, students who considered the training on user-education programmes important to their studies stated that the ability to use the library greatly influenced their studies. Many of them (43.3%) acknowledged that their ability to use the library and its resources exerted a direct influence on academic performance. This finding was supported by Uwakwe, Oneneke and Njoku (2016) who found that user-education programmes positively influenced the use of the library of law students as well as their academic performance. Okoye (2013) further supported this result and argued that librarians should educate students on locating the required library resources with the consideration that these students originate from different cultural backgrounds and possess different levels of library skills. The author further mentioned that such education has benefits, because it can help students to achieve better grades due to their knowledge in locating relevant and better information resources to support their studies. Based on this finding, one cannot over-emphasise the importance of user education on the academic performance of students. Therefore, the university should develop plans to integrate the programmes into its curriculum and render these programmes compulsory for students, such that they can become more effective in their academic pursuits.

Conclusion

The assessment of the influence of user-education programmes on their participants is a valuable tool for gauging their importance. The optimal use of the information resources held in libraries demands concerted effort on the part of librarians and other stakeholders to create not only awareness among users and conducive space for users but also appropriate user education and information literacy programmes to equip users with competencies and skills. Therefore, equipping users with skills and competencies to maximise the use of libraries and information resources for lifelong learning appear to be the common denominator that explains the objective of user-education programmes, including information literacy.

Therefore, libraries and librarians must evaluate the extent to which their user-education programmes have achieved this purpose. A good and effective user-education programme will naturally create a platform for active learning techniques and lifelong learning (Bhatti, 2010).

The study makes the following conclusions: It noted that a substantive number of first-year students never attended training on using the library (high school, public, college or any other academic libraries) prior to entering university. This background increases the importance of continuing to offer user education and information literacy programmes. Students who attended these programmes significantly improved their ability to use library ICT and other resources. Consequently, attending user-education programmes is imperative, particularly for VTC students, who mainly originate from a background that lacks library exposure. Ultimately, they enter the university without prior knowledge of a library and its functions.

In general, the study observed that user-education programmes can lead to the development of the skills of students, particularly regarding their ability to independently find relevant information for their studies, effectively analyse such information, distinguish which information is scholarly and which is not and ultimately, excel academically.

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Opportunistic Media and Information Literacy: A Case Study of the Implementation of E-Commerce in the Food Retail Sector in Italy

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Based on a case study conducted in Italy in 2021, this case study examines the process of media and information literacy (MIL) in the context of the COVID-19 pandemic and its impact on the transformation of entrepreneurial culture among practitioners. It focuses on the transformation of the food retail sector that occurred during the first and second coronavirus lockdowns in Bra, a city in northwest Italy famous for its food culture. By examining the pattern related to the use of digital resources in the city food retail sector, this study shows that the acquisition of MIL in the spring of 2020 did not lead to a structural change in the local firms' entrepreneurial culture. Thus, this longitudinal analysis shows an opportunistic approach toward MIL that contextualized it as a resource only for emergencies. Thus, it clarifies the aspects of the entrepreneurial culture that delay deeper implementation and understanding of MIL.

Keywords: COVID-19 pandemic, lockdown, e-grocery, e-commerce, Italy.

The retail sector in Europe has experienced a tumultuous transformation in recent decades. In the 2000s, the growth of suburban shopping malls completely changed the routine consumption practices and exposed the frailty of traditional sales systems (Tomka, 2013, pp. 233–243). In the past two decades, the emergence of e-commerce platforms has further reconfigured the retail sector, affecting the job market (Chava et al., 2022) and the urban spatial organization within the tertiary sector (Moriset, 2020).

In this increasingly competitive world, everyday purchases changed consumer behavior, moving them away from traditional commerce locations, such as city centers and commercial districts. This created a crisis for traditional small and medium-sized enterprises, which are often run by families (Arrieta-Paredes et al., 2020). This change forced shop owners to experiment with new commercial strategies, such as launching e-commerce platforms (Lu & Reardon, 2018). However, before the COVID-19 pandemic, there was uncertainty regarding the implementation of these new technologies, which were based on substantial media and information literacy (MIL) among shop owners (Fouskas et al., 2020). The extended medical emergency and the ensuing strict restrictions on public mobility led shopkeepers to experiment with e-commerce, invest in new marketing strategies, and develop e-commerce tools (e.g., Beckers et al., 2021; Din et al., 2022; Kleisiari et al., 2021). Thus, this period was a catalyst for implementing digital technologies in the retail sector (Beckers et al., 2021). It represented an unprecedented acceleration in the widespread acquisition of MIL by retail professionals. MIL is the knowledge and skills required to find, analyze, critically evaluate, and generate information in various media and contexts (Lindman, 2020). In this process, institutional actors, such as national and local government bodies, may support the adoption of competences and digital tools (e.g., Nikolajenko et al., 2021; Reardon et al., 2021; Yong et al., 2021).

Despite this sudden transformation in digital knowledge and practices, its actual impact on shop owners' entrepreneurial culture remains debatable (i.e., how shop owners understand their work, the enterprise's mission of their enterprise, and how they choose to conduct their business, see Pfeilstetter, 2021) and their understanding of these novelties, along with the importance of institutional actors in supporting a process of MIL acquisition and the successful implementation of digital strategies and tools. Thus, this study addresses the following two questions based on in-depth fieldwork conducted in Italy in 2020–2021:

- How is MIL acquired and implemented into business practice and culture in a context of crisis?
- How is MIL preserved and integrated into business practice and culture after the crisis?

This study examines the consistency of MIL among retailers pre- and post-pandemic through a case-study analysis of the food retail sector in the City of Bra and highlights institutional actors' significant contribution to facilitate MIL acquisition and the use of digital tools. The study indicates that the local firms' entrepreneurial culture did not change significantly after MIL acquisition in the spring of 2020. It highlights an opportunistic approach for using digital resources, contextualizing them as a resource for emergencies only. Thus, it clarifies the aspects of the entrepreneurial culture that delay a thorough implementation and understanding of MIL.

The study examines the impact of the pandemic on the improvement of MIL in the retail sector, focusing on the role of MIL in transforming entrepreneurial culture among practitioners. This study suggests interpreting how and why MIL is achieved or disregarded by professionals from the perspective of their everyday business dynamics. The research was conducted by researchers of the University of Gastronomic Sciences in Pollenzo in collaboration with the City of Bra and Associazione Commercianti (Retailers' Association, ASCOM hereafter) Bra and is part of the activities of the university carried out within the project "Food Drug Free" (www.fooddrugfree.it) funded by the Piedmont Regional Council (Fontefrancesco et al., 2021). This study describes the context of food e-commerce during the pandemic and outline the research objective before analyzing the ethnographic fieldwork.

The Pandemic Context in the Food E-Commerce Industry

Although e-commerce was developed in the 1990s, the food retail sector saw rapid growth only in the 2010s (Fedoseeva et al., 2017; Mortimer et al., 2016; Tadelis, 2016). This sector experienced growth in large urban centers with greater digital infrastructure and easier delivery logistics (Buldeo Rai et al., 2019). Food services customers were primarily young, urban, young, belonged to the so-called digital natives, mostly well-educated male with good computer skills (e.g., Hernández et al., 2011; Lian & Yen,

2014; Liang & Lim, 2011). Due to increasing expansion and improved online services, consumers used e-commerce as a complementary channel to traditional forms of food shopping (Benn et al., 2015; Conaway et al., 2018). It specifically represented a way to find better prices and products that would otherwise be difficult to find and save time by receiving food directly at home or work (Anesbury et al., 2016; Wang et al., 2020).

Specifically, e-shopping for food or e-grocery was preferred for every day, long-life, and canned products, such as preserves, pulses, or pasta (Fontefrancesco, Cionchi, et al., 2021), or high-quality products with limited local availability or were highly expensive (Fernández-Uclés et al., 2020; Liang & Lim, 2011). This preference also includes fresh premium products (e.g., typical or organic products) as e-commerce is considered the simplest and safest way to build a connection and trust with producers (Bryła, 2018; Oncini et al., 2020). Along with this medium, e-grocery was used as an emergency option when in-store shopping was not possible due to the vicissitudes of life, such as the birth of a child or the onset of health problems (Hand et al., 2009). This role was evident during the COVID-19 pandemic (Fontefrancesco, 2020).

The first cases of COVID-19 were officially detected in December 2019 in the city of Wuhan, China (Panneer et al., 2022). As the disease spread worldwide, countries took unprecedented public health measures (Thomson, 2020). Governments in the West implemented various methods and forms of containing the disease between 2020 and 2021. They imposed the use of personal protective equipment, social distancing measures, and restrictions on personal mobility. In this context, the possibility of buying in-shop products, including food, was limited if not prohibited. This new daily scenario led to a significant change in consumption patterns. It specifically marked an acceleration in the implementation of digital commerce tools (e.g., e-commerce platforms and online delivery services) even among micro-firms (Kim et al., 2021). This scenario led shopkeepers to shift from traditional forms of sale and embrace new multi-channel strategies during lockdowns. Thus, they demonstrated a rapid and unprecedented familiarization with media and information technology even in rural areas (Melis et al., 2015).

This phenomenon was particularly evident in Italy, the first Western country to enforce a national lockdown in March 2020 (Fontefrancesco, 2020; Guigoni & Ferrari, 2020). Specifically, the restriction led to the

extensive use of e-commerce, the emergence of e-grocery, and a shift in sale and purchase practices throughout the country (Ancc-Coop, 2020). This phenomenon also affected rural centers, which face a significant gap in terms of information infrastructure and the availability of online services (Selva, 2020). While these changes may indicate a long-lasting effect (Grishchenko, 2022), this study suggests an alternative interpretation.

In Italy, the COVID-19 emergency unfolded in February 2020, with the first hotspots identified in Lombardy, about 250 km from Bra. The first three cases were detected in Bra during early March. The first nationwide lockdown was imposed on March 11. The lockdown imposed extraordinary restrictions that blocked all economic activities, including the retail sector, with few exceptions such as the food sector. Food stores could remain open, although strict social distancing and sanitation were enforced. People suffered severe mobility restrictions (people could only leave the house for necessary and mandatory purchases, such as food and medicine or to reach their workplace) (Guigoni & Ferrari, 2020). In Bra, in particular, individual mobility was limited to 200 m from home, forcing people to shop for groceries from the nearest outlets.

The first lockdown ended on May 4. There was a gradual return to normal mobility till the end of summer. After August 15, the number of infections increased nationwide, which was accelerated by the reopening of school activities in mid-September. In response to the second wave of the pandemic, the government imposed several measures to restrict mobility and limit gatherings on October 8. This led to a second national lockdown on November 3. Although this lockdown imposed less severe restrictions (e.g., free movement within the municipality was allowed for shopping and several businesses was allowed to remain open) and their full enforcement depended on the intensity of the pandemic in individual regions, the state of emergency lasted till April 26, 2021.

Overall, the first and second lockdowns represented an abrupt end to conventional methods of retail management. This forced shop owners to explore new forms of service and channels of information to maintain the customer relationship. In this regard, despite age differences, they found solutions in implementing a complex array of digital resources to reinvent their business during the lockdowns.

Methodology

The ethnographic case study examined how MIL and the use of digital tools affected small-scale food retailers in 2020–2021 during the COVID-19 pandemic. Typically, the food retail sector does not rely much on digital resources for its business. We observed how retailers communicated using digital tools and possibly acquired new tools for use. This ethnographic case study (Schwandt & Gates, 2018) focused on small food retail companies in Bra in the province of Cuneo in northwestern Italy. The study followed earlier studies that examined the specificities of the town's food market (Corvo & Fontefrancesco, 2018) and its food retail sector (Fontefrancesco et al., 2021).

The study, spanning July 2020 to March 2021 covering two national lockdowns (spring and fall 2020), was conducted by the research team of the University of Gastronomic Sciences in collaboration with the municipality of Bra and ASCOM Bra, which is a business association of Bra shop owners.

The activity followed three phases:

- The first phase from July to September 2020 involved a systematic bibliographical review of Italian and international sources (academic literature and gray literature sources identified using online search engines, such as Google, Yahoo, and Duck, as well as citation databases, such as Scopus, EBSCO, and Google Scholar) on the impact of the pandemic on the use of e-commerce by the retail sector and e-grocery among consumers in the area (Fontefrancesco, Cionchi et al., 2021).
- The second phase, which included 30 firms, spanned from October to November 2020 and involved ethnographic fieldwork in Bra. This included participant observation of the city's retail practices and interviews with food shop owners and consumers. The firms were sampled among ASCOM Bra associates covering 30% of the food retailers. The sample includes the city's most common typologies of business and business structures. All participants were required to complete the following: (1) a preliminary 27-item questionnaire examining the shop's business structure and operation, as well as the use of digital tools in the business, and (2) an in-depth ethnographic interview based on the life-story method (Atkinson, 2002)

to examine the respondents' understanding of the pandemic and the impact on business perception, as well as the motive for implementing new digital tools (for further details on the tools used during the research, see Fontefrancesco et al., 2021). This study included a qualitative social media analysis (Altheide & Schneider, 2013) of the digital content developed by respondents during the lockdowns.

- In the third phase spanning from December 2020 to March 2021, data were analyzed and the results announced by engaging the local population and professionals of the city (Fontefrancesco et al., 2021).

Digital Resources during the Pandemic

Bra has a population of 30,000 inhabitants and is one of the main economic centers of the province of Cuneo (Camera di Commercio di Cuneo, 2017). The city is well known worldwide in the food industry for its work with Slow Food, an international NGO that campaigns for the protection and valorization of local, traditional food products across the world (Fontefrancesco & Corvo, 2019), and the international food festival Cheese (https://cheese.slowfood.it/). Bra's economy is based on an active agricultural sector, specialized in cereal, horticultural, and livestock production (cattle and poultry), and a consolidated manufacturing sector (Bailo, 2014). In particular, the city has a remarkable number of small and medium-sized firms specialized in food retail, with over 100 shops in 2021, mainly distributed in the city center (see, for example, www.bracittaslow.it).

The city is characterized by a vibrant dynamism in food consumption, with strong appreciation for food quality and curiosity for new culinary trends (Corvo & Fontefrancesco, 2018). However, this gastronomic dynamism did not translate into a preference for new methods of consumption and purchase; instead, in December 2019, people purchased food from small and medium-sized shops located in the city or directly from producers (Fontefrancesco et al., 2021). E-grocery, in particular, was limited, where only 15% of consumers using it mainly for durable goods once or twice a year and not daily consumption (Fontefrancesco et al., 2021). Moreover, before the pandemic, few businesses in the city had an online presence through a corporate website or a social page. Underdeveloped e-commerce, combined with limited digital media competences among shop owners (Fontefrancesco et al., 2021), changed dramatically with the pandemic.

First, this study focuses the digital tools used by food retailers during the pandemic. We then discuss the four main categories of resources in various digital tools used by the respondents: messaging tools, social networks and corporate websites, e-commerce platforms, and delivery services.

Messaging tools were used to exchange messages or simple materials between individuals or within groups and most widely used by entrepreneurs even before the pandemic. During 2020, these tools were crucial for exchanging information between businessmen by organizing theme-based groups. ASCOM Bra played a key role in this regard. It created WhatsApp groups of shop owners and assigned the task of regularly updating them about the pandemic-related changes in the regulatory framework. These groups became essential for shop managements, particularly during the first lockdown when legislation changed daily. Moreover, some retailers organized WhatsApp groups with neighboring businesses. They formed street or neighborhood groups, which included the retailers and facilitated business collaboration. Together with these groups, many retailers organized groups or business accounts to collect delivery orders, mainly from trusted customers.

Social networks and corporate websites were used for promotional communication of goods and services. Before the pandemic, their use was limited to shops with younger owners and those targeting younger customers. Of the respondents, only three had such a network or website, and it was solely used for advertising, not for e-commerce. However, since the first lockdown, other firms created profiles to attract new customers due to decrease in their usual clientele (e.g., food and wine tourists) and the ineffectiveness of traditional promotional tools (e.g., advertising posters or leaflets). For a similar purpose, some of the shop owners created newsletters for their consumers to provide information about new products and special discounts.

E-commerce platforms were used to sell products and services to individuals or groups. Before the pandemic, research showed that e-commerce use was limited and sporadic, mainly among newly opened shops by young owners. Most of the city's businesses lacked websites or online sales channels. The pandemic introduced new needs for logistics needs and customer demands. In response, all shops implemented an e-commerce service through an app called Tutaca (https://www.tutaca.it/), developed by ASCOM Bra and promoted by ASCOM Bra and Bra municipality. This

is an e-commerce portal designed to incorporate a delivery service into a conventional retail firm. The low entry costs and fees for shop owners and the effective advertising campaign by the business association and municipality to encourage local consumers to use the app led to a wide range of shops, not only food retailers, joining the platform. Thus, Tutaca became a useful tool for citizens, who used it daily during lockdowns, even more than more established services such as Amazon.

Delivery services were used to ensure home delivery within the city. Unlike other cities, Bra was not served by platforms such as Deliveroo, Glovo, or Uber Eats. Instead, each shop organized its own delivery service using its own staff to meet the new needs of the Bra population. Concurrently, a local delivery service called Food Delivery Bra was created to ensure home delivery for food and other goods. This service was operational during 2020. However, in 2021, new competitors, such as Glovo and Justeat, entered the local market to become the main players along with the delivery services run by individual shops.

A Process of Competence Building

Spring 2020 was a period of dramatic and fast acquisition of MIL. All respondents confirmed they had become familiar with new digital tools, with all but five respondents having never used them for their business before. This was a process of learned by doing, with the added support of their peers and institutional actors, such as ASCOM Bra and the City of Bra. These institutions played a key role in interpreting a sector's professional needs and providing training and developing specific IT tools, such as Tutaca in March, and Bra città Slow (www.bracittaslow. it) later in November, which is a communication portal that highlights Bra's characteristics and aggregates its e-commerce functionality for local business members.

The longitudinal analysis shows that the acquisition of the new digital competencies and their use appeared to be incidental. The knowledge and use of digital tools for retail business was limited before March 2020. Few shops had experimented with social media communication and e-commerce for business. They too conducted their core business in person, in their shops because of three main impediments. First, the overall level of MIL among shop owners was low, as many were older than 50

years with no secondary education. Second, these firms' clientele were those living in close proximity to the shops, who also were not familiar with using digital tools. Third, there was limited staff in the shops, with all of them working full-time and leaving them very little spare time outside of work hours to manage a website or social profile or effectively run e-commerce activity.

The first lockdown (March–May) marked a drastic departure from the past. The stringent limitations imposed required rapid shift toward adopting digital communication and sales strategies. The launch of new technologies, such as Tutaca, facilitated many businesses to engage in e-commerce and online delivery services. Studies indicate that some environmental elements stimulated the change. First, the new legislative restrictions on the retail sector hindered in-store activity, which required a change in the business strategy and providing time to implement the digital tools. Second, customers' attitude toward visiting crowded places changed. Third, there was a consequent increased demand for delivery services and a direct connection with the shop owners to coordinate their shopping in response to the emerging medical, economic, and practical needs. By the end of the lockdown, all respondents were actively providing online e-commerce and delivery service.

However, during the summer months (June–September), as mobility restriction were relaxed, shop owners began to marginalizing and discontinuing the use of digital tools. Only five of them continued to update their company profiles and inventories in e-commerce platforms. This shift was mainly driven by customers' preference to return to in-store practices they were familiar with in the pre-pandemic period. Moreover, the shop owners preferred to return to commercial strategies that were focused on in-store sales, which led to a change in the use of personnel and the decision to discontinue online activities. The retailers justified the abandonment by the widespread belief that the pandemic had been overcome and future lockdowns were impossible. Unfortunately, this was not the case.

From October to December 2020, during the second lockdown, the shops resume their online services. Unlike the spring, the revival was faster and smoother, indicating the stability of firms' digital competences. The role of institutions was less prominent during this period, as there was no need to further promote the use of digital resources that were already known and available to the retailers.

Opportunistic Literacy

Before the pandemic, MIL was deeply linked with generational belonging and education. It was not considered a fundamental asset for the local food retail sector as most of the enterprises based their entrepreneurial model on personalizing the economic relationship and fostering direct, personal knowledge between retailer and customer. Specifically, this business model is embedded in a geography of proximity, where the shop is close to the customer's home, allowing for daily, on-foot visits and purchases limited to products for immediate consumption. In this context, the same retailers considered their stores as proximity services and did not consider the possibility of extending the business reach beyond the local space (e.g., block, neighborhood, or the town). Similarly, they did not consider their stores as potentially attractive services capable of meeting the needs of customers far from the city.

The lockdown led to significant disruption of this continuity. This "black swan" (Taleb, 2007) compelled the shop owners to explore new strategies for sustaining their business, which included developing key personal competencies such as computer and internet skills and advanced internet use (Durán-Becerra & Lau, 2020, p. 53), specifically related to e-commerce and delivery services.

While e-commerce appeared as a possible solution, a substantial MIL was achieved through a combination of individual and collective efforts. Each company followed its path of implementing digital resources based on its IT capabilities, business characteristics, and clientele. While messaging services were widely implemented and corresponded to the application of familiar and used technologies to a new domain (establishing and maintaining relationships with clientele and other shop owners), the implementation of e-commerce and delivery services represented a completely new addition facilitated by institutions. ASCOM Bra and Bra municipality served as facilitators by lowering the costs and difficulty associated with accessing digital technologies and raising awareness among the shop owners and general public about the opportunities provided by these technologies.

Despite the positive combination of individual proactivity and institutional support that enabled retailers to master the required MIL competencies within a few weeks, the implementation of new digital tools and economic

strategies appeared only circumstantial and deeply linked with the emergence of the pandemic crises. Both the pandemic and institutional support affected only the quotidian practice without permanently changing the retailers' understanding of their work and activity (Fig. 1).

Despite the overall success of the implementation of e-commerce among Bra shop owners during the lockdown, it did not lead to a long-lasting transformation in the retail sector. The adoption of e-commerce was considered only a remedy to sustain business and maintain customer relationship. This conservative approach did not push the retailers to reassess their business structure or explore the new opportunities offered by online services in the post-lockdown period, especially to expand their commercial reach and enhance customer relationship and information flow. Retailers justified this opportunistic and conservative approach by indicating the uncertainty of the results from continuing online services and a cost–benefit ratio perceived as particularly burdensome for the businesses, especially during a complex economic period. Thus, both the stringencies of the pandemic and substantial institutional support could not generate substantial innovation in the sector, which resumed its activities in the post-lockdown period repeating commercial practices and entrepreneurial models used in the past.

Figure 1. Graphic summary of the impact of the pandemic and institutional intervention of the retail sector in Bra
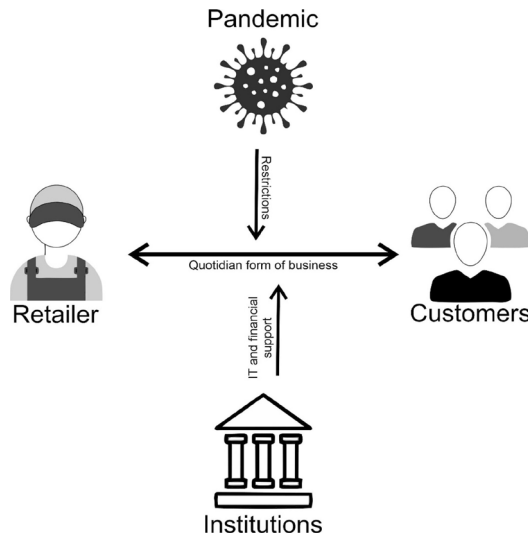
Source: Own elaboration.

Conclusions

This study shows that acquisition of MIL was crucial for the retail sector to counter the impact of the COVID-19 pandemic. However, acquiring MIL and consistently using digital resources do not generate long-term effects in terms of changes of entrepreneurial culture and business practices. Therefore, the study emphasized the importance of contextualizing the process of acquiring MIL to assess its actual significance in terms of innovation.

The process in Bra involved the acquisition of basic skills related to retrieval and assessment of information online and especially competences related to the creative production of information (i.e., those competences referred to as 3.1 and 3.2 in the UNESCO MIL competence framework: UNESCO, 2013, p. 58; also see Grizzle et al., 2021). This study highlights the importance of noneconomic, institutional actors in supporting this process and providing effective digital tools. In so doing, it advocates a collective approach to acquiring MIL, thus moving away from the idea that MIL can and should be acquired by the individual enterprise independently and that the effectiveness of an approach that can involve entire sectors of a community and offer shared responses. This can be an important lesson beyond the city level.

This contingency led institutions to focus on providing resources that could be immediately used to sustaining their business. While this approach allowed economic success, it did not kindle long-term entrepreneurial innovation. Thus, to unlock the full transformational potential of MIL competencies for the sector in non-contingency situations, it is necessary to broadly intervene and assist entrepreneurs to reassess their activities, value, and potential, showing how digital competencies and tools can help in achieving larger goals. Otherwise, cultural inertia may prevent independent experimentation with digital tools and strategies.

Therefore, this study addresses entrepreneurs. More importantly, it addresses private and public institution that support them and suggests a direction of intervention to strengthen the sector's overall MIL. In this regard, future research will outline the necessary actions to progress toward the common good.

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Post-Pandemic Financial Literacy in Social Media: How Microblog Posts Reflect Citizens' Opinions about Taxes

Yolanda Berdasco-Gancedo

The global pandemic has been used to justify many public policy decisions, including those concerning the economy and public spending. Making payments with taxpayers' money for public health and social welfare is understandable, as long as it is done to address a global emergency. However, once the disease data gives way to a stable state, it is necessary to understand how the public evaluates the management of tax revenue and analyze the impressions communicated about taxes, the tax system, and spending. To this end, a highly qualitative methodology based on critical discourse analysis was used to study messages posted on Twitter (now X) in August and September 2022. The results will confirm whether economic knowledge is still as limited in digital media and social networks as in traditional media.

Keywords: taxes, financial literacy, Twitter, X, microblogs, social media, Spain

The global COVID-19 pandemic exposed a significant gap in our society's financial knowledge and economic literacy. In the case of Spain, the shortcomings of financial literacies have been discussed even long before the pandemic, focusing on education curricula that do not recognize citizens' economic independence and media that portray economic and financial information as an elitist issue (Mancebón et al., 2019; Montalto et al., 2019; Sánchez Asiain, 1952). There is, in other words, a long tradition of educational interventions to make citizens understand the role of taxes and taxpaying since World War II (see e.g. Schönhärl et al. 2023); however, we suggest that after the pandemic, tax education should be taken seriously again.

To explore whether and in which ways the general public is largely unaware of many fundamental economic concepts, this essay focuses on looking at texts related to economy and finance in the social networks of the former microblog Twitter, now known as X. It is assumed that shortcomings in financial literacies can result in a reduced capacity to make decisions in the daily lives of individuals, such as contracting a mortgage without understanding the consequences or showing poor understanding about how the tax system operates.

This essay asks whether taxpaying, a topic that has become increasingly important since the pandemic, is an alien concept for many citizens, who express opinions or information on their social networks that are not always accurate. By making use of a simple content analysis, we will discuss how social media users employ their – sometimes fragmentary – knowledge in this area in microblogs where the conditions for conducting analyses of complex societal issues is challenging. To support educators promote a deeper financial literacy, a series of improvements are proposed, in order to produce better informed and, as a result, more independent citizens.

During the pandemic, all local, regional, and national governments were required to take steps to mitigate the consequences of economic scarcity, which, in many cases, resulted from increasing taxes. For example, one challenge was to fund what were known as *Expedientes Reguladores Temporales de Empleo* (Temporary Regulation of Employment; ERTES). These were State subsidies paid to workers who could not continue working

due to the pandemic and were not retained by their companies. This was in addition to other government payments to help families survive during the pandemic, especially in the following months, because the destruction of employment and productive capacity was significant in a country like Spain, which had not yet recovered from the global recession of 2007 (cf. Bona-Sánchez et al., 2023).

However, the only way to pay for this extraordinary spending is to collect taxes from citizens, which is never popular, particularly among those who do not design the government's budget policy. This is one of the most important platforms, and it shows the most dissatisfaction with the Spanish Government's tax-raising policy. In this essay, we will thus discuss what characteristics the tax-raising policy discourse includes and how close they are to reality by reviewing tweets on these topics. In other words, whether the content that citizens post on this social network shows that they understand where the money they pay in taxes goes, or whether they follow their political instincts and ignore the fact that taxes should contribute to the maintenance of the welfare state and the public services that citizens rely on.

Objective of this Essay

This essay aims to discover how the return to normalcy following the COVID-19 pandemic made people address the public spending and tax policy on social media, more particularly, on the microblogging service that was called Twitter until 2023 and changed its name, after Elon Musk acquired it, to X. Twitter allowed people to publish public posts called tweets restricted to 280 characters.

The main expectation, grounded in previous public discussions and studies on people's knowledge about financial issues, is that the general public lacks sufficient financial literacy to make categorical statements on social media platforms such as Twitter about the destination of the money they pay in taxes. The main goal of this professional contribution is thus to inquire into the purposes of microblogging sites as platforms to address complex societal issues. The essay intends to raise the question how suitable microblogging platforms are for carrying on an ideological confrontation between conservative and progressive supporters, addressing complex issues such as taxes and public spending.

Brief Theoretical Framework

The media's portrayal of reality significantly impacts how citizens perceive the world. At the same time, the media serve a social function by shaping public opinion and increasing knowledge. This is especially important when dealing with issues that affect citizens' daily lives, such as finance or, in the case of this study, taxation.

According to Gallego-Losada and colleagues (2021), many studies have previously focused solely on traditional financial literacy, producing empirical evidence of the impact of financial education on effective financial decision-making. Many studies have found a positive relationship between financial education and individual, economic, and societal well-being (Lee et al., 2019; Huang et al., 2013; Montalto et al., 2019; Ambarkhane et al., 2015).

Given that citizens, particularly those frequent users of social networks and are part of the so-called millennial generation, rely on information published on these networks as a reference, to the detriment of traditional media, there is a clear need for society to be formed in both ways. In other words, citizens must be able to categorize information sources and distinguish their reliability to receive complete, truthful information that allows them to make sound financial decisions.

Principato (2021), based on analyses of the company Morning Consult, states that 71 percent of "centennials" and "millennials" appreciate financial information that comes from someone like them, as opposed to 48 percent of the "baby boomer" generation (those born in the 1950s and 1960s). At least a quarter of Gen Z adults and millennials say Twitter (27 percent), Reddit (29 percent), Instagram (32 percent) and Facebook (33 percent) have had a major or minor impact on their financial decisions. This is roughly in line with the share who say a broker has swayed their choices (Principato, 2021; see also Kazakhstan, 2012; Madinaveitia, 2010).

As a consequence of this situation, there are several basic goals for media literacy, as Pérez Tornero (2009) has suggested. He explains why comprehensive media training is essential for citizens to make freely and appropriately informed decisions. According to him, the primary aim is that citizens can operate comfortably in a media environment that is increasingly changeable and innovative. Therefore, they have to possess

access to faculties and abilities that allow them to use different tools for their own legitimate interests. On the other hand, it is also important that citizens have sufficient, and sufficiently broad, knowledge of the factors that influence the development of the media industry – economy, property, control, power, pluralism, and so on. In this way, media literacy can strengthen critical understanding and analysis of media discourse, and, in essence, to increase users' personal and social freedom. The ultimate goal is developing, with or through the responsible use of media, the sense of active and participative citizenship in local, European, and world affairs. In this essay, which focuses on how Spaniards perceive the tax culture through Twitter, it is assumed that citizens must be well-informed and media-trained to distinguish between genuine content and ideological maneuvers designed to confuse them. Hence, a symbiotic relationship exists for the two types of literacy.

Taxes as a Political Issue

It is obvious that determining who should receive tax-related information is a source of contention in the media. Although it is a matter that comes directly from the pockets of citizens and companies, in general, decisions on economic or tax policy, i.e., those that affect a state's or region's economic legislation, budgets, or taxes, are considered to be part of the area of economic information and could be included, without fear of error, in the macroeconomic framework. However, journalistic reality can be stubborn at times. In this type of information, areas specializing in political content look for pretexts to express the medium's editorial line or to praise or flatly reject executive power decisions, whatever they may be.

Although it is not desirable, and is not even what an ethical medium should require, this type of information discussing an increase or decrease in public spending and tax collection is frequently prepared by non-specialists, unrelated to the economics section of the paper in question, and treated as a mere tool. For example, criticize the executive branch if it decides to increase taxes, or praise it if it shares the government's ideological stance. In these cases, economic information takes a backseat, and how the information is presented reveals the medium's or journalist's interest in implying a specific value judgment. Hence, although it can be considered macroeconomic information, it is not always found in the finance pages, but rather in those of the nation's economy or politics, and is therefore not included in the scope of this study' analysis.

The Power of Social Media

The emergence of digital environments and platforms such as Facebook and Twitter has altered media consumption patterns, relationships, and the content produced and consumed. Madinaveitia (2010) states that "everything revolves around live content, which users manipulate and consume through the medium, support, device, and format of their choice." The widespread use of smartphones and the consolidation of social networks as a mass communication model have resulted in an exponential increase in users on platforms such as Twitter.

It is worth noting that the use of the Internet as a source of information has displaced the media, including television, which was the favorite for decades. At the end of 2011, more than 2 billion people of different ages and social classes were browsing the internet in search of school information, books, documents, and entertainment topics, among others (UCI. 2012, p. 2).

According to the 2012 edition of the annual study *Navegantes en la Red* (Network Surfers) published by the Association for Media Research (AIMC), social networks are a growing phenomenon in Spain: more than 68 percent of internet users confirm that these platforms are not a passing fad, as they connect to them daily, compared to 44 percent in 2009 and 29 percent in 2008. Twitter is now one of the favorite social networks of Internet users by keeping them informed of what is happening anywhere in the world in real time. The success of Twitter has been such that governments and the private sector have included it in the list of media to disseminate public information and actions (Giselle & Rosas, 2012; Castelló Martínez, 2013). Social networks, such as Facebook, Twitter, and Instagram, each with its own set of characteristics, have been chosen by the media, companies, and institutions for the ease with which messages can be disseminated, but this does not mean that they are all appropriate for all content or that they make appropriate communication channels.

(Former) Twitter: The briefest medium

This microblogging network has been around since 2006, and while it was originally intended to be a network dedicated to podcasting, it was eventually decided that it would be exactly that: a place to collect the

opinions of millions of users worldwide. It has grown from 70 to 140 characters over the course of 15 years, allowing for the inclusion of images and videos and the creation of small group chat spaces. These advantages, combined with the ongoing adaptation of the various applications for mobile operating systems and ease of use, have enabled it to become one of the most widely used communication tools by individuals and companies worldwide.

A company that has a Twitter account, and that takes care to cultivate the relationship with its followers and consumers, could easily spread its news exclusively through this channel. Depending on the degree of interest, followers could then repost this information, helping to share it with more people (Egea, 2017).

However, not everything is positive about a network that was put together without any type of surveillance beyond the criteria of each individual and that allows the dissemination of any type of information around the world without checking its accuracy or veracity. Raising freedom of expression to its pinnacle is both the network's greatest accomplishment and its greatest perversion, because it ultimately means giving a loudspeaker to any theory and providing a means of communication without verifying the type of messages fed into the network. In fact, it is not even necessary to verify the identity of the user who uses the profile, which is why the use of bots and so-called user "farms" has proliferated to spread information for harmful purposes, such as feeding public opinion with hoaxes against political movements or in support of secessionist or denialist movements in the context of the recent pandemic.

Twitter is an echo chamber, a natural habitat for narcissists; it is highly disposable, yet also revolutionary, democratizing and disruptive of the existing social order. Taken-for-granted assumptions about the role and potential of evolving communications technologies are nothing new (Murthy, 2011). In short, Twitter, like any tool, aims to serve as a means of communication, leveraging the benefits of global interconnection; however, as Murthy mentions, it is occasionally used as an echo chamber, as evidenced by numerous studies on its use.

Knowing Why We Pay Taxes

Making decisions requires having enough information to make these choices freely. The same thing happens when you express your opinion or criticize a particular system or process. Taxes combine several factors that are important when making decisions. First, we will discuss what the public understands by justice when it comes to its own wealth. Second, we must consider what solidarity expressed through a tax system means for their fellow citizens, including the effective distribution of wealth and establishing a welfare state. All of this could be included in what some tax theorists refer to as "Tax Morale." Although fairness and financial literacy have been considered determinants of tax morale, the aspect that has been less considered is whether financial and tax literacy (FTL) has a moderating effect on fairness and tax morale (Alexander & Balavac-Orlic, 2022).

Paying taxes, because it is required by law and is therefore not understood by many citizens as a contribution to the improvement of society as a whole, as an action that leads to, or should lead to, improvements in the public's situation, and therefore to the creation of a more balanced society. This entails increased access to resources and the elimination of barriers between certain social classes and others, because, as Bergman (2002) explains, "paying taxes is also partially contingent on social values and perceived institutional performance of the public sector."

This is perhaps one of the most important issues, as it addresses citizens' perceptions of tax policy. There is a lack of knowledge, which is exacerbated by negative articles indicating that public funds are not being used for their intended purposes. This, in turn, serves as an excuse for those who, with a vision less grounded in moral issues and values such as equity or solidarity, choose to express their opposition to taxation by using arguments of misuse of funds collected by rulers. As seen in the Twitter posts, this occurs even when their arguments are false or not based on accurate data.

Methodology

A qualitative analysis was performed on a randomly selected sample, with content analysis as the ideal model, similar to that produced by Small (2011), supplemented by a linguistic analysis using some brushstrokes

from critical discourse analysis. We will only provide a few brief notes here because of space constraints and the fact that these methodologies are well-known and tested.

To systematize the analysis and carry out a rigorous and scientifically standardized coding, we have prepared a synthetic file, presented in the analysis section, which includes the most notable aspects for our approximating study.

Given the volume of tweets and the widespread use of Spanish, and because we want our analysis to be geographically focused on Spain, we will use a label (hashtag) called #taxes (#impuestos) to locate 25 first impression tweets at random. That is, they are not responses to others and were also posted on the Spanish peninsula. "With 50 million tweets per day, hashtags are central to organizing information on Twitter. Hashtags organize discussion around specific topics or events." (Small, 2011).

The sample is not a representative sample of the tweets available to analyze. First, because it is a purely qualitative analysis that addresses formal questions, and second, because we do not seek to paint an exact picture of the situation, but rather an approximation of it. In other words, this first approach allows us to determine the type of knowledge citizens who interact on this type of social network, specifically Twitter, show.

To ensure that the selection was as random as possible, we used the Tweet Binder tool, which allows us to select a series of tweets based on criteria such as the accompanying tags. In our case, we have chosen the hashtag #taxes.

Analysis

Although there is no attempt to conduct a quantitative analysis because it would be impractical, we must keep in mind that on Twitter, approximately 9,000 posts are produced per second around the world, so attempting to find complete representation would be overly optimistic. On the contrary, we attempted to make a selection, ensuring that the representativeness matches as closely as possible what we require to explain our initial hypotheses.

Content analysis is a popular methodology in communication, particularly in the study of social networks such as Twitter. Since the advent of the internet, the technique that some classical researchers, such as Bardin, popularized decades ago has become widely used.

Content analysis is based on reading (textual or visual) as an instrument of information gathering, and unlike common reading, it must be carried out following the scientific method. That is, it must be systematic, objective, replicable, and valid. In this sense, its problems and methodology are similar, except for some specific characteristics, to that of any other data collection technique for social research, observation, experiment, surveys, interviews, etc. However, what is characteristic of content analysis and what distinguishes it from other sociological research techniques is that it is a technique that combines intrinsically, and this is why it is so complex, the observation and production of data and the interpretation or analysis of the data (Abela, 2002).

A file was created to conduct the content analysis under the aforementioned conditions, which included several categories that addressed issues such as ideology, linguistic correctness, and the poster's intention. To answer our initial questions, we are particularly interested in whether the people who publish these tweets thoroughly understand what taxes entail and what they are used for after payment, among other things. We also want to know whether their discourse is more focused on real tax policy issues or purely ideological issues. This is particularly important in Spain because, at the time of this inspection of the public perception of taxes (September/October 2022), the government is implementing a series of changes to the tax rates of some of the population groups that it considers to be most affected by the new, or not-so-new, economic crisis that is affecting the country.

To achieve our goals, we used Tweet Binder, an intuitive tool that, like others found on the internet, allows real time information about posts made on the Twitter social network about a specific topic to be harvested.

It includes a box where you can search for a specific text. In our case, the search term was "#taxes" with the "hash (#)" sign included. Although it is a much more comprehensive tool than its use in our study shows, it has served our purpose by allowing us to find complex statistics on the use of terms and their numerical reflections, economic data, and so on.

However, unlike many artificial intelligence-based tools, and even though it is a paid application, it does not allow us to segment our sample in order to select only the sample units that interest us, which include not only those written in Spanish but also those that refer to national tax policy. As a result, after using the tool, we had to manually review the tweets to remove those not geographically appropriate for our purposes. We downloaded all of the tweets that piqued our interest, those related to this hashtag, and then reviewed them to find those that belonged (as far as our discernment allows) to individuals rather than institutions or media as such, and those that originated in Spain.

Following the completion of the analysis report, we attempted to draw a line based on the results obtained, to see if the initial expectations are met and, therefore, whether we can confirm or refute our initial hypotheses.

When coding the information, a 0 represents a negative answer and a 1 represents an affirmative answer: without errors: 0 versus with errors: 1 and without ideological weight: 0 versus with ideological weight: 1

Table 1. *Coding of the obtained results*

ID	Correctness	Bias	Text
1	1	0	450,000 #politicians with an average salary of 70,000€/year, gives 31,500,000,000 € coming out of our #taxes, laughing at the whole of #Spain. and then there's no money for #pensions hospitals… https://t.co/7i68KXv2C1.
2	1	0	Lowering taxes means damaging the State, and basic services, health, education, pensions… Which are then privatized and instead of a right, they become a product, only available to those who can pay. #taxes #fiscalpolicy #rich https://t.co/gAmVOF9t48.
3	0		#abuse #caste #communism #representatives #doublestandards #economy #State #ETA #Government #hypocrisy #taxes #irony #parasites #poverty #Podemos #politicians #populism #PSOE #theft #looting #socialism #totalitarianism #truth https://t.co/mW1N0IVapQ.
4	0	1	Patriots with their wristbands, not with their wallet #Taxes #Socialjustice #GraphicHumor https://t.co/MHr8obSIzr".

ID	Correctness	Bias	Text
5	1	1	@herreropedro Where do I have to sign to stop @PSOE and their confiscatory policies taking all of families' savings? Why is an #inheritance taxed when various #Taxes are paid throughout life and the #MiddleClass is senselessly attacked? #Inheritance tax and donations.
6	0	0	#Taxation: The #Consell will update the low #tranches of the #Incometax and will raise the limits of #deductions. There will be no changes in #Heritage and #Transmission #taxes. https://t.co/Aco9UePzg6.
7	0	1	#Inheritance and Donation Tax your parents work hard, save with effort, "Pay #Taxes." When they die, they leave their legacy to their children. A confiscatory government arrives and dilutes the #Inheritance with more taxes. They don't know the culture of #Effort, they only know how to ruin @PSOE https://t.co/PfnvCDqo29.
8	0	1	I want to pay #taxes because I want public health, public education, social services, roads, pensions, social coverage, the Welfare State. #I want to pay taxes because I am more patriotic than those with the flag in the profile and the money in tax havens.
9	0	0	The wealth tax is only paid by 0.2 percent of the richest in Andalusia, which prevents attending to the more than 400,000 dependency aids still pending https://t.co/GfJ7BERCLg. #Taxes #AutonomousCommunities #TaxHaven https://t.co/hLvrDvNzR7.
10	0	0	Downward tax competition; the decisions of Andalusia or Madrid weigh down the financing of other communities https://t.co/GfJ7BERCLg. #Taxes #AutonomousCommunities #TaxHaven
11	1	1	For all the world champions of reducing #taxes, read this brochure from the Andalusian Tax Observatory, starting with the runner-up @JuanMa_Moreno Let's see if you learn something and respect the Constitution that you talk about so much #MiserableRight. https://t.co/E0soPRzdew.

ID	Correctness	Bias	Text
12	1	1	Envy eats the PP from the inside. They know that they no longer have the keys to the state public money box and Feijoo and company do not know how to continue stealing even more. They don't know the word honesty. Disgusting and Nauseating!!! #taxes #ARVTaxes
13	0	1	A fairer #FiscalPolicy and increasing #taxes on the rich benefits most of us?? Of course, it does (#PublicHealth, #PublicEducation...). This is what two world leaders in #Economics say. Don't be fooled by the media/parties bought by that 1 percent. https://t.co/JLy8kBOscJ
14	1	1	If I were rich I wouldn't stay here to pay you your salaries and keep lazy people and criminals. #taxpayers #taxes #Wealth Tax https://t.co/XUcd7u3koP
15	1	0	Politicians lower #taxes so that their companies (Parties) can win elections with public money, but instead I cannot decide in my company how to distribute mine, because the Treasury is already in charge of it, who suffocates me to support so many parasites. All fine.
16	0	0	Another point of view of the tax abolition debate in #Andalucia: "The Heritage of Mental Health". https://t.co/zeNQ6XTeD2 from @RadioSevilla #taxes #Heritage #MentalHealth
17	1	1	@IdiazAyuso I would like to understand exactly what is the #tax reduction that is being advertised so much. I explain the facts, a bad inheritance and with problems and almost impossible to divide. Inheritance and capital gains paid. More than 4 years to split it up, with an unspeakable woman.
18	0	0	The Government announces a tax offensive with a selective rise in #taxes for 2023 https://t.co/QVcV1o8Ulc.

ID	Correctness	Bias	Text
19	1	0	The tax cut would be paid for by eliminating so many useless political posts. #Politics #taxes #society #Money.
20	0	1	#SavageTax: The Government goes one step further and will present a "selective increase" in #taxes in a package of new fiscal measures. #TheGovernmentOfThePeople #TheGovernmentOfRuin #InsecureJobs #PSOESteals #Treasury https://t.co/FQfmdUd7C9 from @elindepcom.
21	0	0	What are #taxes for? Why do the Autonomous Communities compete, for public services or for taxes? What do we want? Public services for all, health, education… Does the State take it all? A bit of basic tax knowledge. open #thread #because I pay No.
22	0	0	Isabel Díaz Ayuso, President of the Community of Madrid has recently pointed out: "We have been reducing the tax burden continuously for almost 20 years until we have achieved that each taxpayer has saved more than 17,000 euros in this time" #taxes.
23	1	1	What are we educated for? When those #doctors receive their first contact with reality, will they leave it without the need to cut #taxes and join #politicians in #populism, #vocational background? That's how it went in the #pandemic anyway, the #magicalthinking is beautiful.
24	1	1	The #Government vetoes all reductions in #Taxes in the @Congreso_Es #GovernmentOfTheLie #UnstoPPable #theAlternativeisPP #Families #Workers #PreparedForChange #WewilldoitlWell. https://t.co/CfbjFRKB9D.

ID	Correctness	Bias	Text
25	1	1	It is not the GOVERNMENT of the PEOPLE. There is an error. It is the GOVERNMENT of the #SCUM. Who do they represent? Who do they listen to? Please let some #squatters get into one of their houses or something, so that they divert their attention to something other than raising or CREATING new #taxes https://t.co/VdDqfeFyvQ.

Source: Own elaboration.

Results

Once the samples have been chosen and tabulated, it can be observed that nearly half (12 out of 25) of the tweets chosen have some type of inaccuracy, owing to comments made without regard for the content or without verifying the veracity of the data provided. For example, in Tweet ID 1, it is stated that there are "450,000 politicians", which is incorrect unless obtained from a website, and each politician is assigned an average salary of 70,000 euros per year. This is not true because most politicians, particularly in small towns, do not receive a salary at all. Therefore, numerous inaccuracies lead to the user's implied conclusion, as reasoning does not provide accurate information. In other cases, the errors are grammatical in nature, with disjointed ideas or texts that, despite their brevity, lack coherence.

In terms of the political bias of the selected publications, there has long been a tendency to associate social spending, and therefore higher tax collection and tax increases, with progressive or leftwing ideology, whereas maintaining lower taxes is associated with a more conservative mindset, with rightwing voters. This is perfectly apparent in the discourse of the selected tweets, as 14 of the 25 publications have a clear ideological position in one direction. Furthermore, something we had not considered as an object of study has piqued our interest: not only is there an ideological positioning of tweets in which their authors place themselves on one of the two extremes (left vs. right), but there is also a not insignificant tendency to criticize public spending in order to fund politicians' salaries (ID 1).

In short, two basic trends are perceived as opposing each other: those who point to a more supportive position toward tax payment (ID 2, ID 8) and those who refer to tax increases as simply taking in more money or even being "confiscatory" (ID5). According to the researchers, this does not imply that a prudent and considered judgment is made with the prudence of knowledge, but from an ideological position, which can be corroborated if the texts accompanying the posts listed are observed, as well as their hashtags.

Conclusion

Although it should be noted that any case study of this kind can only represent a small slice of the vast amount of information found in social networks, particularly on the social network of Twitter, after adopting this approach, we can formulate some questions that address our initial hypotheses.

First, the selected posts do not show rigorous ideas about taxes and their changes. As a result, the type of financial culture that can be observed through tweet analysis simply shows reiterative arguments, a kind of mantra that repeats, on the one hand, the government's eagerness to spend and collect money, and on the other, the denial of spending on health and education of the so-called "rich" of the so-called "right." This is constantly repeated, which means that there is no way for someone who wants to find accurate information about what a change in their taxes means to do so in this medium. We can exclude tweets that contain information from other media, which are typically written by professional journalists due to space and medium characteristics, with a more considered analysis, etc. This allows them to delve deeper into the subject, resulting in a different connection to reality. These tweets show careful wording, are free of formal and content errors, and do not express an ideological position.

In contrast, when there is a lack of information and a clear ideological bias, these characteristics are usually accompanied by careless language, a lack of originality as a result of idea repetition, or the copying of ideas from similar posts. A lack of knowledge about the subject is associated with difficulty or a lack of written expression.

Another finding from this preliminary analysis is that when people talk about public spending, they almost always mention education and health. Although these are the two most commonly used or well-known examples of public services, there are numerous infrastructures and locations where tax money is invested. Therefore, it appears that the cited example is not only repetitive, but also simplistic, if not poor.

It is notable in this section that only one of the selected tweets (ID 23) refers to the COVID-19 pandemic, specifically a criticism of how tax cuts will affect medical professionals and a comparison to what happened during the pandemic. It is also necessary to highlight a common point among those who criticize the increase in tax collection, as most of them focus on the portion of the budget dedicated to spending on politicians' salaries, even when this is not supported by clear criteria or data (ID 1).

On the other hand, the main goal of demonstrating that Twitter is more useful in showing an ideological confrontation between conservative and progressive supporters, using all kinds of questions, including those related to taxes and public spending, is clearly demonstrated in this sampling, because most of the tweets are loaded with ideology and pay little attention to the accuracy of their content. Although it should be the subject of another analysis because it does not fit in this paper due to subject matter or space, this has much to do with how information with little foundation or even false information is disseminated, based on premises with no quality of accuracy.

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(R)evolution of
Texts and Formats

**Media Literacy in Moroccan Schools: An Analysis
of Student Awareness, Teacher Understandings and
Textbook Content**
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**New Instructional Formats for Media Literacy
Education: A Retrospective Analysis of Projects
Based on Gamification, Exploration, and Multiformats**
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Cristina Pulido and Sally Samy Tayie*

**Exploring Children's Ability to Employ Media and
Information Literacy Assessments: Insights From the
Podcast Kids Talk Media**
Sherri Hope Culver

Media Literacy in Moroccan Schools: An Analysis of Student Awareness, Teacher Understandings and Textbook Content

Mohamed Mliless and Fouad Boulaid

This study examines the state of media literacy in Morocco by employing a multimethod approach. To that end, we used a questionnaire to assess students' (N = 700) awareness of the media literacy, an interview to gather teachers' (N = 40) perspectives on the concept of media literacy in the educational domain, and content analysis to examine the concept's availability in textbooks (N = 28) used to teach Arabic, French, and English in primary, middle and high schools. The results show that students know little about the concept, are not well-versed in media literacy, and use various media outlets without being critically briefed on their risks. Meanwhile, teachers recognize the importance of media literacy in assisting students in deconstructing media messages and identifying fake news and misinformation. To be successful in teaching media literacy, teachers postulate that they need to be well-trained and develop a professional attitude to media literacy in order to ensure a coherent and efficient implementation of the concept, and for this, they call for pedagogical materials. The results show that the pedagogical resources under study did not include courses, activities, or separate units on media literacy. Instead, the pedagogical material contained isolated and relegated lessons on the functions and effects of media and information technologies. We believe that three obstacles prevent media literacy integration in Morocco: students' lack of awareness, teachers' lack of professional development, and insufficient school pedagogical support. In sum, this study provides an opportunity to evaluate the implementation of media literacy in the Moroccan educational system.

Keywords: media information literacy, media literacy, secondary school, textbooks. Morocco.

People of all ages and genders devote countless waking hours to media consumption. Media content has recently grown substantially, penetrating cultures and bombarding people with a flood of information (Ait Hattani, 2018). By media, we mean various methods and tools. Books, films, paintings, songs, magazines, TV shows, poems, video games, podcasts, web forums, emails, newsletters, tweets, traffic signs, Snapchat stories, breaking news—all of these are examples of media. According to Logeswari et al. (2021), individuals who spend a significant amount of time with media require critical thinking skills to question what they have read, heard, and learned. Undoubtedly, permanent media exposure is becoming more difficult for media educators as different modes of content, whether audio, visual, or textual, are produced in greater quantities.

To deal with this situation, many countries worldwide have made a concerted effort to develop media literacy (ML) or media and information literacy (MIL) skills to assist individuals in acquiring a solid media culture and digital skills that will allow them to contribute to an informed democratic debate. The goal of ML is also to help restore trust between the media and the public, as well as to propose solutions that are appropriate for the changing media landscape. As a result, the ability to navigate the media necessitates the skills and toolkits provided by these literacies.

Furthermore, the overabundance of information (Simon, 1971), industrialization of human attention capture, and the attention that information consumes (Wu, 2016) highlight the importance of critical thinking and ML skills. In addition to enriching themselves and their corporate clients, the SNS, named by Wu (2016) as "attention merchants," are making extraordinarily successful attempts by advertisers to occupy an increasing amount of our attention (Tarnoff, 2016). Critical thinking, as defined in ML, is important in the sense that we should all think critically. However, the problem with the Internet is that it is an attention problem (Wineburg, 2021) related to the abundance of information and the possibilities to organize this complex mass of information into a problem formulation that will facilitate people's efforts to solve them (Simon, 1978). For example, Wineburg, Breakstone, Ziv, and Smith (2020) assume that the most common approaches, ML, news literacy, digital literacy, and even critical thinking, share the role of teaching people "how to tell truth from

fiction, recognize hoaxes, and practice caution before passing along dubious content to family and friends" (ibid., 3). To explain the nexus between overexposure to information and the effectiveness of skills to decipher false and real content, Wineburg et al. (2020), as well as Breakstone et al. (2021) explored the extent to which today's college students can make thoughtful choices about what to believe. They surveyed the students' ability to discern quality information from sham and respectively specified the urgent need to prepare students to thrive in a world in which information flows ceaselessly across their screens. Breakstone et al. (2021) tested the students' ability to trace the origin of an anonymously posted Facebook video shot in Russia that provided "strong evidence" of voter fraud in the United States. Out of over 3,000 responses, only three students were able to identify the video's source. Instead of looking into who was behind the site, the students focused on superficial credibility markers such as the site's aesthetics, top level domain, and how it presented itself on the "About" page. Furthermore, two-thirds of the students were unable to distinguish between news stories and advertisements, and 96 percent of the students did not understand why ties between a climate change website and the fossil fuel industry could decrease the credibility of that site.

According to Morocco's High Commission for Planning (2020), the population's access to ICT has increased significantly in recent years. As a result, the media's complex and ambivalent relationship with the public has raised a fundamental question for education today: How can schools prepare future generations to live full, healthy, and productive lives in an information age? Many studies examine the integration of ML and present evidence of its significance, but they are primarily conducted in the Western world. In Morocco, the field of ML research is still relatively young. Based on this understanding, the purpose of this study is to thoroughly explore the manifestation of ML in Moroccan secondary schools. The motivation for this study is to move ML from an international to a local setting. In fact, this study aims to significantly contribute to the body of literature by enriching the theoretical and practical framework of reference for future research in the field.

In this chapter, we look at the current state of ML in Morocco from triangulated perspectives. We explore the implementation of ML in the country using a multimethod approach, examining students' awareness of the concept, teachers' perceptions of the concept, and a content analysis of textbooks in Arabic, French, and English in primary, middle, and high schools. We believe that by combining perspectives from these fields, we

can gain an understanding of the character, level, and scope of ML work in the country. We begin by describing ML as a Western concept and then move on to describe ML in a specific Moroccan context. We then present the research design, which includes the research questions and methodology, before moving on to the analysis results.

Media Literacy as a Western Notion

In this chapter, where we focus on the media aspects of the complex area of ML or MIL literacy, we use the term ML. The term represents the ability to access, decode, analyze, evaluate, and produce communication in a variety of forms (Robinson, 1996; Livingstone, 2004). It is cultural, critical, transformative, and creative. According to Burn and Durran (2007), ML is more than just understanding a text. It entails, to varying degrees, the re-imagining of "internal mental operations, to which teachers, psychologists, academics, and literacy experts have no direct access. Their work begins the moment the transformative work becomes externalized, most immediately as speech, but later as writing, drama, visual design and so on" (ibid., 1).

The field of ML has evolved dramatically over time. Its origins can be traced to Western countries. Wilson and Hoechsmann (2017) shed light on the history of ML, tracing its origins to influential communication scholars at the University of Toronto in the 1940s and 1950s, including Harold Innis, Eric Havelock, and the renowned Marshall McLuhan. They also acknowledge the National Film Board's role in advancing ML through public education initiatives from the 1940s to the 1960s.

According to Oxstrand (2009), the early 1960s saw the emergence of ML in Europe, which was closely related to the study of visual images. As the 1970s and early 1980s progressed, Oxstrand emphasizes the increasing significance of media education, particularly in France, Italy, and Spain, where television took center stage. The rise of private television channels in the late 1980s and early 1990s increased the importance of media education by emphasizing the impact of TV shows and their content. However, it is critical to recognize that the 1990s saw the rise of digital literacy, which became inextricably linked with digital media and, most notably, the introduction of the Internet. As a result, the concept of ML shifted its focus to content associated with modern digital tools.

New educational competencies have been introduced to adapt to advances in information and communication technologies and navigate the vast amount of content available on the Internet. It is worth noting that European countries abandoned their classical approach and looked to the United States as a model for the new information society, with a strong emphasis on technology management (Oxstrand, 2009, 6).

Furthermore, scientific evidence and research show that efforts to promote ML began with radio broadcasting and continued with film and television. The understanding of media and its impact on society has evolved over time, giving rise to the modern concept of ML, which encompasses all forms of media, including digital media. The history of radio in the Western world dates back to the late 19th century, when significant advances in wireless telegraphy and communication technology occurred. The pioneering work of inventors like Marconi, Tesla, and Heinrich Hertz laid the groundwork for radio's development as a mass communication medium. Guglielmo Marconi, an Italian inventor, is widely credited with developing practical radio transmission. In the 1890s, he carried out experiments that successfully demonstrated radio signal transmission over long distances, including across the Atlantic Ocean. Marconi's work laid the groundwork for the subsequent development and commercialization of radio technology.

In the early 20th century, radio broadcasting grew in popularity as a source of entertainment and information. The first scheduled public radio broadcasts began in the 1920s. The British Broadcasting Company began regular radio transmissions in the United Kingdom in 1922, and commercial radio stations were established in the United States. These early radio stations broadcast a variety of programs, including music, news, sports, and drama, enthralling listeners and changing the way they received information and entertainment.

Radio broadcasting expanded rapidly in the Western world over the next few decades. During World War II, radio became the dominant medium, providing the public with critical updates as well as entertainment. After the war, radio continued to thrive as a primary source of news, music, and cultural programming, with a significant impact on popular culture. Over time, advances in radio technology resulted in the introduction of frequency modulation radio, which improved sound quality and expanded music broadcasting options. Furthermore, the introduction of transistor radios in the 1950s made them more portable and accessible to a larger audience.

The subsequent rise of television in the 1950s and beyond resulted in increased competition and shifts in media consumption habits. However, radio has remained an important medium, particularly in the form of music radio stations, talk shows, and newscasts. The advent of digital radio and Internet streaming has recently transformed the landscape of radio broadcasting, giving listeners more options and expanding the reach of radio content. Since the 2000s, ML has been established as a concept for dealing critically with the amount of content that emerges as a result of the convergence of digital technologies and their audiovisual content. The amount of media exposure and the critical role of information in the development of democracy, cultural participation, and active citizenship justify the appropriateness and importance of ML (Koltay, 2011). Today's children and adolescents are bombarded with media messages. They use a lot of time-consuming media, such as the Internet, movies, video games, and social networks (SNS). Consuming, let alone manipulating and creating information, necessitates skills and specialized knowledge to deal with the amount of unfiltered and unverified information (UUI) we constantly receive from media outlets.

Given this preoccupying situation, UNESCO has made important contributions to improving ML and related communications competencies in order to control the rise of information. To elaborate, Carlsson (2019, 25) states that UNESCO has made a significant contribution in this regard, encouraging "a holistic perspective that brings together media literacies and information literacies under the rubric of Media and Information Literacy." In this digital age, information management requires both ML and media information literacy (MIL) skills. So, what is the difference between ML and MIL?

Lee and So (2014) distinguish the two concepts based on their academic origins, scope, and social concern. For example, information literacy (IL) is more closely related to library science than ML, which is more related to media content, the media industry, and social effects. Furthermore, they differ in terms of academic orientations, as the two fields use different analytical methods. They have the same goal, but their publications overlap in terms of topic areas, countries of origin, and titles (Lee & So, 2014). Other distinctions are mentioned in Koltay (2011), who states that IL is the ability to identify a need for information and then locate, evaluate, and use information effectively to solve problems. Koltay defines ML as the ability to access, evaluate, manipulate, and produce media in various forms. Although there is a lot of overlap between these terms, combining

them results in MIL. MIL is now an ambitious goal for the 21st century, referring to the ability to be efficient and effective in a digital society (Pérez-Escoda et al., 2020).

The European Policies Initiative (EuPI) uses a set of indicators to assess media freedom, education, and trust in 35 European countries. Since 2017, the index has tracked countries' progress and regression. According to EuPI (2021), the results of a new edition of the ML Index place the following countries at the top of the ML rankings. Finland (first), Denmark (second), Estonia (third), Sweden (fourth), and Ireland (fifth). According to EuPI (2021), these countries have the greatest potential to withstand the negative impact of fake news and misinformation because of their high levels of education, free media, and public trust. However, the index reveals that some countries, including North Macedonia (35th), Bosnia and Herzegovina (34th), Albania (33rd), Montenegro (32nd), and Turkey (31st), have low potential to deal with the effects of fake news and misinformation, primarily due to underperformance in media freedom and education (EuPI, 2021)

Figure 1. Index cluster analysis of ML in Europe (EuPI, 2021)
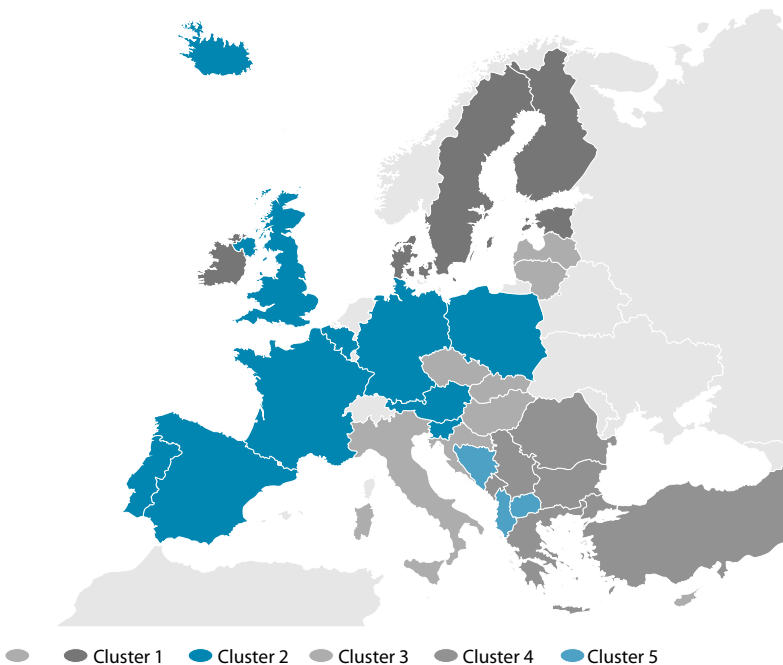
Source: Own elaboration.

Media Literacy in the Middle East and North Africa

Rapid advances in ICT, combined with the vast amount of content available on the Internet and SN shape how we consume media messages and what skills educational stakeholders provide to improve children and adolescents cope with the rapid spread and circulation of information. The Arab countries in the MENA are no exception in a time when "almost everyone can be a publisher [because] the abundance of media content gives us increased opportunities to find information, but also disinformation" (Abu-Fadil et al., 2016, p.7). The need for ML has become critical as a result of the shift in media exposure and interaction, which has presented new challenges. In the Middle East and North Africa, ML is a promising concept that requires further improvement. According to Abu-Fadil and colleagues (2016), the application ML, which is a new concept in most Arab countries, falls under the MIL umbrella term and ranges from almost nonexistent to relatively dynamic due to the region's diverse educational systems. Added to this are the various educational systems, which include public, private, and religious schools where students primarily learn Arabic, French, and English.

Tayie (2016) admits that Egypt has been slow to incorporate MIL, despite the proliferation of news and entertainment outlets following the social and political changes brought about by the "Arab Spring" in 2010. Tayie suggests that public and private universities develop MIL courses for undergraduate students. Tayie's ML activities include ML workshops, conferences, and toolkits for university professors to use in their teaching at public and private institutions. However, Tayie claims that the lack of policies on the subject is a challenge that impedes efforts to implement MIL in Egypt.

Northward, Nuseibeh and Abu Arqoub (2016) explained the concept in the occupied Palestinian territories (West Bank, Jerusalem, and Gaza Strip). Their study revealed a very difficult scenario regarding why ML is composite and why it must focus on empowerment. According to the authors, the concept of IL is more prevalent than ML because Palestinians have been controlled by a number of countries, including Jordan, Egypt, Israel, their own form of government (the Palestine Liberation Organization, or Fateh) in the West Bank, and Hamas in the Gaza Strip. Nuseibeh and Abu Arqoub explained that ML is still a relatively new concept in Palestine, both in the education system and in civil society, but there is a growing need to raise awareness about how to interact and deal with the media.

Durra (2016) admitted in Jordan, a neighboring country, that ML is taught in various media training curricula that exclude schoolchildren. Durra proposes an emergency action plan to elevate Jordan to the international level of ML.

Melki and Maaliki (2016) studied the status of ML in Lebanon, near the Palestinian territories. The researchers emphasize the importance of academia in explicitly advancing digital and ML education through educator training and curriculum development. The goal is to develop digital skills and gain a better understanding of how they relate to MIL. Melki and Maaliki see ML as a tool for combating the ideologies of greed, hatred, and death, as well as fighting for social justice that is universal and global. Furthermore, Melki and Maaliki argue that ML should be implemented in schools, beginning with elementary school and progressing to higher levels. The goal is to develop a critical mass of well-connected teachers, academics, and researchers capable of taking digital and ML teaching and research to the next level.

Eastward, Al-Faisal (2016) explored the concept's status in Iraq, a country where information is spread freely via the Internet. Despite the emergence of a national information policy in Iraq, Al-Faisal emphasizes that Iraqi officials have prioritized ICTs over an ML mechanism.

Abu-Fadil, Torrent, and Grizzle (2016) reported that progress on MIL in Saudi Arabia has been slow. The country's education system is more traditional, and teachers are less interested in digital knowledge. Abu-Fadil, Torrent, and Grizzle (2016) state that the Saudi public education system "has failed to produce up-to-date English language curricula as well as qualified instructors who use creative teaching methods, as opposed to subjecting their charges to learning by rote" (p.20). Finally, much effort is being made to ensure the success of media education and literacy in Arab countries. The situation in Sultanate of Oman is not much different. Saleem (2016) found that the advancement of ICTs and the rapid flow of information have made it easier for civil society actors to share information with one another. In this regard, Saleem emphasizes the importance of governmental entities in the Sultanate that provide accurate information to citizens while also developing critical and analytical thinking skills. She assumes that the concept has yet to be implemented and advocates for an ML curriculum in schools, which the Ministry of Education must implement. She recalls the role of public universities, which should be included in their plans and prioritized for students.

Boujemaa (2016) addressed the issue of ML in Algerian education in North African countries. Since gaining independence in 1962, the country had yet to achieve the goal of integrating the two concepts into its educational system. According to Boujemaa, the implementation of process learning (ML) in Algeria has yet to take hold, as teachers and students require extensive training and immersion in its various aspects. In Morocco, Nfissi and Chouit (2016) examined the state of the art in ML and concluded that the concept is still in its infancy. According to Nfissi and Chouit, ML is not part of the educational system and is not on the agendas of activists, policymakers, or educators. However, they mention that ML is taught at the university as part of a module titled "Media and Cyber Culture." It is important to clarify that ML is typically associated with an educational approach devoted primarily to children and adolescents (Landry & Basque, 2015). Although it does not immediately rule out adult training, it is generally agreed that the teaching of ML skills should begin with children, adolescents, and young adults. Another study that considered ML in the Moroccan context is the Ait Hattani (2019) article, an outstanding scientific document that examined the integration of ML in secondary school, focusing on the attitudes of 190 teachers. According to the study, organizational, systematic, and attitudinal factors all have a significant impact on the implementation of ML education as an official component of the Moroccan secondary school curriculum. Incorporating and developing ML in Morocco faces numerous challenges, including insufficient school support, inadequate professional development, and outdated classroom practices. Finally, Floyd and Thinz (2016) advocate for the empowerment of children and youth in Tunisia through media and education. Floyd and Thinz's argument is that they want to help Tunisian students deal with the information and content that is available on various media outlets.

Research Gap

The use of ML in education is rapidly expanding around the world. Recognizing the important role that ML plays, departments of education and media educators from around the world have been working for 25 years to develop elements of ML into their frameworks (Kubey, 1998, 2003). It is mandated and taught in many countries around the world, including Australia, England, Canada, Russia, France, Spain, and the United States, and includes curricula, research, strategies, and performance. Many initiatives have been taken to support ML throughout the Arab region, such as in Lebanon, Jordan, Qatar, Egypt, and Morocco (Abu-Fadil et al.,

2016). According to Melki (2013), the underlying rationale for promoting ML in seven Arab states and Lebanon is a desire to achieve a wide range of social, economic, and political development objectives. In Morocco, a significant number of measures have been taken to develop ML programs, including the introduction of media studies and cyberspace curriculum in the departments of English of the faculties of Arts and Humanities (Nfissi, 2013). Furthermore, the 2009-2012 Moroccan Emergency Plan for Education launched projects aimed at encouraging both teachers and students to better discern their use of media and information and communication technologies (ICT) in primary, middle, and secondary schools (Ministry of National Education, Vocational Training, Higher Education and Scientific Research [MEHESR], 2009). Such programs help the field of ML gain a strong foothold in the Moroccan educational framework and community. However, according to the United Nations Alliance of Civilizations (UNAOC) (2009), ML is unofficially integrated into Morocco's school system. There is a significant lack of theoretical and descriptive research on the teaching of ML. Beginning with the conviction that ML integration is not formally considered in Moroccan instructional settings, the current study seeks to determine its status in terms of curriculum approach, material investment, professional support, and classroom practices.

In Morocco, a significant number of measures have been taken to develop ML, such as the introduction of media studies and cyberspace curriculum in the English departments of the Faculty of Arts and Humanities (Nfissi & Chouit, 2016). Furthermore, the Moroccan Emergency Plan for Education for 2009-2012 launched projects aimed at encouraging both teachers and students to better discern their use of ICT in primary and middle schools (MEHESR, 2009). According to Ait Hattani (2019), such programs enable the field of ML to "gain a primary foothold in the Moroccan education framework and in the community as a whole" (p. 5). Despite the efforts mentioned above, the UNAOC report (2009) states that ML is not officially integrated into Morocco's school system. Furthermore, there is a clear lack of theoretical and empirical research on the integration of ML in Morocco. Although Ait Hattani (2019) filled this void, her research was limited to one variable: teachers' attitudes toward the integration of ML education in secondary schools. Furthermore, the breadth of her work put some teachers to the test, as teaching disciplines may not be the best fit for teaching the ML concept. These subjects included Islamic studies, history and geography, philosophy, mathematics, physics, biology, and economics.

Research Questions

This study looks into the integration of ML in the Moroccan educational system. To this end, it employs a multimethod approach to examine student awareness, teacher attitudes, and the extent to which ML is included in textbooks used to teach Arabic, French, and English in Moroccan classrooms. Based on the stated objectives, the following three questions are used to guide this study:

1. Are students aware of and exposed to ML skills?
2. What are teachers' perceptions of ML in the Moroccan education system?
3. To what extent do textbooks include ML courses, activities, or units?

Research Methodology and Design

In this study, a multimethod approach was used, with data collected and analyzed quantitatively and qualitatively within the same paradigm of ML and education. This multifaceted approach will enable this study to explore various perspectives and uncover relationships between the three variables that underpin the research questions raised above. For example, a quantitative method is used to examine students' awareness of ML and attitudes toward its implementation in Moroccan schools. On the contrary, a qualitative method is used to analyze the interview conducted in this study to elicit teachers' attitudes toward the implementation of ML, potential barriers to implementation, and recommendations for ML integration. Similarly, a qualitative method is used to examine the presence of ML in textbooks. In this variable, data was analyzed using the content analysis framework to examine narratives and elements used in textbooks to improve students' access to media and related topics in Arabic, French, and English textbooks at the primary and secondary school levels.

The variety of instruments used in this study, including interviews with teachers, questionnaires for students, and content analysis for textbooks, necessitates a multimethod approach to investigating the extent to which ML is implemented in the Moroccan education system. More specifically, this study focuses on the attitudes of 40 Moroccan secondary school teachers toward the integration of ML. Three variables were considered when evaluating teachers: sex, level of teaching, and teaching field. The sample showed of 25 (62%) men and 15 (37.5%) women. On the contrary, they refer to different teaching levels, with 21 (52.5%) middle school

teachers and 19 (47.5%) high school teachers. Similarly, their teaching field was taken into account, with 17 (42.5%) English language teachers, 10 (25%) Arabic language teachers, and 13 (32.5%) French teachers.

In this study, students' attitudes toward the media were assessed. To this end, a questionnaire was distributed to many students from three middle schools in Meknes to elicit their attitudes toward ML. The sample size was 700 students who were approached at random and asked to complete a four-page quantitative questionnaire written in Arabic. The gender distribution shows that female respondents (390/55.7%) outnumbered male respondents (310/44.2%). Finally, a textbook analysis was used to gain a comprehensive understanding of the integration of ML in Morocco. The study examined at 28 school textbooks used to teach languages (French, Arabic, and English) during the 2022 academic year in primary and middle school. Brenner and colleagues (1985) and Cohen and colleagues (2005) suggest that content analysis is a qualitative and quantitative process that involves reading and evaluating data collection. Mesude and Danju (2012) also stated that in order to establish procedures for categorizing data in the book's content, some coding and clues related to the purpose of the research question must be used.

The criteria proposed by experts in the field can be used to assess the quality of a textbook (Table 1). Interestingly, the textbooks were evaluated using Skierso's (1991) criterion, which included bibliographical data, aims and goals, subject matter, vocabulary and structures, and layout and physical makeup. However, this study will focus on the third and fourth elements (subject matter, vocabulary, and structure).

Table 1. *Expert textbooks and evaluative checklists*

Experts	Textbook Evaluation Checklist
Cunningsworth (1984)	Aims and objectives, usefulness and relevance to the learner of the language being taught, students' learning needs.
Skierso (1991)	Bibliographical data, goals and objectives, subject matter, vocabulary and structures, layout, and physical makeup.
Garinger (2001).	Teaching objectives, depth and breadth of material, and whether the textbook needs to be supplemented or not.
Miekley (2005)	Content, vocabulary and grammar, exercises and activities, attractiveness of the text, and physical makeup.
Jahangard (2007)	Explicit objectives, vocabulary explanation, educational approaches, review and test sections, visual materials, topics and tasks, clear instructions, layout, organized and graded content, authentic language, grammar presentation and practice, fluency practice in all four skills, and developing learning strategies.

Source: Own elaboration.

Analysis

One of the primary goals of this study is to look into how ML is being integrated into the Moroccan educational system. The results presented in this section are related to student awareness, teacher attitudes, and the availability of ML in textbooks used to teach Arabic, French, and English in primary and secondary schools.

This section presents the findings and interpretations of the research on three main aspects: student awareness, teacher attitudes, and the inclusion of ML in textbooks used to teach Arabic, French, and English in primary and secondary schools. By examining these three dimensions, this study provides a comprehensive understanding of the current state of ML integration in Morocco's educational system. The results will help policymakers, educators, and stakeholders understand the potential challenges and opportunities of incorporating ML into the curriculum, as well as guide future efforts in this area.

Students' Awareness

The testing of student awareness of media functionality and use emphasizes the study's critical objective. It allows us to critically examine what students can read, hear, write, and learn through media tools and social networking sites. As a result, this study used a questionnaire to increase secondary school students' knowledge of ML in terms of definition, the most popular and influential media outlets, and whether they were introduced to the concept through specific courses, activities, or units.

Student awareness measures students' knowledge and understanding of ML. It could explore their familiarity with ML concepts, applications, and potential benefits. The results will reveal how much students already know about ML and how it applies to their education.

Demographic information about gender was gathered. As shown in Table 2, there were more female respondents (55.7%) in this survey than male respondents (44.3%). Furthermore, respondents were asked if they were aware of the importance of ML and if they had ever been introduced to the concept in class. Their responses were inconsistent and astonishing. A total of 84.3% stated that they had heard of the concept, but 72.9% had never been taught about its skills and abilities in dealing with media content.

Table 2. *Students' gender diversity and awareness of media literacy*

Population: N = 700		ML awareness		ML initiation	
Male	**Female**	**Yes**	**No.**	**Yes**	**No.**
310 (44.3 %)	390 (55.7%)	590 (84.3%)	110 (15.7%)	190 (27.1%)	510 (72.9%)

Source: Own elaboration.

On another scale, students' perceptions of ML were assessed. Interestingly, their responses highlight the stark contrast between hearing about a concept and understanding its definition. Their responses were so diverse that they demonstrated their lack of understanding of the concept. For example, 4.3% declared that ML is used to critically understand media messages, 24.3% said that it is a way of creating media content, and 55.7 stated that ML develops culture through the media (see Table 3 for an illustration).

The results show that when students were asked about their perceptions of ML, there was a significant gap between their awareness of the concept and their comprehension of its definition. The students' responses showed a significant contradiction between having heard of ML and having a thorough understanding of its meaning. The diversity of the students' responses suggests a lack of knowledge or familiarity with the concept of ML. For example, a small percentage (4.3%) associated ML with critical understanding of media messages, whereas a larger proportion (24.3%) saw it as a tool for creating media content. Furthermore, the majority of students (55.7%) stated that ML contributes to the development of culture through media.

This suggests that many students have misconceptions or incomplete knowledge of ML. Their responses suggest a limited understanding of the fundamental principles and applications of ML. The findings highlight the importance of educational interventions or initiatives to improve students' understanding of concepts related to ML, ensuring that students will receive accurate information and knowledge about the topic.

In general, this result emphasizes the importance of bridging the knowledge gap among students about ML. By providing accurate and comprehensive ML education, students can develop a better understanding of its potential and relevance in a variety of fields, thereby increasing their overall digital literacy and preparing them for future technological advancements.

Table 3. *Student perceptions of the meaning of ML*

	Numbers	Percentage
Critically understand media messages	30	4.3%
Produce media content	170	24.3%
Develop culture through media content	390	55.7%
Other	40	5.7%
No response	70	10%

Source: Own elaboration.

Regarding the variable of the most influential and most used media outlets, the question was designed to elicit responses from students on the most influential media outlets, as well as the most used media outlets and technologies. Students reported that the most influential media outlets (Table 4) were social networking sites, gaming, television, radio, music, advertising, and news. More specifically, SNS (61.4%) and gaming (18.5%) are the most influential tools, while radio (1.4%) and news (2.8%) are the least. As for the most used media outlet and technology, the results indicate that SNS (60%) and gaming (21.4%) are the most used tools and radio (0.5%) and news (0.8%) are the less used tools among respondents.

Table 4. *The most influential and used media outlets and technologies*

Most influential		Most used	
SNS	430 (61.4%)	SNS	420 (60 %)
Gaming	130 (18.5%)	Gaming	150 (21.4%)
TV	20 (2.8%)	Smartphone	60 (8.5%)
Radio	10 (1.4%)	Laptop	50 (7.1%)
Cd (Music)	50 (7.1%)	Radio	4 (0.5%)
Ads	40 (5.7%)	Movies	10 (1.4%)
News	20 (2.8%)	News	6 (0.8%)

Source: Own elaboration.

A third question was posed to students to determine their attitudes toward the availability of ML-related courses or extracurricular activities delivered in classroom. Table 5 shows that the majority (67.1% = 470) of participants stated that ML is not available in the form of courses or extracurricular activities in schools, whereas 24.3% (N = 170) stated that the concept is scarce. In terms of concept availability, a sizable proportion of students

(60 = 8.6%) stated that ML is available, and those who were introduced to it stated that they receive it as additional activities. The result presented in Table 5 indicates that students were asked about their attitudes regarding the availability of courses or extra activities related to ML in their schools.

According to the findings, the majority of participants (67.1% or 470 students) stated that ML is completely absent in the form of courses or extracurricular activities at their educational institutions. This suggests that ML is currently underutilized in their schools, either as part of the curriculum or as extracurricular activities. Furthermore, 24.3% of the participants (170 students) reported that the availability of ML-related content or activities in their schools is limited or scarce. This suggests that, while some schools may offer some exposure to ML, it is not widely or consistently integrated into the educational experience.

Conversely, a significant proportion of students (8.6% or 60 students) reported that ML is available in their schools. It should be noted that these students stated that their exposure to ML is primarily through extracurricular activities, implying that ML may not be part of the formal curriculum but is instead provided as supplementary or optional learning opportunities.

Overall, these findings suggest that there is a significant gap in the availability and integration of ML-related courses or activities in the schools surveyed. Most students believe ML is absent or scarce in their educational experience, indicating a need for more emphasis on ML education within the curriculum or through extracurricular activities. The small proportion of students who reported exposure to ML through extracurricular activities implies that some efforts are being made to introduce ML to students, albeit on a small scale.

Table 5. *Availability of courses and extra activities on media literacy*

	Participants	Percentage
Available as an extra activity	60	8.6
Inexistent	470	67.1
Scarce	170	24.3

Source: Own elaboration.

Teachers' Attitudes

Teachers' attitudes: This aspect examines teachers' opinions, beliefs, and perceptions regarding the integration of ML into the educational system. The goal of this study is to understand how teachers are receptive to incorporating ML into their teaching methods and whether they see it as valuable in improving the learning experience. The results will shed light on teachers' readiness to incorporate ML in the classroom.

In the same vein, teachers were asked to comment on the availability of ML courses, the impact of media content, and the advantages of incorporating ML into the curriculum. It should be noted that 40 teachers participated in this interview, with 25 (62%) being men and 15 (37.5%) being women. Furthermore, the teachers' teaching levels varied: 21 (52.5%) were middle school teachers, whereas 19 (47.5%) were high school teachers. Regarding their teaching field, 17 (42.5%) were English teachers, 10 (25%) were Arabic teachers, and 13 (32.5%) were French teachers.

Regarding the availability of lessons/courses, the majority of teachers confirmed that ML is not included in the curriculum. The teachers stated that the courses offered as extracurricular activities are extremely limited and scarce. Furthermore, most teachers admitted that during their training, they were not taught ML skills to teach and empower learners' abilities. These results are consistent with those found by Ait Hattani (2019), who stated that 62.98% (114) of respondents agreed that ML is not part of the fundamental curriculum, nor is it cross-curricular or independent. Only 76 teachers (37.01%) stated that the textbook includes some units designed to introduce students to some basic components of media culture: "Both MHS (middle high schools) curricula are based on a set of contents and pedagogies that do not always serve the needs of the students and do not help them realize their potentials, especially in the 21st century" (Ait Hattani, 2019, p.15).

Speaking about students' use of media content leads us to question teachers' attitudes regarding the digital real influence on learners. Generally, the teachers recognize that "social networks, through sharing and communication, are replacing traditional media in terms of influence on public opinion," according to one of the respondents. Teachers also responded to a question about how new media tools provide inaccurate information that is difficult to verify. The teachers' responses were clear

and to the point, emphasizing how students are heavily influenced and influential on social media. One of the teachers explained this nexus in the following terms: "as media can make it easier for students to connect and communicate, it can also impact their psychological health, image, and self-esteem". To cope with this issue, teachers recommended that it is high time to provide Moroccan students with skills and abilities to get reliable and accurate information from safe sources: "to exist, we have to be part of SNS [….] the essential issue of the digital era is to focus not only on influencers but on the content too […] it is important to ask what influencers are," mentioned one of the teachers.

On a different scale, teachers were asked about their thoughts on the impact of the media and related ICTs on student achievement. This question elicited two types of reactions from respondents. The first group (N = 30) acknowledged that the relationship between student performance and media connectivity and use is difficult to agree on because it has not been scientifically proven, though some studies have found a negative impact on feelings of isolation, lifestyle habits (sleep), and even addiction. The rest (N = 10) stated that the media interferes with student schoolwork "as some students, who are permanently active on media outlets, mainly SNS, do not spend much time studying," according to a teacher. Given the lack of accurate and systematic courses on ML and education, all teachers have asked for parents' assistance. "They should be interested in what their children are doing on SNS, know about SNS, and be prepared to understand how they are being used" said a teacher.

Finally, teachers enthusiastically embraced the integration of ML in Moroccan schools. Their responses expressed concerns about the Moroccan school's role in the development of innovative manuals and skills to improve students' resistance to the rapid flow of unverified and unfiltered information. They believe that incorporating ML toolkits into the curriculum will help students learn how to use media tools safely and develop critical thinking skills. According to one of the teachers, ML and education as a cross-cutting discipline have "not have specific time slots in the Moroccan context. It is up to us to integrate it into schedules and possibly coordinate with colleagues." From elementary school to the end of high school, a teacher stated that "the learner's journey must be built around moral and civic education and media and information education.". However, teachers do not hide their confusion about the status of ML in their classrooms: "there are few tips, extra activities, and workshops to decipher media content in school," as it is put by one of the teachers.

Textbooks

Textbooks are one of the most important educational resources for teaching students knowledge and concepts. The purpose of this study was to see if textbooks used in Moroccan primary and secondary schools to teach Arabic, French, and English languages included courses or units in ML. 28 textbooks were examined to see if any narrative or teaching activity matched the teaching of ML. The primary results (Table 6) show that Arabic textbooks cover themes such as how to describe computers and cell phones, their importance, and the negative effects on student time and health. The research shows that ML is not present in French textbooks. The reality is that French textbooks provide some guidelines on the importance of Journalism Day and other national holidays, as reported by the media.

Table 6. *Primary school textbooks*

Primary school textbooks	
Arabic textbooks	• Describe computer and cell phones • Importance of computers and cell phones • Negative aspects of computers and smartphones
French textbooks	• Journalism Day • National day

Source: Own elaboration.

Textbooks for teaching Arabic and French in secondary school were analyzed, and the results shown in Table 7 show no significant findings. For example, some themes are included to introduce students to the image's value, elements, aspects, and types. On a different scale, an examination of French textbooks revealed that they include some courses that introduce students to the design of a journal front page and how to search for information on the Internet.

Table 7. *Secondary school textbooks*

Secondary school textbooks	
Arabic textbooks	Initiating students to image Values, skills, elements, aspects, and types.
French textbooks	Description of a journal front page, how to search information on the Internet.

Source: Own elaboration.

One of the primary goals of this study is to determine whether high school textbooks for the 2022 academic year in Morocco that teach Arabic, French, and English languages include courses, activities, or even units that teach ML. The study found that the theme of ML is absent from Arabic and French textbooks. A thorough examination of high school English textbooks, as shown in Table 8, shows that the concept of ML does not appear in any of the manuals. However, the study found some activities involving media and related technologies: *Science and Technology*, *E-mail writing*, *Dissertation on the Effects of the Internet*, *Mass Media*, *Listen to News on the Radio*, and *Importance of Smartphones*, among others.

Table 8. *High school textbooks*

High school textbooks		
Arabic textbooks		The concept does not exist in the textbooks of literature classes.
French textbooks		No French textbooks in high school.
English textbooks	*First Year Visa*	Science and technology: write an e-mail, writing about the negative and positive effects of the Internet.
	Second Year Ticket 2 English	Mass Media: listen to radio news, write an e-mail, and learn stereotypes of other cultures through the media. Who owns the media, defines the media, and influences the media?.
	3rd Year Ticket 2 English	Advance in Science and Technology: cellular phone, writing: importance of the Smartphone.

Source: Own elaboration.

The nature of ML in the Moroccan context is a sophisticated issue, the investigation of which requires student awareness, teacher engagement, and the availability of ML in textbooks. To gain a comprehensive understanding of the state of ML in Morocco, this study examined at textbooks used to teach Arabic and French at the middle school level, as well as those used to teach English in high school. Indeed, a textbook is essential for the teaching/learning process. According to UNESCO (2008), this fundamental pedagogical tool is more than just a medium for language teaching because its content directly or explicitly contributes to the transmission of concepts, behavior, norms, and values. We can even say that the textbook is an essential pedagogical and didactic tool for teachers and students who are teaching or learning a foreign process.

Many textbooks (28) are dedicated to the teaching of languages (Arabic, French, and English) in Moroccan schools. Their goal is to help Moroccan students develop cultural, social, environmental, and even critical skills so that they can become responsible citizens in a globalized world. This study chose language teaching textbooks because they are an effective way to teach concepts and notions to students using narratives and text that are specifically tailored to their needs. The results for the availability of activities, courses, and distinct units on ML in the corpus were negative: no textbook was reported to include ML under any of the aforementioned actions.

Media education develops students' awareness of various media-related issues, fosters cognitive, metacognitive, and practical skills, and is typically part of a process of integration or social transformation. As a result, it fits into the triangle formed by the school, the student, and the teacher. A textbook's functions vary depending on whether it is intended for students or teachers. For the learner, a textbook can fulfill traditional learning functions such as thought transmission, skill and competency development, and knowledge consolidation and evaluation. In terms of media integration, a textbook can serve functions similar to those found in everyday life. The narratives on awareness-raising actions and appropriate measures for the safe use of media content necessitate tailoring the actions and their goals to the needs of students. In this sense, ML education in Morocco must consider the issues that arise as a result of the school's ability to adapt to new technological changes in teaching methods, as well as its ability to prepare students for a complex and changing media world. To develop this, the creation of a coherent ML curriculum policy allows for the development of a clear message that aligns with management objectives. The incorporation of ML into textbooks will teach students how to use the Internet safely using the awareness techniques provided by ML toolkits.

In line with ML and teacher support, we suggest that textbooks teach students how to protect themselves from misinformation, scams, cyberbullying, inappropriate content, the health consequences of digital use, and one's image and personal data. Working in collaboration with various actors is also important for promoting positive behavior. Raising awareness among schoolchildren, for example, allows them to develop the capacity to act required to respond to today's major challenges at a young age through educational projects.

Discussion

This study identified several factors that impede the integration of ML in the Moroccan context. The relationship between ML and education in Morocco is explored using student awareness, teacher attitudes, and ML inclusion in textbooks. The testing of student awareness of media functionality and use emphasizes the study's critical objective. It allows us to critically assess what students can read, hear, write, and learn through media tools. For this purpose, students' perceptions of ML in terms of definition, the most popular and influential media outlets, and the availability of courses on the subject were gathered. Their responses were inconsistent and astonishing. Students are aware of the concept's existence, but they are unaware of its utility and benefits. They stated that they had heard about the concept, but they were never taught about its skills and benefits in assisting them in dealing with media content.

Their responses were inconsistent and surprising in that 84.3% stated that they had heard of the concept but had never been taught about its skills and abilities to deal with media content. Additionally, many students are aware of the most popular and influential media outlets (SNS and gaming). Children and adolescents are already at risk on SNS because they are constantly connected to their devices. Naive use of SNS can have emotional and social consequences, as well as the disclosure or propagation of personal data. Larouz and Mliless (2015) and Mliless and Larouz (2018) investigated how media content and related devices affect students' social relationships. The two studies investigated the level of media awareness among middle school students and predictors of smartphone addiction among university students. For the first category, middle school respondents admitted to sharing various personal information, being unaware of personal information privacy, rarely employing techniques to avoid cyberbullying, and having negative attitudes toward the implications of school education regarding the risks of online personal information. In terms of connectivity and content sharing, university students stated that they use smartphones to connect to various SNSs, and that they use them frequently and for long periods of time throughout the day and night.

Video games and the Internet are examples of media outlets that can influence children's eating, exercise, and consumption habits, as well as their mental health. Many young people are heavily reliant on new technologies, which can cause anxiety among adults if SNS and related

technologies are misused by youth. Some unsafe practices are likely to result in significant harm. Students acquire their own media through their SNS accounts, with no professionalization involved. However, the spread of fake news can be alarming. Reading false information can lead to isolation and cyberbullying, which can endanger children's and adolescents' mental and physical health. New technologies in particular encourage the absence of direct physical contact and anonymity. This makes it easier for harassers to move quickly and break their promises. This is especially true for those who have committed suicide as a result of cyber-harassment. Being overexposed to media content could favor other unsafe modes of behavior. For example, the level of violence in media outlets is increasing. Every day, children are exposed to violent images, such as murder, rape, drugs, and sex. Overexposure to these acts may increase in abnormal and aggressive behavior, particularly among youth. In fact, students may be more vulnerable to violence, especially those suffering from affective disorders, learning disabilities, abuse, and distress, among other things.

Moroccan students are increasingly using SNS. They obtain nearly as much information online as they do through other traditional modes of communication. Social networks are not immune to the confidence crisis. They are a source of conspiracy, disseminating biased and UUI information with the intent of duping, manipulating, and misleading public opinion. False information and its dissemination have serious consequences, particularly for vulnerable and uninformed individuals. Furthermore, SNSs are likely to facilitate the spread of other types of harmful content, such as those that promote hatred and violence. To combat fake news, states have not implemented policies and laws aimed at combating disinformation and information manipulation, particularly in terms of transparency and countering false information. Furthermore, provisions related to MIL were strengthened and implemented to assist students in learning to become responsible citizens in a society characterized by the multiplicity and acceleration of information flows. They develop critical thinking skills and can act in an informed manner when seeking, receiving, producing, and disseminating information through increasingly diverse media.

ICT provide numerous opportunities, but they also pose significant threats to the environment and biosphere. In this context, we wonder when curricula will take into account media and digital education, which is open to the transformations brought about by ICTs and the strong digitization of

social exchanges. To that end, the entire educational system (preschool, primary, secondary, tertiary education, technical and vocational training) should be improved and expanded. The 2030 Agenda (paragraph 15) acknowledges the potential of ICT, the Internet, and SNS to "accelerate human progress, to bridge the digital divide and to develop knowledge societies" (UN, 2015, p. 5).

Within the context of implementing ML programs in education, it is critical to test not only students' attitudes toward the integration of ML into the classroom. The beneficial nature of the ML curriculum and courses, if integrated into the Moroccan educational system, will require students to deal critically with media content and understand the influence that media outlets have on them. This investigation includes teachers' attitudes toward ML. The goal of this study was to gather their perspectives on the barriers to integration in the Moroccan context.

Teachers' attitudes toward ML integration were primarily focused with the concept's status, the barriers to its implementation, and the benefits that media education can provide to students. Their perceptions are recognized as a critical determinant to the success of the concept's integration into the school environment, with the teaching staff playing the primary role and bearing the majority of the responsibility for implementation. Teachers generally support the idea of implementing media education and understand its benefits for students. For the time being, developing media-related teaching practices and strategies is a difficult task for teachers, who have acknowledged the complexity of teaching as a significant challenge. This concern stems from some teachers' perceptions that they are not adequately and sufficiently trained to meet the requirements and responsibilities associated with implementing an inclusive media education program to account for the threats that SNS and the media pose to students. This education, which includes both theoretical and practical skills, would promote the ability to connect and interact with new media. It would encourage students to think more about how to protect their personal and private information from defamatory or degrading threats. Teachers who develop safe media handling skills are more likely to be able to manage information and use it more effectively in their personal and educational domains.

Regarding the obstacles and challenges that ML faces in Morocco in terms of integration, the findings of the current study join those mentioned

in Ait Hattani (2018). Teacher training is an important challenge that may impede the integration of ML. There are no training modules or professional development activities assigned to ML teachers in Morocco.

Similarly, the majority of the teachers interviewed for this study acknowledge that ML is not being implemented due to a lack of pedagogical resources such as manuals and textbooks, model course syllabi, and ready-made lesson plans. Despite these limitations, teachers show their commitment and motivation to provide courses and additional activities aimed at teaching ML skills. To handle media information, students should have the following Fact-checking, Abilities, Skills, and Techniques requirements: Fact-checking skills to deal with fake news and misinformation, the ability to learn about the functionality/usefulness of SNS, the ability to protect personal data, and media content creation techniques.

Conclusion

The concepts of ML observed in the conceptions of students and teachers, as well as in textbook content, indicate that media content is prevalent in our daily activities and should be discussed in educational systems. However, media is not only perceived as a source of creativity and empowerment; it is also viewed negatively because it invades people's privacy and bombards them with unverified and unfiltered information. Although some believe it can be an opportunity for young people to develop knowledge, socialization, cultural dissemination, and educational virtues, others, fearful of the media's powerful impact, emphasize the potential threats that media content can pose to children and young adults. This study highlighted these various perspectives.

The dissemination of personal data, the influence of smartphones, and the way SNS algorithms keep our eyes fixed on the screen encourage the spread of hateful content and false information. They want our attention because we spend more time looking at screens. The more attention SNS receives, the more advertisements they can show to us, and the higher the profit margin gained by these platforms. In this regard, we recall Wineburg (2016), who believes that the problem of the digital age is the proper allocation of attention. He advocates for a shift in perspective and suggests that critical ignoring, which is just as important as critical thinking, should be taught in schools. Be it critical thinking, critical

ignorance, or ML, we believe that we should enhance people to the effect of information consumerism, particularly the youth, the moment we give our children a smartphone. They emphasize the role that schools can play in implementing ML to strengthen students' digital immunity.

All of these skills, when combined, will help students distinguish between right and wrong, as well as information and disinformation. Advocates of this argument have advocated for the development of ML skills and lateral reading, which underpin the act of leaving an unknown website to consult other sources in order to evaluate the original site; the goal is to strengthen minor and child protection while acknowledging the limitations of filtering software.

The critical analysis used in this study allows us to draw distinct and comprehensive conclusions about the state of ML in the Moroccan educational system; however, its implementation requires extensive review to bring skills and narratives in line with the pedagogical objectives of MIL. In addition to improving units and texts, other factors that may impede MIL in the Moroccan context require further improvement. Untrained human resources and inefficient material resources to teach ML, for example, pose significant challenges to the concept's integration into Moroccan schools.

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New Instructional Formats for Media Literacy Education: A Retrospective Analysis of Projects Based on Gamification, Exploration, and Multiformats

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The challenge of fostering media and information literacy (MIL) is particularly significant in a society marked by the accelerated growth of fake news, digital noise, and information overload. This challenge is compounded by the new generation's particular experience and use of media, platforms, and content. Therefore, it is crucial to promote new projects and initiatives that reinvent educational dynamics, types of content, and the role of young people. This chapter presents a comparative analysis of six MIL projects conducted by the Autonomous University of Barcelona (UAB) in Spain over the last 10 years, which combine gamification, experiential learning, and multimedia messages, to encourage young people to look at media critically. These initiatives have resulted from national and international calls and/or have been awarded different prizes and recognition in the fields of communication and education. The comparison of these six cases highlights young users' recognition and persuasive capacity of learning dynamics based on escape rooms, educational video games, project-based learning, exploration, and storytelling. The study concludes that MIL education requires increasingly innovative and unconventional proposals adapted to new media and platforms. It is crucial to develop these in collaborative lines of research between academia, the media, and other industry players.

Keywords: Instructional format development, video games, project-based learning, Spain.

Promoting media and information literacy (MIL) and intercultural dialog during and after the pandemic is considered an important and urgent challenge. In a society characterized by increasing information overload and digital noise, cooperation between stakeholders to sustain the development of media and information literacy is key. Accordingly, it is crucial to explore and document projects, experiences, and cases that are based on research and that apply the MIL curriculum from experiences based on UNESCO's global standards. In that context, various questions emerge: How can this curriculum be developed with appropriate pedagogies and instructional solutions to match the educational scenarios? How can education concretely relate to the Sustainable Development Goals (SDGs) proposed in the global MIL curriculum (Grizzle et al. 2021)? Furthermore, per the global curriculum, how can gender balance be promoted? How can we take advantage of the potential of gamification and playful dynamics in educational processes? Most importantly, how can we inaugurate new lines of research and action that promote the study and knowledge of MIL and its impact on policies toward global access to MIL learning? All this revolves around a challenge of great strategic value: incorporating the aspect of public good, conceived as projects, values, actions, and contents that benefit a given community (Pérez-Tornero, 2020). The common good gives decisive importance to collective participation in the formation of a shared will based on respect for dignity, diversity, and human rights.

Media literacy, conceived as the ability to access, read, and process media content critically (Grizzle et al., 2021), is a highly valuable territory for the development of research projects, especially, as UNESCO has been promoting "action-research" initiatives (Pérez-Tornero & Varis, 2010), with special attention to the context of a scenario impacted by information overload, disinformation, and fake news (however, in the Council of Europe report *Information disorder,* Wardle [2017] proposed changing the concept of "fake news" to "information disorder"). The so-called "echo chambers" are leading to worrying dynamics where users have their views and beliefs confirmed, endorsed, or even amplified. MIL education aimed at advancing the public good can offer valuable tools, strategies, and guidelines to address this threat, bringing us closer to tackling misinformation and biased readings of our environments and societies.

Fake news is one of the main concerns resulting from the massive increase in deepfakes (Vaccari & Chadwick, 2020). Faced with such content, the ability of citizens to differentiate between quality information and harmful content, as well as fact and fiction, is pivotal. Many scholars, including Tandoc and colleagues (2018), Chesney and Citron (2019), Aparici and colleagues (2019), and Salaverría and colleagues (2020), have warned us of the risk of disinformation and its rapid growth. In this context, the emergence of artificial intelligence (AI) offers interesting and varied opportunities to address this disinformation challenge. Studies by Flores-Vivar (2019) and Martín-Gutiérrez and colleagues (2020), among others, have highlighted the potential of AI to combat fake news. Kumar and colleagues (2019) have devised technological developments capable of identifying fake news. Meanwhile, Kanozia (2019) investigated the possibilities of boosting projects that MIL could reinforce to generate initiatives, platforms, instruments, and tools that take advantage of AI to combat fake content and disinformation at a global level. Mistrust in artificial intelligence (Vaccari & Chadwick, 2020; Jaakkola, 2023) conditions and limits the possibilities of taking advantage of it in MIL contexts.

AI technology and its possibilities relate to the need to promote new methodological, didactic, and pedagogical approaches (Perceval & Tejedor, 2006). In this context, gamification, which is conceived as the use of the playful potential of games, is a valuable ally. Different studies (Echevarría, 2000; Gómez, 2001; Castells, 2003; Quesada & Tejedor, 2016) have analyzed the educational potential of games, especially video games. Games have been consolidated as a valuable resource for MIL education, especially from the "public good" perspective. Games have been observed to be used at all levels of education, ranging from primary and secondary education (Tejedor, Recoder & Pulido, 2022) to higher education (Pastor, 2010), covering highly diverse disciplines, such as medicine (Peña-Fernández & Ukaegbu, 2022), geography (Morote Seguido & Hernández, 2022), business (López Arquillos & Rey Merchán, 2022), and heritage literacy (Camuñas García et al., 2022). In the digital context, the commitment to games and their educational possibilities and the promotion of critical thinking allow for varied and strategic development in the promotion of cognitive, emotional, and personal skills (Quesada & Tejedor, 2016). The incorporation of complex systems in their proposals (Gee, 2004; Gil, 2007), or the promotion of teamwork or problem-solving (Aranda & Sánchez, 2009), acquires a key value in a scenario where the recipients become users, prosumers/readers-authors, or "emirecs," as described by the researcher and theorist Alvin Toffler (1980) in his book *The Third Wave*.

To have an impact on societies characterized by screens, networks, and dialogic platforms, MIL education requires new approaches and communicative strategies, especially with the desire to promote public good. In addition, the growth of a new type of content that demands new connected formats, especially a reinvention of journalistic products, is witnessed. In this sense, different studies by authors such as Echevarría (2000), Gómez (2001), Castells (2003), and García-Ortega and García-Avilés (2018), among others, have highlighted the great value of convergence between education, communication, and journalism in line with technology for the effective promotion of MIL.

Research Objective

This study presents six cases as examples of instructional development related to formats and concepts using new technologies. The questions that we intend to answer are as follows: What are the characteristics of the edu-communicative project based on media literacy? How can we apply the inquiry learning method to media literacy initiatives? What new formats can be incorporated into projects that promote media literacy using a multidisciplinary and transversal approach?

Methodology

Using a methodology inspired by case studies, this article examines six selected projects that address the scope and possible strategies for promoting MIL for the public good by applying formats, technologies, and concepts of new and emerging media: audiovisual and audio production (podcasts), gamification, artificial intelligence, SDGs, and the gender perspective. These projects are derived from competitive calls for proposals and are committed to innovation in the MIL area as their central focus. The projects were developed by the Ministry of Communication and Education in Spain (Gabinete de Comunicación y Educación), a recognized and consolidated research group at the Autonomous University of Barcelona (UAB). The projects dovetail with the framework proposed by UNESCO's MIL curriculum (Grizzle et al., 2021) while simultaneously giving prominence to the dimension of public good.

This work is supported by the case study methodology, which, as Priya (2021) pointed out, focuses on the selection of successful or interesting initiatives around a certain topic. Specifically, a set of projects that derive from competitive calls have been selected. These projects have been promoted by multidisciplinary teams and respond to an applied research approach. Along these lines, Crowe and colleagues (2011) referred to the researcher's criteria in the process of selecting and justifying the cases to be analyzed, which, in many cases, share characteristics similar to the general objectives of the proposed research.

Examining individual pedagogical projects or initiatives as a whole can offer us more understanding of how formats and concepts related to new technologies have been used for MIL education so far and help us further develop new technology formats. The initiatives studied were all developed by the Communication and Education Office of the Autonomous University of Barcelona (see Table 1).

Table 1. *The six projects selected for this study*

No	Title
P01	INFO/EDU: Collaborative ecosystem of informative audiovisual resources for education project.
P02	Science Reporters: The adventure of knowledge.
P03	Identification, Verification, and Response. The democratic state facing the challenge of self-interested disinformation.
P04	Frontera Crónica Project: Workshop on cross-border journalism and co-creation for the promotion of a critical view and the construction of other narratives on violence, women, and migrations.
P05	COMIMPACT Project: Social impact of the informative treatment of gender equality through scientific evidence.
P06	OMEDIALITERACY. Overview of the challenges and opportunities of Media Literacy Policies in Europe.

Source: Own elaboration.

1. **"INFO/EDU: Collaborative ecosystem of informative audiovisual resources for education project"** is part of the State Plan for Scientific and Technical Research and Innovation 2017–2020 of Spain within the "Social changes and innovations" Challenge. The objective of this research was to develop, experiment, and validate a technological platform capable of adapting to educational uses and effectively distributing content among the different actors in

the system. In addition, the project strives to enhance customization and cooperation in production by the user community. The project emphasizes innovation in secondary education centers and focuses on the use of current audiovisual information content seen on television. It is aimed at students, researchers, teachers, and families, regardless of their profile or level of education (website: https://www.infoedu.es/).

2. **"Science Reporters: The adventure of knowledge"** is a project funded by FECYT (Fomento de la Cultura Científica, Tecnológica y de la Innovación) and aims to promote critical thinking and a scientific vocation among compulsory secondary education (ESO) students through a video game based on escape rooms. The Spanish Foundation for Science and Technology and the Ministry of Science, Innovation, and Universities have collaborated on this project. This initiative aims to instill knowledge and awareness of science among secondary school students. To achieve this, it employs pedagogical strategies adapted to the profile of this audience (12 to 16 years old) and their habits of using the media, especially digital platforms such as social networks. Specifically, the project configures and presents students with a gamified experience based on a series of challenges inspired by the universal history of science from a gender perspective. Young people will have to know and apply the scientific method, adopting the role of a reporter who investigates, documents, contrasts, and produces information. This participation may occur autonomously or in a virtual tournament with other schools in Spain. The project is committed to the gender perspective in its different actions. Furthermore, the initiative stands out for its environmental commitment and uses the current global challenges, various anniversaries and international celebrations in the field of science, and the Sustainable Development Goals as a transversal common thread (website: https://reporterosdelaciencia.com/).

3. **"Identification, Verification, and Response. The democratic state facing the challenge of self-interested disinformation"** seeks the development of an information verification system in the Spanish language that includes a user interface that naturally collects questions from people who want to verify content and returns a reasoned report that allows them to make decisions. In its experimental development phases, the verification system will be available for use by the Spanish Radio and Television Corporation (RTVE) journalists. Furthermore, there are plans to make it available in the future to other professionals from authorized public and private institutions (website: https://iveres.es/).

4. **"Frontera Crónica Project: Workshop on cross-border journalism and co-creation for the promotion of a critical view and the construction of other narratives on violence, women, and migrations,"** derived from the call of the Solidarity Fund of the Autonomous Solidarity Foundation of the UAB, is a project that has supported and collaborated with the network of journalists from Mexico ("Yo sí soy periodista" or "I am a journalist") who work in the city of Tijuana and surrounding areas. The initiative includes a set of training, reflection, and debate actions aimed at offering resources, tools, and new work dynamics on the narrative of violence, migration, and women in a sociopolitical context marked by an increase in attacks on reporters covering issues on the border between Mexico and the United States. Among its objectives are the recognition of the work of journalists in scenarios of violence; the proposal for new narratives around the borders marked by migration and violence; the facilitation of Mexican journalists working on the border with the United States; the development of a directory of resources and platforms that improve their stories and content; the generation of citizen commitment and interest in knowing other types of narratives about migration, women, and violence in the border territory; increasing the awareness of university students from Mexico and the UAB of social problems; and the promotion of media literacy in journalistic and non-journalistic scenarios. The project has generated several spaces for reflection, a multimedia book, and a cartography of resources (website: http://frontera-cronica. gabinetecomunicacionyeducacion.com/).

5. **"COMIMPACT Project: Social impact of the informative treatment of gender equality through scientific evidence,"** derived from a competitive contest of the Women's Institute of the Spanish Government, is an informative project in an audiovisual format that addresses one of the main social challenges of today: information treatment for gender equality. It is financed by the Women's Institute, and its two main objectives are as follows: 1) to train professionals and students in the field of journalism and communication as well as on the social impact of information treatment for gender equality based on scientific evidence and 2) to disseminate and transfer scientific knowledge that can have a social impact on issues related to equality and the prevention of gender violence as well as to improve information treatment from the media. The project is expected to result in the following: 1) two hybrid seminars aimed at undergraduate, master's, and doctoral students, as well as journalism

and communication professionals, which will address information treatment related to gender equality based on scientific evidence for the eradication of violence against women; 2) two audiovisual capsules in which the main contributions of the previous seminars are summarized; and 3) seven podcasts of 23 minutes each on the handling of information related to gender equality based on scientific evidence, Isolating Gender Violence as a key to overcoming gender violence, new alternative masculinities, scientific evidence versus hoaxes on gender equality, the Brave Club Violence 0—successful performance, the social impact of journalism on the eradication of violence against women and gypsy women, and equality of differences in social inclusion.

6. **"OMEDIALITERACY. Overview of the challenges and opportunities of Media Literacy Policies in Europe,"** supported by the European Media and Information Fund, is a descriptive and explanatory research project that addresses one of the main current social challenges: misinformation. This research aims to identify existing knowledge on the effects of disinformation in Europe, compare current policies on media literacy and disinformation among member countries, and identify good practices to overcome disinformation. To this end, a review of the scientific literature and the documentation on policies on disinformation in Europe will be conducted, comparing disinformation policies and identifying good practices. All information found will be published in a report with recommendations for policy and practice. Along with the main objective, the project pursues the following specific objectives: 1) identify scientific publications on the proliferation and effects of disinformation as well as on ways to counteract it; 2) learn about the actions, methodological approaches, and policies on disinformation adopted by the member countries and identify the good practices that are currently being applied in Europe; 3) prepare a report related to the bibliographic review on current gaps in terms of disinformation, contribution, and mapping of good practices; 4) define appropriate management procedures that guarantee the scientific and technical dimension of project execution; 5) track, exploit, and communicate the results and products of the project among the scientific community, policymakers, stakeholders, and end users to maximize the impact of the project (website: https://omedialiteracy.univie.ac.at).

Literature Review

This section presents the bibliographic references that have supported the six selected projects. That is, it is a framework that refers to the main authors and trends that, from the field of media literacy and other related scenarios, have allowed the conceptualization of the analyzed projects. It is worth highlighting that the six initiatives were promoted by the Communication and Education Office, a recognized and consolidated research group of the Autonomous University of Barcelona. The authors have participated directly or indirectly in the ideation, definition, development, and evaluation (where appropriate) of the various initiatives.

Artificial intelligence has become one of the most promising technological developments in the current context. Studies such as those of Kumar and colleagues (2019) and Martín-Gutiérrez and colleagues (2020), among others, have also highlighted AI's potential in combating disinformation in all its facets. This aspect makes AI a central technology for MIL and intercultural dialog, especially with the aim of enhancing public good. Ultimately, it is humans who train and prepare machines (Rass, 2020) to perform tasks and apply filters. Therefore, it is essential to consider the exponential growth of gamification, which has shaped serious games or newsgames, among other developments. Researchers have highlighted that entertainment is not the only attraction generated by video games. To them, these formats can be pivotal in the acquisition of new skills and for learning complex systems. Besides AI and gamification as resources with great potential, MILID can benefit from a large number of information resources in cyberspace (Tejedor, Recoder & Pulido, 2022; Pastor, 2010). Marín, Hinojosa, and Ruíz (2018) highlighted the scope of these play-based proposals and, as Paíno and Rodríguez (2016) pointed out, identified them as scenarios of accelerated growth and evident consolidation.

The educational scenario must react to this type of dynamic and take advantage of the enormous possibilities offered by the informative and educational potential of cyberspace. A decade ago, teacher and researcher Salvador "Pocho" Ottobre pointed out in his book *¡Profe, No Tengamos Recreo!* the importance of taking advantage of the playful potential of games to promote creativity and learning, especially in contexts marked by a lack of attention and the need for students to assume a leading role (Ottobre & Temporelli, 2010). Video games offer interesting possibilities, and the "Science Reporters: The adventure of knowledge" project has

tried to exploit these possibilities based on the educational potential of the so-called "serious games." It is significant to consider the socialization process that this type of multimedia development makes possible, as different authors, such as Joyanes (1997), Echevarría (2000), and Castells (2003), have explained at the beginning of the century. In addition, the different forms of learning, as well as the in-depth work around personal, emotional, and cognitive skills, that video games allow are essential in promoting creativity and learning. Moreover, as Aranda and Sánchez (2009) pointed out, video games are cultural, learning, and socialization resources that enrich players' communication, teamwork, and problem-solving skills and competencies. Furthermore, this type of content enables the exercise of new literacy, which, from a media literacy perspective, can be crucial for the promotion of critical thinking (McGonigal, 2011). The emergence of news games (Tejedor & Tusa Jumbo, 2020) as gamified content and development inspired by the logic of video games to address current issues, challenges, and discoveries gives a renewed halo to the commitment to the combination of information, communication, science, and games in a single format (Paíno & Rodríguez, 2016).

Based on this set of reflections and theoretical studies, this paper analyses six projects that stand out for applying UNESCO's MILID guidelines based on the critical use of technology (especially artificial intelligence), the creation of new formats, the approach from a gender perspective, the importance of social transfer (specifically, in disadvantaged contexts and/or contexts marked by different types of violence), and the framework provided by the SDGs.

Six MIL Projects for the Public Good

Based on these six projects, this paper seeks to identify the potential of new formats for MIL— the confluence of audiovisual content, video games, and AI—by a systematic examination of their use. Although the projects have the common objective of fighting information disorder in all its forms, they are committed to different approaches and methodological techniques. Meanwhile, they have developed or aspire to generate transferable deliverables for citizens.

The six projects derived from national and international competitive calls for proposals can thus be expected to show innovativeness with respect to applying different technologies in a pedagogical context. The initiatives developed by the Communication and Education Office of the Autonomous University of Barcelona are characterized by their explanatory and exploratory nature within the MIL curriculum, with the cross-cutting presence of the SDGs and the gender perspective. Moreover, all projects present initiatives designed with a commitment to the transfer of knowledge to citizens.

P02 (see Figure 1) aimed to promote critical thinking within MIL and scientific vocation among secondary school students through a video game based on escape rooms. The initiative sought to develop training, knowledge, and awareness of science through pedagogical strategies adapted to the profile of young students and their media use habits, especially social networks. Students played the game by solving challenges inspired by the history of science from a gender perspective. The proposal applies the scientific method, giving the user the role of a reporter who investigates, documents, and prepares information. The scientific method has been conceived as a methodology for accessing new knowledge, which has historically characterized science. This method covers the following phases: systematic observation, measurement, experimentation, and the formulation, analysis, and modification of hypotheses. The initiative stands out for its environmental commitment and uses the SDGs, among others, as a common thread.

Figure 1. Home page of the Science Reporters project

Source: https://reporterosdelaciencia.com (2002).

P03 emphasizes the importance of information quality based on technological developments introduced by artificial intelligence. This proposal seeks to develop a system for verifying information in Spanish.

P04 won the 39th call of the UAB Solidarity Fund and aims to promote, finance, and accompany projects with a global justice perspective. Based on the precepts of UNESCO's MILID curriculum, the project will support and collaborate with the Mexican network of journalists ("Yo sí soy periodista" or "I am a journalist") working in the city of Tijuana and surrounding areas. The initiative includes a series of training, reflection, and debate actions aimed at offering resources, tools, and new dynamics on the narrative of violence, migration, and women in a sociopolitical context marked by an increase in attacks on reporters covering issues on the border between Mexico and the United States. This initiative, which includes two practical workshops, two days of reflection, and a series of debates, is conceived as a collaborative space for co-creation among journalists, teachers, and researchers. Among its objectives are the recognition of the work of journalists in situations involving violence, the proposal of new narratives around the borders marked by migration and violence, and the provision of a directory of resources and platforms for Mexican journalists working on the border with the United States. The project also aims to create a directory of resources and platforms to help journalists improve their stories and content; generate citizen commitment and interest in learning about other types of narratives on migration, women, and violence in the border region; raise awareness of social problems among university students in Mexico and at the UAB; and promote media literacy in journalistic and non-journalistic scenarios. The project features the collaboration of the cybermedia platform Revista 5W, which specializes in migrations; the Gabo Journalism Foundation; the Baja Autonomous University of Baja California (Tijuana); and the network of journalists in Mexico ("Yo sí soy periodista" or "I am a journalist").

P05 will organize two seminars and produce seven podcasts that will be available in open access for all citizens and for the continuous training of journalists in this subject. Scientific studies coincide in highlighting how gender coverage still lacks equity in the amount of coverage, with information being insensitive, inaccurate, and biased. Gender coverage does not show the social roots of gender violence and fails to remind social responsibility as well as to provide supportive contact information for survivors and witnesses. Journalistic practice must improve journalistic

reports on gender equality and gender violence coverage. The creation of quality journalistic podcasts will contribute to one of UNESCO's priorities: to offer citizens quality information in the face of the current challenge of disinformation.

P06 seeks to identify existing knowledge about the effects of disinformation in Europe, compare current policies on media literacy and disinformation among member countries, and identify good practices for overcoming disinformation. To meet such objectives, a review of the scientific literature and the documentation on policies on disinformation and media literacy in Europe will be conducted, in addition to comparing disinformation policies and identifying good practices. All the information found will be published in a report with recommendations for policy and practice. The project is developed in collaboration with the Universidade Nova de Lisboa, the Vrije University of Amsterdam, and the University of Vienna.

The case study methodology is understood as a technique that allows the selection and detailed study of a project based on questions designed to understand the entity, subject, or project under study (Reyes, 1999). Based on a limited number of successful experiences, an attempt has been made to extrapolate conclusions that respond to a triple purpose—(1) exploratory, that is, to enable the formulation of new questions for future research; (2) descriptive, as the particularities of a project are detailed and enumerated; (3) explanatory, insofar as the interpretation of strategies and processes pursued (Reyes, 1999). As Simons (2011) highlighted, this technique enables the study of the singular. Stake stressed the importance of analyzing the interrelationships between the different projects selected, and Kathleen (1989) pointed to the need to identify patterns of relationships between the initiatives under study. The cases were selected based on the following requirements: 1) projects focused on media literacy; 2) projects derived from national competitive calls; 3) projects focused on the promotion of media and information literacy for the public good. They present applied research with the characteristics detailed in Table 2.

Table 2. *Characteristics of the projects*

Project	Main subject	Audience	Objectives	Educational approaches
P01	Media literacy with audiovisual content	Teachers, researchers, students, and families of all profiles and levels.	Promotion of media education based on individual audiovisual content and its combination in the construction of thematic itineraries.	Inquiry learning methodolog, critical reading of media, audiovisual formats.
P2	Gamification: "Serious" games	Secondary students.	Create scientific awareness, encourage critical thinking, and create a student club involved in the project.	Multimedia escape room, gamification and serious games, and problem solving and case studies.
P3	Artificial intelligence	Journalism and news professionals and citizens.	Create a news verification platform in Spanish and improve the quality of journalism.	Content automation technology, automatic generation of messages, and production of audiovisual content from text or audio.
P4	Journalism and MIL	Journalists from Mexico's border states and Mexican citizens.	Provide MIL training for journalists and raise citizens' awareness of MIL issues.	Spaces for reflection and debate, narrative co-creation and redesign workshops, and case studies and learning by doing.

Project	Main subject	Audience	Objectives	Educational approaches
P5	Gender and science perspectives	The scientific community and citizens.	Offers quality information on gender applying MIL.	Inquiry learning methodology and sound production from co-creation and collective participation workshops.
P6	MIL and disinformation	Researchers, institutional actors, and citizens.	Create a theoretical framework and a map of best practices.	Document review and bibliographic analysis and study of experiences and success stories.

Source: Own elaboration.

Results

An analysis of the selected projects allows us to identify several positive aspects in the design of projects and initiatives for the promotion of MIL for the public good. First, the research "OMEDIALITERACY. Overview of the challenges and opportunities of Media Literacy Policies in Europe" stresses the need and usefulness of mapping good practices, reference projects, and MIL success stories at the national, regional, and global levels. This mapping of good examples is pivotal for establishing, under UNESCO's leadership, reference frameworks that allow all actors to have starting points and references, both theoretical and practical, for the promotion of UNESCO's MIL curriculum.

Regarding the INFO/EDU project, it is worth highlighting the commitment to a platform that can be accessed not only by primary, secondary, and baccalaureate students (and even university students) but also by the teachers of these classes to prepare the topics of the school curriculum. This holistic approach is of great value because it allows for far-reaching training strategies that include families as a key entity in the promotion

of MILID. As a first general result, this initiative allows us to stress the importance of devising MILID projects that are conceived from approaches that involve a wide variety of profiles, including teachers, students, and families, to promote public good. Students and teachers can find more than 300 audiovisual resources on the website, enabling them to access the content that best suits their educational level (primary, secondary, high school, and university), their age (children, teenagers, and adults), and the subject they are studying or teaching (natural and social sciences, history of art, and Spanish language and literature). In addition, users can filter the content by subject, duration, or profile. The platform compiles reports, chronicles, documentaries, interviews, and so forth from the Spanish Radio and Television Corporation and the media that make up the Association of Ibero-American Educational and Cultural Television (ATEI), an aspect that guarantees the quality of the information made available to students and teachers (see Figure 2).

Figure 2. Image of the home page of the InfoEdu project

Source: InfoEdu (n.d).

At the methodological level, the project "Science Reporters: The adventure of knowledge," which addresses how to train young people between 12 and 16 years of age through games, strengthens the MIL approach based on a detailed study of the digital world that surrounds and entices these young people. Thus, the proposal is articulated around a collection of multimedia escape rooms in which young people are the protagonists. The project works with MIL from an approach that encourages creativity, the search for solutions, and collaborative work but also focuses on competition between students and schools. The initiative has an ecosystem of game-based deliverables: on the one hand, an educational multimedia game and, on the other hand, a collection of five multimedia interactive escape rooms. The project has developed its contents from a gender perspective and is based on the 17 SDGs promoted by the UN. The proposal seeks to generate a network of schools that work together to promote critical thinking based on recreational proposals that are open to constant updating and improvement (see figures 3 and 4).

Figure 3. Image of the multimedia escape rooms of the Science Reporters project

Source: Reporteros de la Ciencia (n.d).

Figure 4. Detail of one of the multimedia escape rooms of the Science Reporters project
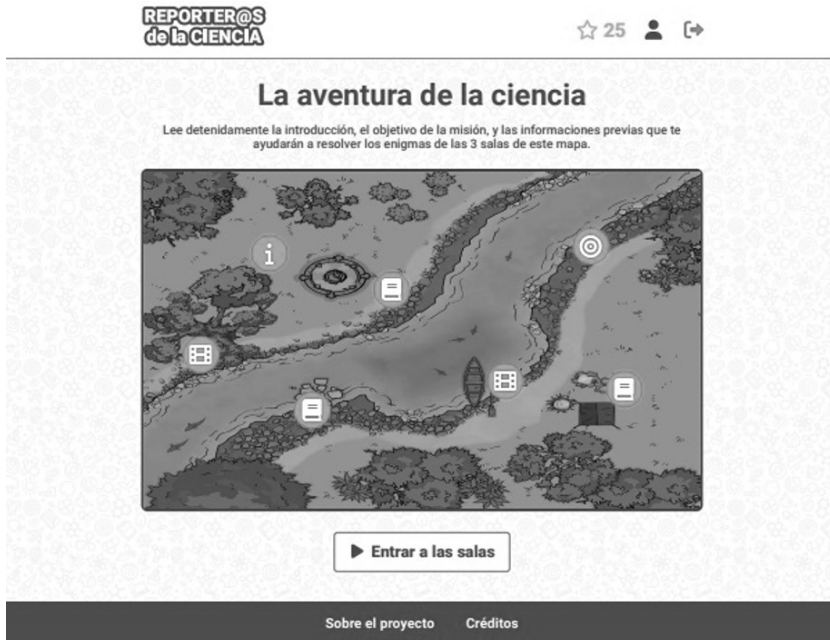
Source: Reporter@s de la Ciencia (n.d).

The projects are committed to deliverables that are based on the narrative of the formats most widely used by society. The Reporter@s project stands out as it has created a collection of five maps that respond to the guidelines of screenwriting— which also respond to an approach based on clarity, the use of color as a decorative and grammatical element, and a commitment to the thematization of the story through a proposal grounded upon immersion—based on the bibliographical review carried out and as recommended by the main works that have identified the importance of video games in education.

Furthermore, the selected projects attach crucial importance to queries. In this sense, the set of projects was defined on the basis of a directory of queries that covered aspects linked to the gender perspective, the SDGs, technology, and critical thinking. In addition, it has been key to connect the table of contents of each project with challenges and everyday situations in each of the contexts studied. Specifically, these directories of queries were linked to current issues that alluded to priorities and areas

of relevance in the day-to-day lives of the project's potential recipients. Accordingly, the study of this set of projects highlights the importance of adapting (topicalizing) the tables of contents of MILID initiatives to the defining scenarios of their respective targets. In the case of the "Frontera Crónica" project, MILID for the public service has worked from a proposal based on ethics and raising awareness among citizens about aspects closely tied to their daily lives.

In terms of general results, the comparative study of the three selected projects has made it possible to identify a series of elements of great value in the field of promoting projects aimed at fostering media literacy through innovative formats. The importance given by users to the sound component is noticeable. Hence, the podcast is consolidated as a format of great interest and value for citizens, the youngest profiles, journalism professionals, and the rest of the Internet users. The project "COMIMPACT Project. Social impact of the informative treatment of gender equality through scientific evidence" is committed to this type of format to address a subject that has not been approached in this type of deliverable.

Discussion

Within the framework of MIL for the public good, the comparative study of the selected projects shows the importance of promoting interdisciplinary research and the combined work of different technological developments as a key component for the promotion and strengthening of MILID in the current context. In this sense, the promotion of media literacy requires a continued commitment to innovation in approaches, methodologies, and products. To this end, applied research from the crossroads of fields and thematic territories, which traditionally have been isolated due to the limits imposed by the division of knowledge, is pivotal. The novelty introduced by AI also requires new lines of research, as this technology has a clear impact on several aspects of the field of media literacy.

Furthermore, the comparative study that guides this research has made it possible to determine that in the field of MIL projects, it is pivotal to position citizens at the center of the training process, regardless of their profile and age. This aspect also affects the need to topicalize the themes and connect them with the priorities, needs, problems, and particular situations of citizens. In short, media literacy, conceived as a path to public good, must start from approaches that place the citizen at the center

of the process. To this end, the methodology of inquiry-based learning brings together many potentialities of great value and scope. Specifically, aspects such as project-based learning, problem-solving, and hands-on learning are key. In other words, beyond the widespread definition of the youngest users as multitasking recipients, this work defends the importance of educational-communicative initiatives with a desire for knowledge transfer to opt for proposals that offer their audiences the possibility of doing, experimenting, and creating. Moreover, as Gee (2004) and Paíno and Rodríguez (2016) pointed out, these are attributes and resources that enhance users' immersive experiences.

Conclusion

This study emphasizes the need to review and update the educational approaches from various scenarios that address the projects studied: audiovisual, podcast, video game, AI, gender perspective, and the SDGs, all within the context of MIL projects. From an inquiry-based learning model approach, there is a need for the education system to integrate a training methodology that provides teachers with the skills and competencies demanded by this type of technological development. However, training of a technical or experimental nature is not sufficient. The main objective is to address this type of dynamics from a transversal and holistic approach that enables the critical use of the instruments and platforms. Along these lines, MIL education projects must emphasize the gender perspective component on the one hand and raise awareness around the SDGs on the other. In line with Tejedor and Tusa Jumbo (2020), it is a matter of devising proposals that allow for a direct connection between citizens and the issues that concern them. Projects that foster ethical commitment are crucial in societies marked by disinformation and digital noise.

In terms of informative attributes, multimedia is consolidated as the clearest and most reinforced option in the projects studied. The hybridization of varied elements in a single message connected through interactivity is present in all the deliverables that the six initiatives have developed or propose to develop. Reinforcing this aspect and from a broader perspective, the research has been devised from transmedia ecosystems, which—in the different phases of work—are supported by autonomous dialogic platforms to disseminate, communicate, and transfer the results achieved.

Finally, this work aspires to emphasize the importance of generating a space for exchange, reflection, and debate that connects universities and academic institutions with other social actors, such as the media, NGOs, or similar projects. UNESCO's role as a structuring body is crucial in this regard. Furthermore, it is important to highlight the value that applied research is acquiring in the field of digital and media literacy in all its facets and from all approaches. It is pivotal to launch a debate on the characteristics and scope of the concept of transfer. For this reason, the types of deliverables generated in MIL projects must be conceived and developed to promote their use by the public, going beyond the theoretical-academic stage that has traditionally accompanied social science research. Commitment to innovative formats based on interaction, horizontality, and collaborative creation is key for the impact of MIL education to become broader, stronger, and more varied.

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Exploring Children's Ability to Employ Media and Information Literacy Assessments: Insights From the Podcast Kids Talk Media

Sherri Hope Culver

This article reflects on my professional practice in producing and hosting the podcast series Kids Talk Media (https://kidstalkmedia.net/). The podcast explores children's understanding of the influence of media on their lives using a unique interpersonal approach. During each podcast, two best friends discuss these issues with an adult host, myself. The host guides the discussion, but the topics, insights, concerns, and transgressions shared are driven by the children. More than 20 episodes have been produced with the release of new episodes ongoing. A few of the children interviewed convey a clear understanding of digital media and media and information literacy (MIL), and their comments demonstrate that they bring a critical lens to their consumption of media, including social media, video games, and even personal digital assistants such as Alexa. Other interviewees consume media without understanding, adult guidance, and concern for privacy or mental health. This article introduces readers to specific episodes and uses the children's utterances to demonstrate how MIL is helping them navigate their digital world, or how its omission is enabling them to blindly engage with media that affects their self-image, friendships, education, and future. This chapter will help teachers, practitioners, and other individuals developing MIL interventions for children to thoughtfully consider the extent of children's understanding of MIL and how to best empower their positive use of media.

Keywords: children's media; media and information literacy; explicit lyrics; parental media rules; Alexa; TikTok; YouTube.

"There are kindergartners at our school that have phones. I can't have one till I'm 12. I don't think you're allowed to (bring it to school) but people do it anyway and the teachers don't catch them," said Christopher, aged 10 years, in a podcast entitled Kids Talk Media. This podcast, which I have been producing for the past few years, is basically a conversation between two children who are close friends and an adult host, myself. The conversation focuses on the role and influence of media in the lives of children. We discuss the media they enjoy, the media that worries them, and, occasionally, media they simply wish they could get permission to use.

This article discusses the development and production of the podcast series and conducts an analysis of findings based on the podcast. The article begins with an explanation of why the study selected the method of a podcast and the early development of Kids Talk Media; I then explain the Guiding Principles of the podcast and follow with an analysis of comments from the children interviewed for the podcast using specific quotes. Although the lives of the children interviewed differ from the details, such as school grade, family structure, or favorite media, they share common themes. This article explores these common themes as well as their differences.

In this paper, media refers to digital and non-digital media; video games, apps, television shows, books, music, movies, personal digital assistants, virtual reality, augmented reality, artificial intelligence, and the metaverse. As a media and information literacy (MIL) educator, I am interested in exploring the media environments of children. What types of media are children selecting? How well do they understand the implications of such choices? Do they consider MIL concepts informally as they select and consume media? What guides their media choices? In what way do these choices create positive and/or negative experiences? The method through which I chose to gain insights to these questions was a podcast.

Why a Podcast?

In my work, surprisingly, researchers, producers, and even parents frequently tell me that they do not spend time with children. Furthermore, when they spend time with children, they have an end goal in mind. Typically, adults, such as parents and teachers, are instructing children on how and when to consume media and which media is right for them. In my conversations and workshops with parents and educators, they typically express the belief that children could not possibly make wise media choices for themselves. However, why would children share personal thoughts about media with adults, when adults are unlikely to listen with an open mind and may even punish children for inappropriate use? Thus, children conceal and may lie about their media use. To gain insights on children and media, parents and MIL educators need to listen to children. The lack of access to unfiltered conversations with children can lead parents and educators to beliefs and decisions that do not align with the lived experiences of children. This scenario recently occurred when a parent of one of the children interviewed for the podcast emphatically told me that his daughter had never been on TikTok and YouTube and had no access to these platforms. He shared this thought after hearing his daughter in the podcast provide details about her TikTok and YouTube media use. Children are provided few opportunities to discuss the influence of media in their lives in environments in which adults listen without judgment.

Compared with children, adults are certainly more capable of making informed choices on many topics and weighing visible and invisible potential outcomes, ethical choices, and financial implications. Even a consensus exists that adults make better decisions for children than children would make on their own, the reality is that children are not with their parents all the time. In terms of media consumption, children frequently make decisions in the absence of parents and, likely, of any adult. This reality is confirmed in nearly every episode of the podcast I have produced. Children's access to media has exponentially grown as devices have become increasingly small, portable, and affordable. Hiding the contents that children choose to stream, play, listen to, or download is easy. Children today have numerous opportunities to consume media alone or with someone apart from responsible adults.

Thus, how could I create a space in which children share their media consumption and thoughts? The answer was an audio podcast.

A podcast is a form of digital media, an audio program available online or through an app (Pot, 2013). It may be a series of episodes or a single program and may be live or available as pre-recordings. According to Statista (2022), 26% of the United States population listens to at least one podcast per week, which is an increase from 7% in 2013, and the percentage continues to grow.

To encourage children to share honest, authentic responses, I needed to create a space in which children would feel comfortable to share their thoughts, i.e., an open, unstructured, and friendly space without adults (apart from me). An audio podcast affords such an environment. In a video recording, an interviewee is typically conscious of the camera and is apt to perform; audio recordings only use a small microphone and a recording device and, thus, easily out of sight and mind. The recording device can be placed unobtrusively, which enables the interviewees, children, to focus on the conversation and their friend instead of on the technology. The convenience of the technology enables producers to select interview locations that are comfortable to the children being interviewed, such as their bedroom or a family room in their home.

The Kids Talk Media podcast premiered February 2019 and has been in production since then. As of the writing of this article, I have produced 22 episodes. I have interviewed children while they did cartwheels across their living room, shared a TikTok dance, taught me a video game, sang a Disney song, and accidentally woke up Alexa, the digital assistant from Amazon. The podcast began before the COVID-19 pandemic brought the world indoors and dramatically increased the number of hours that children spent online (Henderson et al., 2023). Production paused at the start of the pandemic and resumed when it was again possible to conduct interviews in person. I have interviewed children in the United States, Brazil, England, and Australia. When recording a podcast, I aim to create a space in which children feel they are talking to a friend instead of an adult host. I intend to create an environment for casual conversation in which friends encourage one another to share funny stories or difficult memories.

Guiding Principles for Kids Talk Media

The abovementioned considerations led to the creation of an informal list of principles for the podcast, which I refer to as the Guiding Principles. The objective is to ensure that children feel physically and emotionally comfortable. The Guiding Principles are as follows:

- Record audio only; no video, which enables the equipment to remain small and unobtrusive.
- Assure them that no adults can overhear the conversation during recording.
- Conduct the interview in a child-friendly space, i.e., on their *turf*, such as their bedroom or a playroom of the child's choosing.
- Stop recording when the children have lost interest.
- Allow the conversation to naturally evolve and flow where the children want it to go; don't be overly directive.
- Assure the children that no right or wrong answers exist; whatever they say is acceptable, and the podcast is not a test.
- Protect the child's privacy; use first names only, no mention of school name or the names of siblings or towns.
- Focus on their enjoyment of media as well as concerns.
- Highlight opinions. Differentiate between their opinions versus those of their parents or other adults.
- Listen without judgment, but do not refrain from offering other perspectives for them to consider.
- Respect the child.

To assess the MIL messages conveyed by the children interviewed, I utilize the definition of media literacy from the National Association for Media Literacy Education (NAMLE, 2023): media literacy is "the ability to access, analyze, evaluate, create and then act using all forms of communication." In what ways did the children discuss their ability to access, analyze, evaluate, and create media? I further define each area according to focus as follows, which originated with the definitions provided by the Oxford English Dictionary (OED, 2023):

- Access: availability and consumption; to retrieve or obtain;
- Analyze: seeking meaning; to examine in detail;
- Evaluate: assessing value; to judge quality; and
- Create: new and original; to bring something into existence.

The podcast specifically focuses on the media use of children; thus, the concept of access lies at the heart of our conversations. What media can they access at home, school, or a friend's house? However, the conversations exceed access, such that I pose the question of what ways are children

analyzing, evaluating, and creating media? And how do these behaviors encourage action? Consider this example from Patrick (11 years old; Season 1, Episode 5). He is discussing the media literacy concept evaluate when he shares the following:

> I find it (media) to be overbearing, because it's everywhere and I think us as humans, we don't really need this much technology. We can survive without it.

He is considering his use of technology and the manner in which it effects his life. In other words, he is *evaluating* its impact. In the same episode, Patricks' friend Jackie (11 years old) shares the following:

> If I had an hour I would record a video, I would edit it, make cool effects to it, because me and my sister have a YouTube channel … it makes me find out new things because when I'm older I want to do things like that …. As we started posting more, we started gaining more subscribers and then we put more videos up there.

Her statement reflects a clear understanding of the steps required for creating a video. Her understanding of the function of the video's popularity in gaining subscribers also reflects the ability to analyze. Peyton (9 years old; Season 1, Episode 1) reflects the media literacy theme evaluate:

> I don't like YouTube because I feel like they have a lot of negative opinions and some of the videos on there can be inappropriate and aren't really meant for kids.

The methods children use to reflect on their media use substantially vary. However, a common thread is that when they evaluate, they allow themselves to consume inappropriate media, while they hold others accountable for their inappropriate choices. Their comments reflect a discerning understanding of the influence of media, even if they are not always using such insights to guide personal choices. Brahin (12 years old; Season 1, Episode 2) is using social media but reflects his disdain for its use:

> Social media — like you don't have anything else to do with your life and you just look at other people's things and then wonder how better their life is than yours.

The children frequently mention TikTok when they want to provide an example of inappropriate content. Scout (11 years old; Season 2, Episode 5) evaluates TikTok when she recognizes that certain contents are intended for older people but watches anyway:

> There's not inappropriate things on TikTok cause TikTok bans them and takes them off, but there's some funny things that I just don't think are funny. There's some funny things that may use curse words, but I don't think they're inappropriate just that they're older and it's ok for them.

Revealing Comments and Concerns

During the conversations, children often divulge media details that they have not shared with their parents. They may be concerned that they have done something that may upset their parents or concerned that they will be punished for their actions. Their greatest concern is that if parents find out, then they will be unable to access such contents. The case is true for Kelyn (11 years old; Season 3, Episode 4) who shared that she frequently watches YouTube in her bedroom before going to sleep, which her parents do not permit. In these situations, I pose questions to children to help them view the situation from another point of view. Doing so enables a discussion of their behavior without focusing on whether or not the act was appropriate. The media literacy question "How might someone else understand this content differently?" (Center for Media Literacy, 2023) gives them an opportunity to reveal their understanding of the reason why specific media may be inappropriate for them without focusing on whether or not the behavior was inappropriate. In the abovementioned scenario with Kelyn, I asked, "Why might your parents not want you to watch YouTube before bed? What do you do if you see something on YouTube that makes it difficult to sleep?" Her response clearly reflected that she understood why nighttime viewing of YouTube was not a good idea, but the combination of the lack of enforcement from her parents and her overall love of YouTube made her sneak access.

Children also express that although they long for unlimited access to media and the ability to watch, play, or listen to whatever they please, they know that unlimited access is not the best for them. Consider the following comment from Vidit (10 years old; Season 2, Episode 3):

> Sometimes I watch TV and I want to stop, but I can't. Luckily, my mom has Google WIFI which can make your internet stop, so she can stop it.

The following excerpt is another example of this inner conflict between the unlimited access that children desire versus the reality of how it makes them feel:

> (on Alexa) I listen to bedtime stories and music … Alexa's the best. I go coo-coo-crazy in my house with Alexa. She does a lot of things. We got a big Alexa. Next, we got a little Alexa. Next, we got an Alexa on our TV. (Mackenzie; 6 years old; Season 2, Episode 4)

Mackenzie recognizes that access to Alexa (a personal digital assistant) in virtually every room in her house makes her go "coo-coo-crazy" but feels powerless to resist it.

Other children analyze the power of media and recognize its ability to help them cope or feel connected. Best friends, Scout and Sami (11 years old; Season 2, Episode 5) share these stories:

> I also use the media for strategies to calm down … or to be less nervous. I usually go to Wiki-how … Tomorrow's my karate test and I'm kind of scared for that. And I've been really nervous, so I looked up on Wiki-how, "how to make yourself less nervous."

> I like watching giving away money videos. And I like fail videos. Someone walking holding a cake and falls. I don't know why it's funny to me. Or gymnastics fails. We watch them all the time together. It's more of an understanding. You watch them and know you're not the only one going through this. And actually, that's a nice thing when you can watch something and know I'm not the only one who feels this way.

Occasionally, a child shares a story then implores, "please don't tell my parents". In these rare cases, I intend to respect the child's request and delete that portion from the final version of the podcast (exceptions include admissions of selfharm or harm to others. Such a statement may be deleted from the podcast, but I would immediately inform the parents. Thankfully, this scenario has not occurred yet). The aim of the conversations is to gain insight and not negative personal repercussions. Oftentimes, a child begins a story and realizes midway that the story could get them into trouble. Typically, their desire to share the story overrides any concern,

such that they continue talking. In fact, children often share stories with defiance in their tone. They know that they are going against a family rule but are not worried, because they feel certain the parent will not do anything about it even if s/he discovers the transgression. This scenario happened in Season 2 Episode 3:

> "Eminem is my favorite rapper … usually I listen to clean (lyrics), but sometimes there isn't clean. There's no "clean" (setting) for YouTube music … my parents don't care really … I'm not allowed to watch music videos because my mom said there might be some bad stuff on it.". (Daniel, 10 years old)

Daniel is aware that he should not listen to music with explicit lyrics, but he has also assessed that his "parents don't care." His mom knows music videos may contain explicit lyrics; thus, her rule focuses on music videos. However, Daniel hears the same music through YouTube music. The mother never specifically stated that he cannot listen to rap music on YouTube, therefore, he has determined that she "doesn't care," although a more likely scenario is that the mother is just unaware. Daniel evaluated the situation and determined that listening to his favorite rap music on YouTube was acceptable. When I asked him, "Do you think she'd be upset if she knew you were listening to the same music with explicit lyrics on YouTube?," he silently shrugged his shoulders and admitted, "yeah, probably."

The goal of the podcast is to elicit open, honest conversations. In this manner, listeners can gain genuine insights into the perceptions of children about media. Notably, in the abovementioned scenario (explicit lyrics), Daniel knows the rule but opted to deviate from it, because he assumes that it is not being enforced. He even understands the value of having media rules: "there might be some bad stuff on it." However, the lack of enforcement stops him from abiding by the rule.

Some of the most enlightening moments come from my question about family media rules. Does the child believe there are family media rules? How are they enforced? Parents often feel they have clearly communicated what type of media is allowed and not allowed, but the interviews tell a different story. Children can rarely articulate a family media rule, and if they can, they often feel that rule is not enforced and of little concern to their actual media use.

> Don't watch inappropriate TV. (What's inappropriate?) Ummm... I don't know how to describe it... if there's like a lot of curse words in it... and if there was a naked person. I actually don't know (if my parents know)... well, my mom has this thing if I download an app it will go to her phone so she'll know what I'm watching, I think. (Christopher, 10 years old; Season 2, Episode 1).

> I got in trouble for watching Cardi B once. She was almost naked and my mom's like "what are you watching?" and I'm like, Cardi B., and she's like "turn that off!" So, I turned it off, but then I watched it again... and she didn't know. (Genevieve, 10 years old; Season 2, Episode 1).

> (I could watch movies rated) PG (parental guidance) or G (general audience). I watch mainly with my parents, so we watched a lot of PG13. I'm not supposed to watch X or R. or PG13... (the ratings stop me from seeing...) gore. Beeping out sentences. Violence. I'm not allowed to watch that, and I don't want to. (Kelyn, 9 years old; Season 3, Episode 4).

Some songs have bad words on it. But my mom lets me listen to bad words and she lets me say bad words when I'm singing... But she doesn't let me say bad words when I'm not singing... (Mackenzie, 6 years old; Season 2, Episode 4).

Typically, family rules send mixed messages to children. Instead of a rule with clarity, the rule is confusing or seemingly conveys a conflicting message. The rules are frequently situational and not absolute, which is a subtlety that children are unlikely to understand. An example of an absolute rule is, "No social media until you are 13." A situational rule is conveyed by an example from Lyla (12 years old; Season 2, Episode 8) when she shares, "I'm not allowed to show me in a bikini at the beach (on social media)." I asked, "So you can wear a bikini, but you can't post about it?," to which Lyla replied, "Right." Her parents may see a clear difference between wearing a bikini at the beach versus posting a picture of it, but this rule is confusing for Lyla. The reason is that Lyla is not considering that she is a 12-year old girl and that the people who may see her in a bikini at the beach are different than strangers that may see her photo online. She just only that it is the rule. However, children are unlikely to follow family rules on media if they only partially understand the reason underlying the rule or the consequences for failing to follow the rule.

In a world in which children have access to media with little to no adult supervision, how effective can family media rules be? As observed in

the abovementioned quotes, if a parent has clearly stated that a particular action or access is not allowed, then the child is likely aware of the rule. However, if the rule lacks corresponding consequences (i.e., if you do X, then Y will happen every time), then the child is unlikely to comply. Evidently, this issue exceeds media use. Children push against family rules in many areas. A clear communication of expectations and clear consequences for non-compliance mainly affect their behavior. Even in the interviews in which children clearly aimed to outsmart family media rules, they admit that they would likely follow the rule if they knew their parent was aware of their actions and that consequences exist.

Common Themes

A number of the children interviewed prefer reading books and lack the desire to be on social media. However, they form a small minority. The word most commonly used by the children to describe their media use is obsessed ("I'm obsessed with Disney Plus/Roblox/Minecraft/TikTok/ YouTube". They also commonly describe feeling addicted or overwhelmed when describing media use. They love using media. They experience fun in using media with friends but also recognize that media can occasionally exert negative effects on them. Children frequently convey the desire to spend less time online or to feel less pull to be on social media constantly but are unsure how to do so, and their parents and teachers are of little help. The following is a list of other common themes.

- Children can frequently clearly articulate the reasons why they should not be on social media, watch scary movies, or play violent video games, but they do not follow the rule. They know that the action is inappropriate for children and advise other children not to do it, but they do not use this information in making their media choices.
- The comments of the children reflect a discerning understanding of media influence; they understand that media companies track them, want to make money from them, and view their private information. However, they rarely use this knowledge to guide their media choices such as reviewing privacy settings. Their attitude is typically one of acceptance and inevitability.
- The majority of the children could not articulate any family media rules. If they could, then the rules were minimal and simplistic.

(i.e., don't share your address online.) Moreover, if plainly stated consequences did not accompany the rules, then such rules unlikely to be followed.

Conclusion

As previously noted, Kids Talk Media began before the pandemic-induced quarantine in 2020. During the quarantine, the production of the podcast was ceased, because I could not be in person with children. Now that production has resumed, a comparison of before and after is possible. For example, prior to 2020, the children frequently expressed the desire for unlimited media access, especially online. They wanted to play video games longer than permitted. They wanted to scroll through TikTok for more hours. Recently, however, children do not express the same desires. They are more likely to discuss challenges in balancing between their love of media and the recognition that it does not always make them feel good and the potential negative effects on their mental health. Children in regions of the world that shifted to schoolwork and friendships online during the pandemic experienced life online in a manner that pointed out its shortcomings. Hours of online school, playdates, and entertainment finally hit their limits. Many children lived the real-life experience of massive online access, which helped to elucidate the benefits and losses. Meeting friends online kept many children from feeling connected instead of isolated. Today, however, they are increasingly aware of the value of playing together on playgrounds, sharing a laugh with friends at the mall, or cheering for local sports team at a game. Only the years ahead will reveal how the experiences of these children will shape future media choices. Nevertheless, such experiences will surely shape them. They already have.

A minimal number of the children were aware of the skills of MIL and how such skills may help them in navigating their online lives. Many children shared stories of discussions about cyberbullying at school, assessing news, or keeping information private when online. However, they rarely referred to consistent conversations about media with parents or teachers. Conversations were not part of a broad MIL school curriculum or even a recurring topic at the family dinner table. In other words, children are looking for guidance.

The podcast continues. Future episodes will include children from different regions of the world with varying levels of access to technology and media. I cannot wait to hear their thoughts.

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"Controlling Borders – not Vaccination Status": Teaching about "Fake News" and Human Rights across the Curriculum

Helena Dedecek Gertz, Franziska Gerwers and Sílvia Melo–Pfeifer

Abstract

In this chapter, we present research based on the empirical analysis of "fake news" ("FN"), which is aimed at discussing its pedagogical strengths when used as classroom resources. We focus on "FN" related to COVID-19 and migrants. Our project aims at combating, first, the spread of disinformation and misinformation on COVID-19, which causes harm to public health, and, second, the proliferation of othering and hate discourse in media outlets, which is detrimental to human rights. Understanding schools as capacity-building structures, we claim that pedagogical practices based on a content, discursive, and multimedia analysis of "FN" can strengthen the development of media and information literacy (MIL) across the curriculum. After a literature review, we present the most common discursive and multimodal strategies used to establish a misleading connection between migrants and COVID-19 and provoke negative emotional reactions in the audience. Thereafter, we discuss how to turn these findings into pedagogical approaches with the potential to go beyond the identification of "FN" characteristics and linguistic deconstruction to embrace more holistic perspectives based on critical discourse and multimodal analysis.

Keywords: Disinformation; "fake news"; migrants; COVID-19; curriculum development; interdisciplinarity.

Embedding media and information literacy (MIL) in school curricula can play a central role in preventing prejudiced and divisive discourses from circulating as "fake news" ("FN"), understood as a form of information disorder (Wardle & Derakhshan, 2017). Despite the criticism leveled at "FN" (Baptista & Gradim, 2022; Habgood-Coote, 2019; Wardle & Derakhshan, 2017), we use the term throughout this pedagogical contribution because it is more widely circulated in school environments (Melo-Pfeifer & Dedecek Gertz, 2023) and is more easily understood by laypeople.

Owing to the increasing ubiquity of digital media (Hepp, 2020), MIL has the advantage of being interdisciplinary and hence adaptable to all school subjects (Opree, 2017). The spread of disinformation, which associates COVID-19 with migrants, is a pressing issue that can be addressed in schools through MIL. Connecting such "FN" to science (e.g., how a virus spreads) and diversity issues (e.g., using migrants as scapegoats) can be approached through a transversal implementation of media literacy in school curricula. On the basis of that observation, we ask what aspects of "FN" linking COVID-19 and migrants can serve an MIL pedagogy that counters hate and othering discourses.

To answer this research question, we propose an analysis of a disinformation observatory, a databank that compiles analyses and deconstruction of different pieces of disinformation. The observatory was developed within the Covid, Migrants and Minorities in Teacher Education (CoMMiTTEd) project and contains deconstructed articles in four languages (Spanish, Portuguese, German, and Dutch; some analyses are also available in English). The analyses featured in the observatory are mainly addressed to school students aged 12–18 and are intended as pedagogical resources. This chapter proposes a pedagogical use for disinformation within an MIL pedagogy approach.

First, we present our theoretical approach based on the intercultural aspects of MIL. We then provide background information about the CoMMiTTEd project and present our research design based on a content, discourse,

and multimodal analysis of "FN" collected in an online database for that project. Following a multilayered analysis, we account for the text and visual elements of the "FN". In the analysis, we present aspects of "FN" that promote othering and hate discourses against migrants and minorities in Europe by attempting to associate these groups with the COVID-19 pandemic. We contend that identifying these aspects and how they are conveyed is an important step in adapting "FN" into pedagogical resources and using them to counter othering and hateful discourses about marginalized populations in Europe. Furthermore, after discussing how MIL accounts for aspects of social diversity, we describe ways in which it can be incorporated into different school subjects. We conclude by suggesting that such a perspective can also be encouraged beyond school settings, thereby fulfilling the premise of MIL for the public good.

Against Fake News, Othering, and Hate Discourses

Next, we define our perspective on MIL as centered on a social model, that is, one that promotes critical thinking regardless of media content and platform. To that perspective, we emphasize diversity aspects to promote an analysis that is sensitive to discourses about marginalized populations, such as migrants from low socioeconomic backgrounds coming to Europe from the Global South. After defining our position within MIL, we define othering and hateful discourses, which are two core aspects of "FN" about migrants. Finally, we define "FN" as false content that encompasses misinformation and disinformation (Wardle & Derakhshan, 2017, 10). Although "FN" can circulate across media platforms, in this study, we focus on digital media because of its reach and capacity for the rapid spreading of "FN".

Interest in MIL grew as a result of concerns regarding violent scenes broadcast on television, which could have a negative effect on young people (Abreu & Mihailidis, 2014). Nowadays, the focus is shifting to the spread of hateful discourses and false or misleading information online. With regard to this concern, there is compelling evidence of the potential negative consequences of using media with low MIL skills. Adults are also prone to fall for fake or hateful content; however, we focus on young people because they usually attend institutions with available resources and infrastructure to expose students to such content under controlled conditions. Schools and teachers can thereby foster critical thinking about

messages being conveyed on any media platform, a core aim of the social model of MIL (McDougall, 2014, 5). The concept of MIL encompasses individuals' rights to "communicate, express, seek, receive, and impart information and ideas" and encourages "the evaluation of information and media based on how they are produced, the messages being conveyed, and the intended audience" (Grizzle, 2013, 260). In this chapter, we focus particularly on the latter aspect of the evaluation of information and media. We do this by discussing the adaptation of pieces of "FN" for pedagogical purposes.

Taking advantage of increasing mediatization and digitalization worldwide (Hepp, 2020), MIL has the potential to create awareness about the global scope of social problems (Grizzle, Torrent & Pérez Tornero, 2013, 15). With this in mind, our empirical examples of "FN" can be related to an internationally pressing topic: misinformation that associates the COVID-19 pandemic with hateful discourses against migrants. We approach MIL by accounting for elements used to discriminate against migrants coming from the Global South to Europe, such as race, ethnicity, gender, and class background (Neag, Bozdağ & Leurs, 2022). Concurring with Neag and colleagues (2022, 3), we understand that learning about how media representations of marginalized groups reinforce stereotypes is a central path toward a more inclusive society. The quicker the processes of mediatization become (Hepp, 2020), the more a critical approach to MIL is needed. On the one hand, teaching MIL from that perspective provides tools for critical thinking that can be adapted to any context or platform; on the other hand, teaching MIL cannot be limited to a technical perspective that does not consider social contexts and historical narratives. Importantly, this approach to teaching media literacy using "FN" itself can allay the potential to create critical incidents or reinforce the content of those same "FN" within the class and school environment (Melo-Pfeifer & Dedecek Gertz 2022; 2023). Thus, our meta-analysis of "FN" that associates migrants with COVID-19 provides researchers and practitioners with examples of the aspects of "FN" that can be used as pedagogical tools to teach critical thinking and promote the inclusion of marginalized groups.

A pedagogical use for "FN" involving disinformation about marginalized populations should focus on strategies for discovering and countering othering and hateful discourses. Like Said (2003 [1978], 107–109), we understand othering as ascribing stereotypes and fixed socioeconomic characteristics to populations outside industrialized countries from the

center of capitalism. Content conveying such views can also be described as "essentializing": as if people associated with contexts such as the Middle East, Latin America, Southern and Eastern Europe, Africa, and some countries in Asia share negative, innate, and unchangeable behavior patterns. Such unfounded beliefs caused by othering ideologies lead to "us vs. them," a concept that propels the belief that migrants and people from families with international backgrounds are essentially unable to live in a society different from the one they or their family members come from. When put into practice, such undercomplex thinking can become hateful (and poorly informed) discourses, involving racist, sexist, and classist views. More broadly, hateful discourses, or hate speech, can be defined as "any speech that insults, discriminates, or incites violence against groups that hold immutable commonalities such as a particular ethnicity, nationality, religion, gender, age bracket, or sexual orientation" (Bahador, 2021, 507). Such insults, incitations of violence, or discriminatory discourses can be blunt or wrapped in false or misleading information and in formats that resemble news or are published by people considered reliable by some (e.g., politicians). In that case, the hateful discourses derived from othering ideologies become characteristics of "FN".

"FN" relies on such discourses, as its appeal to divisiveness contributes to its rapid spreading, particularly on digital platforms (George, 2021). "FN" is part of what Wardle and Derakhshan (2017, 5) defined as "information disorders." These disorders convey different contents, which are categorized into those that are false but with no harm intended (misinformation), those that are harmful but not false (mal-information), and those that are both intentionally harmful and false (disinformation). The "FN" analyzed in this chapter falls into the latter category of disinformation. Through misleading content and false connections, the "FN" we selected fuels harmful and othering discourses to harass migrants and divert public opinion against their presence and integration. Hence, we can classify this type of "FN" as disinformation.

The Empirical Study

In this section, we present our empirical object: the selected pieces of "FN" circulating in four European languages that associate migrants with the COVID-19 pandemic. We also present the context of that data collection, namely the CoMMiTTEd project and its aims: to elaborate an

observatory, a course, and a handbook for teachers about the pedagogical uses of "FN" that associates migrants with COVID-19. We then present our research design based on a content, discursive, and multimodal analysis of the "FN" adapted to teachers' pedagogic material.

The CoMMiTTEd Project

The CoMMiTTEd project has three practical outcomes geared toward pedagogists and teachers: two online teacher education modules, a pedagogical e-handbook for teachers and teacher trainers, and an online database. The data for this chapter comes from the online database. This database contains pieces of "FN" that relate migrants and minorities to COVID-19, which are then analyzed and deconstructed by the team members. Professionals can use these resources to teach critical thinking skills about media content and incorporate aspects of diversity into the discussion. The decision to select "FN" involving social minorities (instead of climate change, for instance) was made by taking into consideration our intended audience: teachers who work in diverse classrooms, who may not be sensitized to appropriately approach "FN" and hate discourses that affect their students, or who may not have tools to deal with such content. By starting with a socially relatable and directly observable situation in classrooms, professionals can transfer the knowledge gained to other (media) content and social interactions.

The CoMMiTTEd project is a joint effort of four research teams from universities in Aveiro (Portugal), Hamburg (Germany), Navarra (Spain), and Tilburg (the Netherlands). Each team, coming from its individual contexts for analysis, selected five pieces of "FN" that associate migrants with COVID-19; in total, 20 pieces were analyzed. The database created with these pieces is multilingual and multimodal as it is constituted by texts, images, or videos circulating on social media and "FN" websites. In the online observatory,[1] the pieces of "FN" and accompanying analyses are presented as downloadable PDF files (from 4 to 6 pages) with screenshots of the "FN" and texts elaborated by team members. First, the context of the "FN" item is presented, providing information about its source, relevant actors, and situations involved. Then the aspects that determine the piece

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[1] The CoMMiTTEd online observatory of fake news can be accessed at https://committedobservatory.eu/en/observatory/.

as "FN" are explained: These are based on its content (e.g., "migrants jump ahead in the vaccination queue"), the way the content is presented (e.g., grammar or spelling mistakes, no sources mentioned, and hateful and discriminatory claims), and the format of the "FN" (e.g., attempts to provide credibility to the content by mimicking quality-journalism websites or, inversely, appealing to the readers' emotions by the use of manipulating images). In cases where the news included oral elements, these were transcribed to prevent the disappearance of the "FN". Posts in social networks do not exist in isolation but also include reactions from readers that are visible to those reading a post. This is why these reactions were also included in the analyses.

This chapter is based on a representative sample of elements from the observatory, which itself is, from its inception, directed at practitioners with the intention of making these resources useful in classroom situations. Here, we focus specifically on aspects of this sample of "FN" that can be used as pedagogical resources to counter hate and othering discourses.

Research Design

In this chapter, we intend to answer the following research question: "What aspects of "FN" linking COVID-19 and migrants can serve an MIL pedagogy that counters hate and othering discourses?" To achieve this goal, we propose a secondary analysis of "FN" that connects migrants to the emergence and spread of COVID-19.

The initial analyses were conducted in Dutch, German, Portuguese, and Spanish, with some of the analyses translated into English. First, the four teams identified the pieces of "FN" they wished to include in the observatory and subsequently analyzed them in groups. They attempted to give an accurate account of the events being "reported" in the "FN" and provided a thorough analysis of discursive and visual means used to misrepresent migrants and minorities as responsible for the COVID-19 pandemic. Table 1 presents the titles of the "FN" items and the languages in which they were analyzed.

Table 1. *Corpus of analysis*

Language	Title (translated into English)	Date of publication	Source of the original "FN"
Dutch	Chinese offended by distasteful Corona song with Radio 10 DJ Lex Gaarthuis.	February 2020	DenD
	The coronavirus is a Salafist plot.	28.02.2020	Joop
	Spot the difference, 1940–2020.	January 2021	De Gelderlander
	Bunkers in Zeeland plastered with Jewish stars with the word COVID.	25.05.2021	Nu.nl
	PVV leader Geert Wilders: Henk and Ingrid versus Mohammed and Fatima.	11.10.2020	Twitter
German	A controversy in Berlin.	07.01.2022	RBB
	Border control instead of vaccination control.	19.01.2022	Instagram
	Corona numbers among migrants.	20.04.2021	PI-News
	Multikulti vs. Coronavirus.	03.03.2021	Tweet
	Special payment even for rejected asylum seekers.	07.11.2021	Facebook
Portuguese	Native Australians resist vaccination against COVID-19.	18./19.10.2021	Twitter
	Zmar Eco Resort – A "Nazified" accommodation complex.	01.05.2021	Facebook
	The problem of refugees – Which M&M are you going to eat?.	22.04.2020	Facebook
	Population replacement with masks against COVID-19.	07.12.2021	Facebook
	Racial minorities and psychiatric patients more likely to die of COVID-19.		
Spanish	COVID-19 vaccination priority groups.	January 2021	
	Spain opens its borders to a new tourism group.	July 2020	Twitter
	Infected Moroccans in Cartagena staying at Hostal Manolo.	July 2020	WhatsApp
	"Colombian variant" of COVID-19	05.06.2021	TikTok
	Jews behind COVID-19 vaccines.		Twitter

Source: Own elaboration.

One interesting finding from this first phase of research and analysis is that most of the data selected for the observatory come from social networks and are connected to right-wing groups or individuals. One exception is RBB, a television outlet that features a press conference by a left-wing politician in Germany. During the prior phase of the analysis, the researchers from the CoMMiTTEd project particularly searched for misleading designations and the misleading establishment of relationships between facts.

In our secondary analysis, we dove deeper into the thematic, linguistic, and structural elements that were perceived as the most salient by the researchers of the CoMMiTTEd project. Thus, this analysis allows us to explore in greater depth the commonalities and differences in "FN" circulating in different countries and languages, in terms of the construction of narratives of the other. Furthermore, this analysis provides additional layers of meaning that might not have been apparent to the researchers conducting the preliminary analysis within the contexts in which such "FN" first emerged and circulated. By following this methodology, we embrace the principles of shared cognition in the analysis of "FN" and gain a greater understanding of inter/transcultural issues and trends present in "FN" (at least as they emerge within some countries of the European space). We first searched for indicators of othering and hate discourses in the analyses provided by the researchers in the first phase. Specifically, we looked at the classification of disinformation/misinformation (Wardle & Derakhshan, 2017) through, for example, false context, propaganda, misleading relationships, and false use of concepts, and we analyzed the connection of those "FN" items to broader narratives associated with migrants and minorities. Subsequently, we analyzed the commonalities in the visual representations of migrants and minorities. Analyzing multimodal elements, especially images, derives from an acknowledgment that such multimodality can "elicit strong emotional responses" (Lilleker, 2019, 38) and offer cognitive shortcuts, thus "manipulating peoples' beliefs and attitudes" (Lilleker, 2019, 38). Lilleker argued that in political communication ("FN" on migrants can be understood as a subset of political communication), "the image must convey an idea that resonates with the learned values of their audience" (2019, 38), thus producing the effect of familiarity. Thus, our analysis starts with a content and discourse analysis, followed by a multimodal analysis, the two steps being complementary.

Analysis

Content and Discourse Analysis

The first indicator of othering that we analyze is how migrants and minorities are named in the titles given to the pieces of "FN" (see Table 1). In our corpus, migrants and minorities are associated with countries of origin (Chinese, Colombian, Moroccan, etc.), religion (Jews), or specific migrant status (refugees), as well as through the use of stereotyped onomastics as identifiers (Mohammed and Fatima). Such designations are amalgams (they are always in the plural form), often combined with depreciative adjectives ("rejected asylum seekers" or "infected Moroccans") or framed as problems (the "problem of refugees"). Another discursive strategy is the use of synecdoche, associating a nationality with a new variant of COVID-19 (SARS-CoV-2), although this has not been established by the specialized medical profession. It could seem plausible to the reader that a Colombian variant was found after the so-called British, Brazilian, and South African variants referred to in those terms by mainstream media and, to some extent, the scientific community itself.

These strategies have also been found in previous research. Baker (2008), for example, explains several strategies for positive self-presentation and negative other-presentation. These are (i) referential/nomination, which includes synecdoches (taking a part for the whole) as found in our data; (ii) predication (positive or negative labeling of social actors); (iii) argumentation (as can be seen in the example "a controversy in Berlin" when the position of a politician from a center-left party about the vaccination rates among migrants is used to reinforce an argument against migrants); (iv) perspectivation/framing/discourse representation (as in the "FN" cases where migrants are framed as vectors of COVID-19); and (v) intensification (as in the example "Corona numbers among migrants," where numbers are exaggerated). Augoustinos and Every (2007) name other practices of othering as follows: denial of prejudice, grounding one's views as reflecting the external world rather than one's psychology, discursive deracialization, and the use of liberal arguments for "illiberal" ends. The denial of prejudice in particular is frequent in the initial analyses of our corpus, as actors who spread "FN" distance themselves from racism by referring to alleged "facts." Strani and Szczepaniak-Kozak (2018) identified stereotyping as a common strategy of othering, which can also be found in our analyses (e.g., migrant communities and minorities, such as Native Australians, are framed as more skeptical toward vaccination).

Specifically, in the case of "FN" on Native Australians and their supposed resistance toward the COVID-19 vaccine, we could ask ourselves about the agenda behind its publication in Portugal. We can suppose that framing a minority in a distant country as a problem to national health becomes a proxy for other minorities (in the Portuguese context), thus serving transfer and deductive purposes: "If one minority acts like this, all minorities are probably the same," disregarding the context.

Among the most frequently called-out groups are those associated with Judaism and Islam. In Spain, a third group of scapegoats emerged: migrants from Africa. Usually, fear ideologies feeding collective moral panic are reproduced by right-wing ideologues, but we also found false claims related to minorities and migrants pronounced by left-wing politicians. The latter case used culturalist arguments, framing migrants and minorities as more prone to believing in "FN" and therefore refusing vaccination (and therefore increasing virus spread).

The secondary analysis here is derived from a classification conducted for the observatory. The "FN" items were first classified according to eight categories based on the works by Wardle and Derakhshan (2017) and Baker (2008). Several categories can be applied to a given "FN" item. The classification was challenging, as the intentions of the author/s are not always clear, and it is hard to distinguish between, for example, manipulated and fabricated content. The CoMMiTTEd researchers attempted to make the analyses as objective as possible by reading and comparing the impressions of several researchers. An overview of the categories and the number of occurrences is given in Table 2.

Table 2. *Categorization of "fake news" and the number of occurrences*

Category	Number of occurrences
False context or connection	7
Manipulated content	4
Misleading content	12
Fabricated/imposter content ➜ disinformation (intention to harm)	5
Satire/parody	1
Propaganda	1
Misinformation (no intention to harm)	1

Source: Own elaboration.

As shown in Table 2, misleading content was the most common type of "FN" included in the analyses, whereas the second most common category was false context. Both categories are challenging in terms of identification, as they contain true elements that are misleadingly intermingled with false or manipulated content.

Besides misleading information (including calculations) and false relationships, other very common features were the use of false concepts and the lack of a primary source for the information. An example of the first case can be seen in the analysis of the "FN" items "Special payment even for rejected asylum seekers," revealing that the denominations asylum seekers, migrants, and foreigners (*Asylbewerber, Migranten,* and *Ausländer*) are used interchangeably, even though the three groups are not equal in terms of status and need for protection. In the second case, information is provided without a trusted source, usually through reference to abstract or vague data sources, creating a false sense of shared background information between those creating the news and those reading it. That is the case, for instance, in the "FN" "*Grenz- statt Impfkontrolle,*" in which it is alleged, with no source cited, that the German government would have "opened the borders" during the pandemic. Other times, readers are guided to supposed sources (usually through external links) that already present a secondary view of the facts, a strategy that has the potential of creating loops of falsified or incomplete information, which feed and pseudolegitimize each other. This can be seen in the examples "Special payment even for rejected asylum seekers," where the author added a link to a political document, and in "COVID-19 vaccination priority groups," where the legitimate source is highlighted to try to confer credibility to the misleading analysis.

Analyzing the comments below the post, it becomes evident that those comments agreeing with the original post are mostly visible: "fact," "they come as all-inclusive tourists," "true words," "people who will never integrate," and thumbs-up and clapping-hands emojis. Displaying these comments amplifies the "us vs. them" rhetoric.

The "FN" items also use their readers' fear to generate hate discourses and othering: Migrants are depicted as people who "steal financial resources," as can be seen in their depiction as "all-inclusive tourists" and the exaggeration of a COVID bonus payment. While fear is the most prevalent emotion, other emotions are also triggered (e.g., hate, frustration, pride), which constitutes a very common feature of "FN".

Multimodal Analysis

Images are important elements in "FN" as visualizations tend to more easily persuade people (Jones et al., 2021, 119; Veneti et al., 2019). Through a multimodal analysis, three trends in terms of othering can be identified in our corpus: symbols present in the pieces of "FN", differentiated treatment of the news anchor and the minorities, and the creation of false historical analogies. These are three powerful strategies of "multimodal persuasion" and cocreating a visual narrative (Jones et al., 2021, 119).

In terms of the first trend, most "FN" items display national symbols, such as flags (see Figure 1), and national colors associated with a country (see Figure 2). Less prominent but inducing a relationship of trust in the reader is the name of the news anchor or writer (usually with a clear association with the majority national language and ethnicity, and not a minority; for example, "Han van der Horst" in Dutch) and a status or profession/hobby perceived as trustworthy, as in Figure 3 ("Historicus").

Figure 1. "Spain opens its borders to a new tourism group"

Figure 2. "Control the borders – not vaccination status"

Figure 3. "The coronavirus is a Salafist plot"

Source: Twitter, (2020).   Source: Instagram, (2022).   Source: Joop, (2020).

We also compared how the source of information and the subject were visually treated (see figures 4–7). We analyzed both the quantity and the quality of the presentation. In terms of quantity, the source or mediator of information is a singular person. The person's name is connected to the majority language of the country, and the "FN" is accompanied by a distinguishable face, positioned in the foreground and usually representing the majority (male) group. Minorities or migrants, conversely, are mainly portrayed from far away, giving the impression of distance: They do not have individualized faces and can even be referred to through metaphor ("M&M" in Figure 7). In terms of quality, the news anchors are portrayed in professional rooms, surrounded by artifacts that give the impression of press conferences or news outlets (microphones, clean clothes, etc.),

while migrants and minorities tend to be portrayed in uncertain and/or insecure open environments (even if the photos have been decontextualized and recontextualized to give a sense of contemporaneity; (see Figure 6).

Sources of "information"

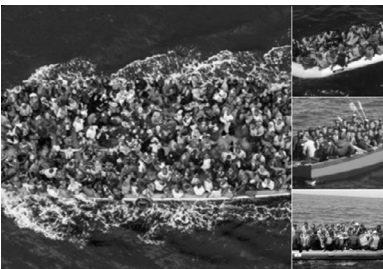**Figure 4.** "A controversy in Berlin"

Source: RRB (2022).

Figure 5. "Chinese offended by distasteful Corona song with Radio 10 DJ Lex Gaarthuis"
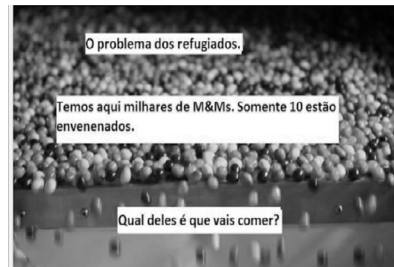

Source: DenD (2020).

The groups being targeted

Figure 6. "Spain opens its borders to a new tourism group"

Source: Twitter (2020).

Figure 7. "The problem of refugees – Only 10 as poisonous, which M&M are you going to eat?"

Source: Facebook (2020).

The visual strategies used to depict the source of information and the scapegoats mirror the rhetorical/linguistic strategies used in the pieces of "FN". The anchorperson of the news channel or source of information is presented in sober tones, with a professional look, surrounded by the visual apparatus associated with trustworthy information channels and displaying the same type of visual elements (e.g., "breaking news" banners and graphs). We can thus conclude that this type of "FN" reproduces visual imageries related to news and exploits them to create a sense of familiarity and identification with the content, possibly inducing the audience to lower their critical guard despite malicious "information."

Another strand identified in the multimodal analysis is the tendency to create false analogies relating to different historical moments. One of the most misused analogies is comparisons with the Holocaust (see figures 8 and 9). These instances of analogy show that "FN" producers are aware of a certain perception of history as a stable and objective subject that cannot be manipulated because it belongs to the past and is therefore attached to truth. The use of historical documents (photos, which are usually associated with the documentation of facts) corroborates this illusion.

Figure 8. "Zmar Eco Resort – A Nazi concentration camp and an accommodation complex for refugees"

Source: Facebook (2020).

Figure 9. "Spot the difference" using a comparison between photos described as being from 1941 and 2021

Source: De Gelderlander (2021).

In Figure 8, a center for housing precarious workers exposed to the danger of contamination from COVID-19 is compared with a concentration camp in Nazi Germany. In Figure 9, the control of vaccination status is compared with the control conducted on Jews by Nazi officials. In both cases, the chronology is taken as further evidence of the repetition of crimes of the past. The depiction of government workers in 2021 as "bad" (by comparing them with Nazi officials) aims to paint the authors as the "good" side, once again labeling the different actors positively and negatively.

One "FN" item that we considered particularly interesting was the comparison of different facial coverings (see Figure 10). In this case, the producer intends to show the evolution of face masks, which were first associated with COVID-19 protection and evolved to face-covering related to the supposed Islamization of Europe. As we can see in the juxtaposition of images, the masks grow bigger, first covering the face and eventually covering the whole head. In this case, the chronology is not used as evidence of parallelisms (as in figures 8 and 9) but as an indicator of the alleged inevitability and natural evolution of the situation, which predicts the near future and is aimed at creating anxiety in the reader.

Figure 10. Population replacement with masks against COVID-19

Source: Facebook (2021).

In addition, it is interesting to note that the first three pictures in the sequence show women with a lighter complexion, while the last one, representing the alleged "Islamization of Europe," has a darker complexion. In terms of their line of vision, the first three women look directly into the camera, showing self-confidence, while the last does not look the reader in the eyes, suggesting submission and, perhaps, that she has something to hide.

This multimodal analysis shows that images can be employed to dissimulate the source and purpose of a piece of "FN", creating correlations that lack causal links and rely solely on their intended audiences' emotional resonance (Lilleker et al., 2019).

Discussion

Following our analysis in the previous section, the next step in working with "FN" to develop MIL should be to make students aware of such othering strategies used in "FN", both rhetorical and multimodal. The strategies encountered in our corpus are summarized in Table 3. Whereas most checklists on how to identify "FN" focus on discursive features, our analysis shows that students should be called on to connect rhetorical and multimodal strategies of othering as "FN" is often multimodal and its analysis should not be limited to linguistic deconstruction.

Table 3. *Rhetorical and multimodal othering strategies in "FN"*

Rhetorical strategies	Multimodal strategies
• Onomastics and amalgams: Merging migrant individuals into one stereotypical person ("Fatima," "Mohammed"). • Predication: Using depreciative adjectives for migrants and minorities ("rejected," "infected") and labeling the majority with perceived positive attributes ("honest," "normal people"). • Misleading problem framing ("the problem of refugees"). • Synecdoche (the "Colombian variant" or "refugees" instead of "migrants"). • Exaggerations to provoke a more emotional reaction (e.g., "wide open borders"). • False connections between facts: COVID-19 regulations are compared with refugee policies.	• Nationalistic symbols, such as flags and colors. • Elements associated with the credibility of the source/mediator of the information (who belongs to the majority group, is possibly a native speaker of the language, and has a "respected" profession). • Different framing of the source/mediator and the targeted .group(s) in quantitative and qualitative terms. • Visually misleading historical analogies (use of historical documents, timelines, etc.).

Source: Own elaboration.

An analysis of our corpus shows that "FN" around migrants and minorities during the COVID-19 pandemic amplified three misleading narratives: "the (growing and inevitable) Islamization of Europe," "the (renewed) control of the world order by Jews," and "the great replacement racist theory," according to which "the black population intends to outnumber the white population and take control of Europe." In other words, "FN" is not creating new hate targets but feeding existing resentments and narratives of power control and hierarchies that circulate in the majoritarian discourse. One possibility in working with "FN" to enhance MIL would be to spot the groups (ethnicities, nationalities, religions, status, etc.) being highlighted and relate the "FN" to other episodes in history where these same groups were singled out and misrepresented. Analyzing well-informed parallelisms in history and across minority groups (rather than constructed instances to instill fear and other emotions) could be a way to make students perceive the pseudological machinery behind "FN" creation and spread. Because historical arguments can be misused, as we saw in the discussion about the presentation of chronologies or the misleading

parallelism of historical facts, it would be important to thematize the ways in which history can be manipulated to serve obscure political agendas. From this perspective, history as a school subject (sometimes coupled with politics, as in German schools) can be an important curricular context to counter "FN" and enhance MIL.

The documentation of "FN" in different moments and the comparison of xenophobic ideologies across countries and documents, both from a synchronous or diachronic perspective, can enlighten students about what we could call a "universal grammar of "FN" and its specificity arising in different contexts. This can be the case, for example, with different countries addressing different scapegoats or giving different importance to traditional international scapegoats. In the case of Jews, we perceive a contradiction in their representation in "FN": On the one hand, they appear as victims of the past to call out the injustices of the present (see Figure 9); on the other hand, they are the ones allegedly making money with the mass vaccination of the populations ("Jews behind the COVID-19 vaccines"). This ambivalence highlights what we might call an argumentative "one-size-fits-all": Regardless of the context in which "FN" is mobilized as a piece of evidence, "Jews" are depersonified and manipulated according to the agenda that suits the specific piece of "FN". Students should become aware of this "objectification" of minority groups and reflect on the propagandistic and manipulative uses of these strategies. To do so, it would be important to analyze the various appearances of these groups in the media and see how they are treated (both linguistically and visually). This analysis could be enabled by specific searches in online tools, which would then be facilitated by methodologies of linguistic corpus analysis. This task could be included in foreign language lessons and in specific modules on intercultural competence and MIL.

We also observed that readers' reactions can be an object of interpretation, both quantitatively and qualitatively. "FN" tends to garner a great deal of attention and therefore many likes, shares, and comments. As "FN" tends to be liked, commented on, and shared by like-minded persons, its popularity is compounded by algorithms that easily pick up on such trends. As a pedagogical consequence, students should be informed about the role of algorithms and their functioning, namely, in terms of influencing the information we are exposed to (at least in social media). This also calls for thinking of schools as sites of social activism to understand algorithms and engage in debunking "FN" in public spaces (both online

and offline). Tasks such as posting counternarratives on "FN" websites or social media accounts could be integrated into both the mother tongue or language of schooling and foreign language classrooms. Such activities would be aligned with the call to promote intercultural communicative competency at school, namely, the ability to "savoir s'engager" (Byram, 1997; Melo-Pfeifer & Dedecek Gertz, 2022). Data analysis and the questions surrounding algorithms could also be part of math and computer sciences, for instance, in a class where students explore the logic of recommender algorithms that favor the spread of "FN".

Interaction around "FN" tends to be asynchronous, such as by posting a comment or a reaction on social media. Thus, students could develop their digital pragmatic competence (Yus, 2011) around the use of smileys, emojis, memes, and other communicative sense containers to convey humor, play, and irony as strategies to introduce counternarratives. Again, these tasks could be included in the first language or foreign language classroom.

Our analysis concluded that the visual strategies used to represent news anchors differently from migrants and minorities mirror the rhetorical strategies uncovered. This could inspire creative tasks in arts classrooms, aimed at creating, for example, "worlds in reverse," in which the strategies of depersonification and credibilization would be inverted, with dencentering effects. As a consequence, intercultural education would also be integrated into the arts subject.

As we also saw, simply identifying media outlets and interlocutors as "left" or "right" wing is not enough to claim that a piece of news is potentially fake. MILs at school should make this point clear, maintaining a high degree of criticality and a vigilant stance around discourses on minorities. Such a cautionary tale could become a theme in politics (and also history) classrooms.

Finally, if the goal of "FN" is to create moral panic and lead people to act based on a moral obligation, the classroom can also be a place to talk about feelings and how "FN" resonates with personal stances (or family positioning) and with one's own beliefs and biographies. Again, foreign language and arts classrooms could be safe spaces for these purposes.

Conclusion

A review of the analyses of "FN" from the CoMMiTTEd project reveals that there are common trends regarding othering across different national contexts. This includes targeting certain groups – Muslim and Jewish people and black and brown people living in Europe – and reproducing stereotypes and exaggerations. The use of "FN" as a pedagogic resource thus seems necessary to approach the problem from an intercultural/transcultural perspective in terms of interactions with or about minorities and migrants. In particular, in the context of MIL studies, this intercultural/transcultural stance needs to be integrated, as it has not yet been sufficiently connected. Existing antiracism approaches to education (Fereidooni & Simon, 2020; Flores & Rosa, 2015) should be revised and adapted to include an MIL approach.

With regard to our research question, the rhetorical and multimodal strategies identified should be taught and discussed to serve an MIL pedagogy that counters hate and othering discourses. They include onomastics, predication, problem framing, synecdoches, exaggerations, and false connections, as well as the use of nationalistic symbols and elements attached to credibility, framing of the source and targeted groups, and the creation of visually misleading analogies.

School actors should become aware of the connections between "FN" and othering discourses, as this can lead to a more interdisciplinary approach, which is desirable when dealing with MIL in school. The different approaches can then promote a more holistic view and more conscious handling of "FN" overall.

Following our study, some scope for further research in the field of MIL remains: Our results should be transferred to a wider audience beyond school students. If we want MIL for the public good, education must extend beyond schools, for instance through public information campaigns, citizen science programs, or easily accessible training programs. Furthermore, although our research includes examples from different national contexts, all of these contexts can be classified as "Western/European." Further research should thus aim to include more diverse contexts, looking at examples from other parts of the world and in more languages, to adopt a deeper intercultural/transcultural approach to "FN" about minorities and migrants and to MIL studies.

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Media and Information Literacy in Colombian Teacher Education: Insights from Implementing the UNESCO MIL Curriculum

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Abstract

Colombia has reached a level of maturity concerning the establishment of enabling technologies. Nevertheless, the country's educational system has yet to achieve consistent and widespread quality across the entire national territory. Evident disparities exist in academic achievements among secondary school students in urban versus rural areas and between the official and nonofficial sectors. However, this study reveals that the country possesses contextual conditions conducive to advancing media and information literacy (MIL). These conditions stem from advancements in technological infrastructure and the alignment of the United Nations Educational, Scientific and Cultural Organization (UNESCO) MIL curriculum learning outcomes for teachers with both the interests and content of the national curriculum and the curricula implemented by the schools studied. This study introduces the initial stages of piloting the UNESCO MIL curriculum across 23 schools in Colombia, marking the initial strides toward developing an MIL policy for the country.

Keywords: Media and information literacy, MIL policy, MIL curriculum, MIL education, teacher training.

Media and information literacy (MIL) is a comprehensive and integrative concept developed and refined by various organizations over several decades. MIL interconnects various dimensions within education, communication, information, digital literacy, and media education, combining these aspects into a unified approach. The objective of the MIL framework is to cultivate critical citizenship, reinforcing the responsible and ethical appropriation and creation of content, information, and media (Durán-Becerra & Lau, 2020).

Colombia has instituted significant regulations, policies, and programs concerning educational technologies and their deployment across different educational levels. The country has made remarkable strides in terms of expanding access to basic and secondary education and creating links with tertiary education. Nevertheless, disparities in education quality continue to persist, notably reflected in the results of the Saber 11 Tests for high school graduation evaluation (ICFES, 2021; 2022a). These assessments reveal marked variations in scores between the private and public sectors, as well as between genders, underscoring inherent weaknesses in the country's education system.

Against the backdrop of evolving ICT policies pervading the national education system, alongside the necessary endeavor to integrate media, information, and digital competencies into learning processes (Durán-Becerra & Machuca, 2021), this chapter presents the primary outcomes of a project executed in Colombia by two higher education institutions along with 23 elementary and secondary schools. The project aimed to pilot an adaptation of UNESCO's MIL curriculum for educators (Grizzle et al., 2013a) and design (draft) an MIL public policy framework targeted toward bridging the digital divides across the territory through education.

Documenting the stages of implementation across different fields of policy and practice is important for benchmarking purposes in different countries. We can learn about country-specific MIL ecologies by observing the system within a particular country. Comparisons and mutual learning processes are important because accessing and using media and information has

emerged as a significant social challenge globally. The proliferation of ICT leads to hyperconnectivity and has significantly improved access to information sources (Salvat & Serrano, 2011). However, it has also revealed disparities in technical and social infrastructures across different territories.

UNESCO's Framework

The concept of traditional literacy (reading and writing) has evolved to meet the demand for providing citizens with the skills to navigate, select, and critically engage with the expansive domain of information circulating in the media (Durán-Becerra & Machuca, 2021). Currently, there is a pressing need to plan actions concerning information uses and potentials, advocate for freedom of expression as a cornerstone of active democracy, and recognize the roles of media, museums, libraries, and other information providers. Equally important is understanding how these actions align with national curricula and education.

UNESCO has been pivotal in providing a diverse array of components geared toward strengthening education and creating opportunities within the scope of lifelong learning (Grizzle et al., 2013b). These approaches are centered on perceiving education as a fundamental right (Aguaded, 2014) and acknowledging the intricate transformations in space–time triggered by the proliferation of an information and knowledge society, particularly within a culture significantly influenced by technology and digitization (López & Aguaded, 2015). In addition, they underscore the necessity of establishing environments that foster the development of critical global citizenship. These environments also prioritize multilingualism and ideological pluralism (Mendel et al., 2017; Durán-Becerra & Machuca, 2021).

Therefore, UNESCO recognizes the fundamental necessity to align technological, media, and information access policies (Grizzle et al., 2013a) with educational mechanisms through a convergent approach (see Figure 1).

Figure 1. Policy flows
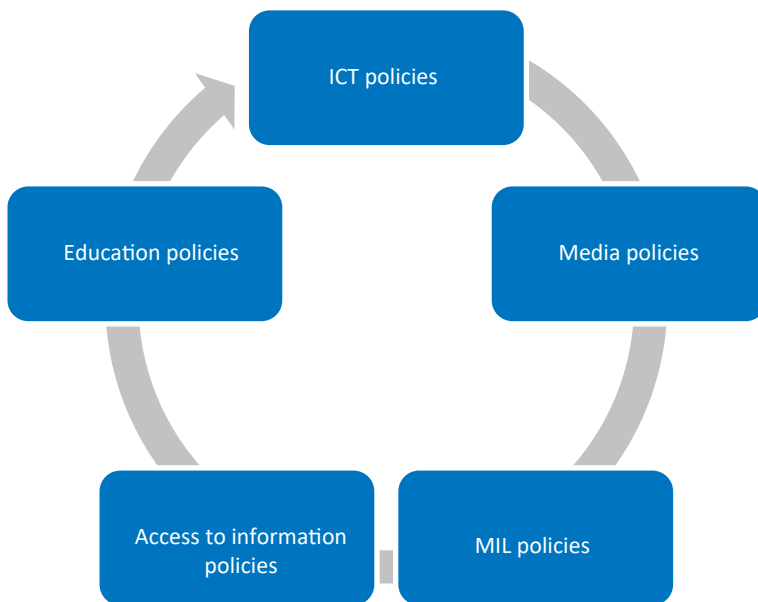
Source: Adapted from UNESCO (Grizzle et al., 2013a, p. 20).

Following this rationale, the alignment of governmental policies focusing on capacity building, under a rights-based approach, constitutes a pivotal axis that consolidates the potential of MIL within educational institutions such as schools (López & Aguaded, 2015). This alignment seeks to promote citizen empowerment through critical education concerning media and information and their sources (Grizzle et al., 2013a). It serves as an extended endeavor to create conducive conditions for conscientious interaction.

In this context, aspects such as cultural diversity, gender, and multiculturalism emerge as key components of the curriculum. These elements interweave across diverse perspectives of public engagement, significantly contributing to the reinforcement of democracy. This integration is complemented by the development of strategies that amplify MIL in accordance with sociospatial contexts. These strategies are scalable and strengthened through the integration of public policies.

Colombian Digital Context

Several key data points highlight Colombia as a country with considerable potential. The country boasts an internet penetration rate close to 74.4 percent. In the first quarter of 2022, there were 8,479,292 fixed internet connections, constituting a 16.4 percent penetration rate, and 37,667,136 mobile internet connections, with a penetration rate of 73 percent (Colombia TIC, 2022). Additionally, according to DANE (2023), in 2022, 72.8 percent of Colombians over the age of 5 years reported using the internet, primarily through smartphones. While social networks are the most commonly used features (84.3%), information search (51.9%) and media consultation (17.4%) also stand out.

These statistics are the outcome of an infrastructure-strengthening process. Initiatives such as Plan Vive Digital (2014), Plan TIC (2018–2022), the National Fiber Optic Project, and the National High-Speed Project have significantly enhanced internet access, extending their reach to even remote regions. Concurrently, programs promoting technological adaptation, such as the national Computers to Educate program, have notably increased the number of students per terminal (PC or tablet) (see Figure 2).

Figure 2. Students per terminal
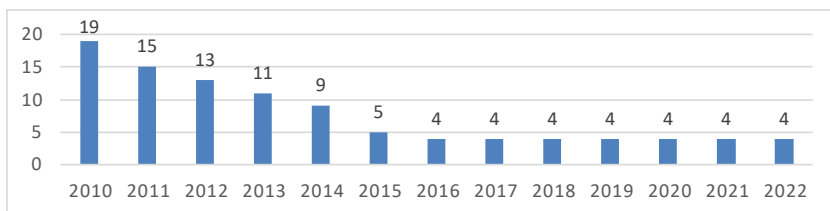
Source: Elaborated with data from Colombia TIC (2022).

In addition to these strategies, it is important to highlight the efforts made by the Ministry of ICT, exemplified by initiatives such as Territorial Portals (Portales Territoriales), which have created spaces to promote traceability and transparency in the operations of public entities. This drive is further supported by Law 1978 of 2019, which focuses on ICT modernization, where recognition is given to "the right to communication, information, education, and basic ICT services" (Congress of Colombia, 2019).

Several programs have been instituted to facilitate ICT appropriation. Notably, Ciudadanía Digital (2011–2020) trained 1.1 million individuals in digital citizenship. RedVolución (2015–2020) reached out to 620,251 individuals, educating them on the uses, opportunities, and risks associated with new technologies. In addition, En TIC Confío, an ongoing program since 2011, focuses on preventing risks and crimes on the internet. A total of 13 million Colombians, primarily children and adolescents, have benefited from this program.

Colombia boasts extensive regulatory development that supports numerous initiatives and programs, as depicted in Table 1.

Table 1. *Digital development policies*

Law 489 of 1998	Whereby rules are issued on the organization and operation of the entities of the national order, provisions, principles, and general rules are issued for the exercise of the powers provided for in numbers 15 and 16 of Article 189 of the Political Constitution, along with other provisions.
Law 1507 of 2012	Whereby the distribution of competencies among state entities in matters of television is established and other provisions are issued.
Decree 1078 of 2015	Whereby the Sole Regulatory Decree of the ICT sector is issued.
Law 1341 of 2009	Whereby principles and concepts on the information society and the organization of ICT are defined, the National Spectrum Agency is created, and other provisions are issued.
CONPES Document 3975 of 2019	National Policy for Digital Transformation and Artificial Intelligence.
Law 1978 of 2019	Whereby the ICT sector is modernized, competencies are distributed, a Single Regulator is created, and other provisions are enacted.
Law 1955 of 2019	Whereby the National Development Plan 2018–2022 Pact for Colombia, Pact for Equity is issued.
Resolution 2112 of 2020 MinTIC	Whereby guidelines on regulatory projects within the Ministry of Information and Communications Technologies are adopted and issued, Resolution 2871 of 2017 is repealed, and other provisions are issued.
Resolution 500 of 2021 MinTIC	Guidelines and standards for the digital security strategy and adoption of the security and privacy model as an enabler of the Digital Government policy.
CONPES Document 4070 of 2021	Policy guidelines for the implementation of an open-state model.

Resolution 460 of 2022 MinTIC	National Data Infrastructure Plan.
Resolution 1117 of 2022 MinTIC	Digital transformation guidelines for smart cities and territories strategies defined by territorial entities.

Source: Own elaboration.

While some programs targeting ICT appropriation have been implemented, this landscape primarily emphasizes technology provision based on coverage. This indicates a challenge in bolstering policy frameworks and strategies geared toward leveraging technology beyond mere access, emphasizing its use and benefits. An additional challenge lies in prioritizing citizen empowerment and fostering information and media literacy competencies. This shift is crucial to transcend ordinary training processes and concentrate efforts on bridging the digital divide prevalent in the country.

Curriculum in Colombia

The Colombian curriculum acknowledges "the spatio-temporal vicissitudes typical of a country inserted in the Latin American reality" (Machuca, 2018, p. 892), wherein, amid significant progress, issues such as new literacies (e.g., media or digital literacy) emerge as necessities in our hyperconnected world.

An examination of the regulations associated with the national curriculum reveals how the 1991 Political Constitution of Colombia positions education as a fundamental right. Moreover, alongside the General Law of Education (Law 115 of 1994), it initiates the regulation of educational services. It defines the curriculum as "the set of criteria, study plans, programs, methodology, and processes contributing to integral formation and the construction of national, regional, and local cultural identity, encompassing human, academic, and physical resources to execute policies and carry out the institutional educational project" (Congress of Colombia, 1994).

Furthermore, three sets of documents have been released to direct the implementation of the curriculum in the fundamental and compulsory subjects outlined in Article 23 of Law 115 of 1994: (i) the Curricular Guidelines from 1998, delineating the epistemological, pedagogical, and curricular foundations (MEN, 2002); (ii) the Basic Competency

Standards, published in 2006, establishing axes for knowledge and skills in the Colombian educational system (MEN, 2006); and (iii) the Basic Learning Rights (BLR) of 2016, encompassing learning in terms of knowledge, skills, and attitudes (MEN, 2017). These three sets of documents and regulations generally form the basis of the Colombian curriculum configuration.

BLR are particularly significant in comprehending the manifestation of information, media, and digital competencies within curricular frameworks. A thorough analysis of BLRs per school grade showed a gradual integration of MIL competencies, particularly focusing on subjects such as language, social sciences, and citizenship. For instance, a fifth-grade BLR in social sciences aims for students to "understand that changes in communication, driven by technological advances, have transformed the way people interact in today's society" (MEN, 2016a). Similarly, a sixth-grade BLR in language encourages students to use "information provided by the media, considering the message, interlocutors, intentionality, and production context, to engage in communicative processes within their environment" (MEN, 2016b).

However, despite the Competency Standards and Basic Learning Rights indicating a (partial) presence of informational and media-related topics, there is a lack of regulations explicitly emphasizing MIL processes within the curriculum.

Digital Education and MIL Competencies

Given that MIL is a pertinent topic in Latin America, various entities, such as UNESCO, endeavor to bolster local capacities in this field. UNESCO aims to enhance citizens' capacities by promoting a critical and responsible use of digital environments. Additionally, the organization supports policymakers, educators, and media professionals, assisting member states in developing national MIL policies and strategies (UNESCO, 2023). Thus, UNESCO provides technical assistance to countries interested in implementing national policies and strategies to foster active, critical, and responsible citizenship in the digital era.

In Colombia, a significant national challenge pertains to invigorating the provision and adoption of technological infrastructure. Despite substantial

internet access, according to data from the Colombian Institute for the Evaluation of Education (ICFES, 2022a), 22 percent of educational institutions lack this service, a figure that rises to 50 percent for rural educational institutions. Simultaneously, the COVID-19 pandemic highlighted pronounced disparities, particularly in the use of digital applications, which lagged behind the usage of physical guides and strategies (80% compared with 69%).

These statistics paint a complex picture, emphasizing the critical need to reinforce both the provision and adoption of MIL competencies across various social dimensions, notably within the country's educational communities. This study utilizes the MIL framework, which maps MIL competencies by focusing on access, evaluation, and usage perspectives (see Table 2).

Table 2. *UNESCO -GLOBAL Competencies Map (2013)*

Access and retrieval	Access	Access to information, media content, and information providers.
	Articulation/ definition	Definition and articulation of information needs.
	Search/ localization	Search and location of information and media content.
	Retrieval/ storage	Retrieval and storage of information and media content
Understanding and evaluation	Understanding	Understanding (comprehension) of information and media.
	Assessment	Appraisal of information, media content, and information and media providers.
	Evaluation	Evaluation of information, media content, and information and media providers.
	Organization	Organization of information and media content.
Creation and dissemination	Creation	Knowledge creation and creative expression.
	Communication	Communicating information, media content, and knowledge ethically and effectively.
	Participation	Participating in social and public activities as an active citizen.
	Monitoring	Monitoring the influence of information, media content, knowledge production and use, and media and information providers.

Source: Adapted from UNESCO (Grizzle et al., 2013a, p. 59).

These competencies necessitate a thorough analysis of the enabling conditions (Durán-Becerra & Lau, 2020), such as MIL education, policies for promoting or developing MIL, MIL availability, access to and use of MIL, and the relationships between civil society and MIL competencies and skills. Overall, these elements form a complex ecosystem that integrates MIL into the social fabric.

As previously stated, MIL competencies represent a set of skills that empower individuals to access, analyze, evaluate, and create messages across various media and formats. These competencies create the fundamental basis for cultivating critical citizenship, democratic participation, and lifelong learning. In Colombia, students are evaluated through Saber 11 state tests (final year of high school test) across several knowledge areas, including critical reading and written communication. These knowledge areas align with MIL competencies because they encompass the use of diverse languages, media, and textual formats to comprehend and engage with the world. Consequently, in Colombia, MIL competencies are integrated into the Saber 11 tests, serving as both an educational objective and a tool for fostering other competencies.

For instance, the Critical Reading test assesses students' aptitude in comprehending, analyzing, and interpreting various types of texts while reflecting on their purpose, context, and audience. These skills are fundamental in MIL as they enable individuals to critically and responsibly access, evaluate, and use information. The Social and Citizenship test evaluates students' ability to comprehend and engage in social, political, economic, cultural, and environmental processes, which impact their surroundings. MIL relies on these skills to encourage active citizenship, respect for diversity, intercultural dialog, and the defense of human rights. Finally, the English test assesses students' proficiency in communicating in a foreign language, both orally and in writing, within everyday and academic settings. These skills are crucial to MIL as they facilitate access to diverse global information sources and promote the exchange of ideas and experiences across various cultures and contexts.

By 2021, in the Saber 11 test, the areas associated with critical reading and mathematics had the highest scores (ICFES, 2022a). However, when we compare these scores with those of other countries, Colombia's results in these areas fall below the reference group (ICFES, 2022b). Furthermore, the Saber 11 test results in Colombia reveal significant score disparities based on the origin of the educational institution. Official institutions outperformed unofficial ones by an average of 11 points in critical

reading skills, 13 in mathematics, and 13 in citizenship. There are also pronounced differences by geographical area, where rural institutions face challenges due to limited access to connectivity, resources, and teacher qualifications, directly impacting their lower averages. In 2021, students from nonofficial institutions (often associated with calendar B, starting in the second semester of the year and ending in the first semester of the following year) averaged 315 points on this test, whereas students from the official sector (usually in calendar A, coinciding with the calendar year) scored 250 points (ICFES, 2022a). This indicates a positive correlation between the socioeconomic index and the score obtained. Regions with lower socioeconomic indices obtained the lowest average scores (ICFES, 2022a, p. 29) (see Figure 3).

Figure 3. Saber 11 outcomes: Calendar A
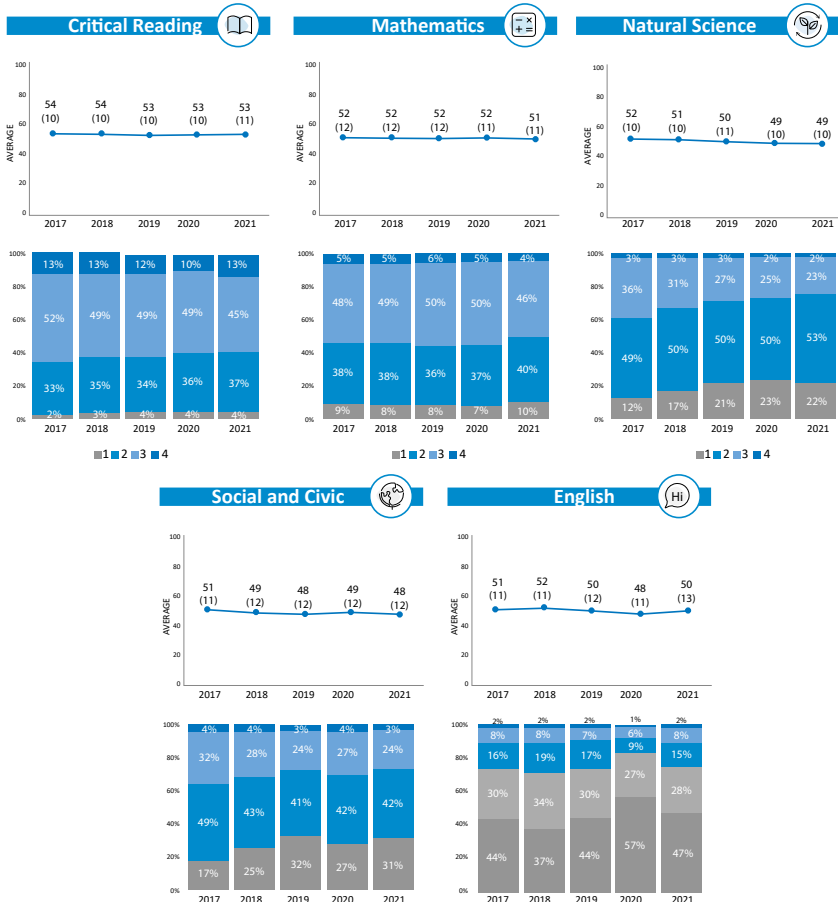
Source: ICFES (2022a).

Compared with the calendar A group, higher averages were observed among calendar B students. A difference of 11 point in critical reading, 11 in natural sciences, 13 in social sciences and citizenship, 13 in mathematics, and notably, 22 in English was observed. In this context, it is important to emphasize that both critical reading and English have shown the highest results in the past 5 years (see Figure 4).

Figure 4. Saber 11 outcomes: Calendar B
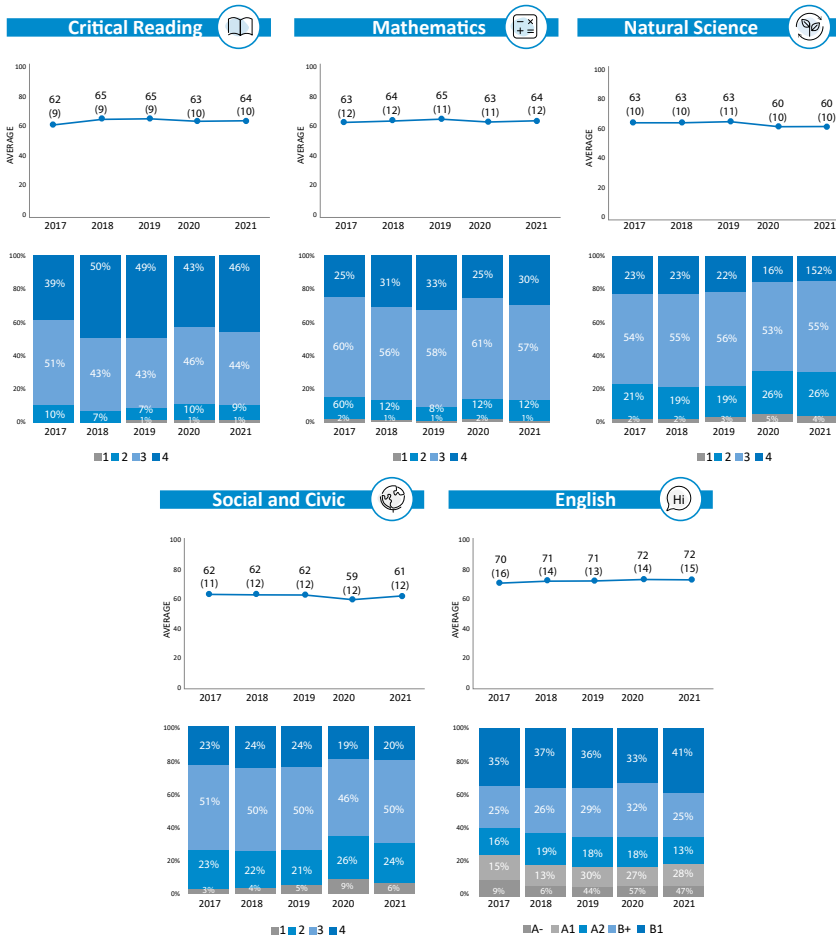
Source: ICFES (2022a).

Although there were significant differences between calendars A and B, critical reading and mathematics showcased the best performance. Notably, in calendar B, scores exceeded 90 percent in the two highest levels (3 and 4), whereas calendar A showed a score of 38 percent in level 2, with a noticeable yearly increase in scores in the two lowest levels (1 and 2). These differences are linked to disparities between sectors (official and private) and geographic locations (rural and urban). In the same vein, in 2021, calendar A's average score was over 250 points, while calendar B reached 315 points.

An examination of the Saber 11 tests illustrates a correlation between the socioeconomic index and the obtained scores. This correlation is evident as departments (Colombia is divided into 32 departments) with lower index values tend to achieve lower scores, reflecting unmet needs in those regions. This leads to reduced opportunities for advancement and access to tertiary education (ICFES, 2022a).

The Teaching and Learning International Survey (TALIS), conducted by the Organization for Economic Cooperation and Development and presenting results from 2018 (ICFES, 2022b, p.15), highlights that Colombia's performance, when compared with reference countries (Denmark, Australia, Czech Republic, Argentina [only applied in Buenos Aires] Turkey, Malta, and Georgia), falls below the average and ranks higher than Georgia only (see Figure 5).

Figure 5. Colombia's outcomes vs. the TALIS-PISA LINK average

TALIS-PISA link

	Public	Private	Difference
Reading	448	471*	23
Understand	452	472*	19
Evaluate and reflect	455	480*	27
Locating information	443	468*	26
Multiple texts	451	473*	22
Single texts	451	473*	22

Reading competence and cognitive processes

Text sources

Average score

Public   Private
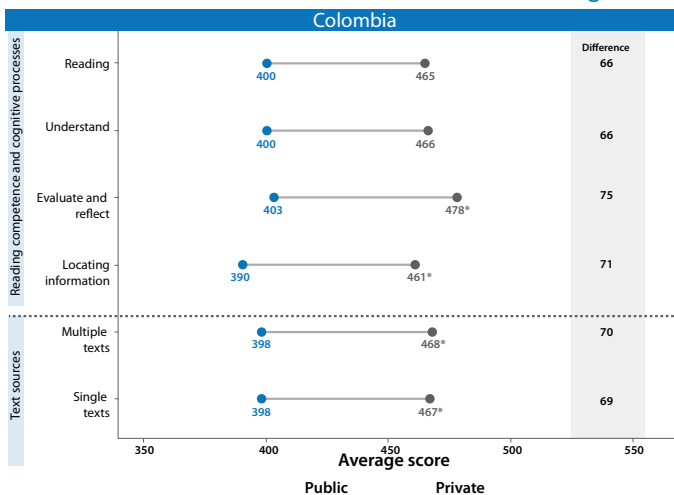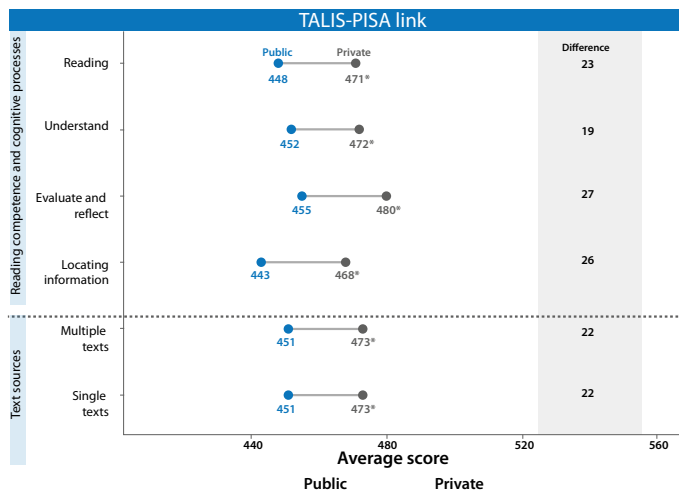
Source: ICFES (2022b).

Compared with other countries, Colombia achieved its highest scores in the "cognitive process of evaluating and reflecting" (419 points), followed by "understanding" (414) and "locating information" (405) (ICFES, 2022b, p. 33). Concerning the development of competencies associated with the areas evaluated by the ICFES, there is a noticeable positive correlation between the Saber 11 results and those of higher education (Saber T&T for technical and technological education and Saber Pro for professional education). This correlation implies that most students maintain their academic performance levels upon graduation from higher education compared with their performance at the time of completing secondary education. This highlights the country's limited capacity to enhance students' overall skills, including those related to critical reading and information management (ICFES, 2021, p. 29) (see Figure 6).

Figure 6. Correlations between Saber 11 and Saber Pro/Saber T&T

Saber Pro						
Modules / **Tests**	Quantitative Reasoning	Critical Reading	Citizenship Skills	English	Written Communication	Overall Score
Social and citizenship sciences	0.52	0.58	0.54	0.53	0.26	0.66
Mathematics	0.63	0.48	0.43	0.55	0.23	0.63
English	0.46	0.51	0.45	0.77	0.27	0.67
Biology	0.55	0.54	0.48	0.52	0.23	0.262
Philosophy	0.46	0.55	0.49	0.51	0.25	0.61
Physics	0.54	0.45	0.40	0.46	0.20	0.55

Saber TyT						
Modules / **Tests**	Quantitative Reasoning	Critical Reading	Citizenship Skills	English	Written Communication	Overall Score
Social and citizenship sciences	0.43	0.46	0.47	0.38	0.21	0.54
Mathematics	0.45	0.33	0.28	0.33	0.14	0.42
English	0.32	0.35	0.32	0.57	0.19	0.49
Biology	0.44	0.42	0.39	0.36	0.17	0.50
Philosophy	0.33	0.38	0.38	0.31	0.17	0.44
Physics	0.41	0.34	0.31	0.30	0.15	0.42

Source: ICFES (2021, p. 29).

This holds significant relevance for the pilot implementation of UNESCO's MIL curriculum, as it emphasizes the significance of considering regional and school-type differences when assessing student competencies. Moreover, it serves as a clear indication of the importance of engaging the public in developing the curriculum, aiming to integrate these competencies into the development of Colombian children.

The Project

Teacher training plays a central role in social transformation processes, especially in an increasingly hyperconnected world. Consequently, developing competencies and skills associated with digital, media, and information dimensions is inevitable for all Latin American countries. Integrating these competencies into school curricula has emerged as an indispensable strategy to bring communities closer to new learning processes, replacing traditional methodologies and emphasizing meaningful processes that enhance critical and digital citizenship.

In 2022, Corporación Universitaria Minuto de Dios—UNIMINUTO was chosen by UNESCO to pilot an adaptation of its MIL curriculum for educators, titled *Media and Information Literate Citizens: Think Critically, Click Wisely!* (Grizzle et al., 2021). To achieve this, UNIMINUTO closely collaborated with Institución Universitaria Politécnico Grancolombiano and Corporación Educativa Minuto de Dios (CEMID), which oversees more than 23 schools across 10 of the country's 32 departments.

The project had four main focuses: (i) constructing a background document to initiate discussions on implementing the MIL curriculum in public policies; (ii) developing a comparative analysis of UNESCO's MIL curriculum in relation to both the national curriculum and the curriculum of CEMID's institutions; (iii) characterizing teachers in terms of MIL competencies; and (iv) identifying the ICT use habits and MIL competencies of students. This discussion focuses on the work done with the teachers (iii), which involves (a) establishing working meetings with CEMID to understand the school context and design the pilot, including the roadmap; (b) characterizing teachers to gather perceptions from prioritized educational institutions regarding various elements of the MIL curriculum and understanding key contextual factors within their regions; (c) training teachers in the MIL curriculum through a virtual classroom and synchronous sessions with a trainer, with the aim to provide context and assist in developing strategies for implementing MIL in their classes; and (d) providing ongoing support to teachers through learning communities with invited experts. These sessions aimed to share tools and methods for implementing MIL in the classroom, fostering the skills acquired during training to continue integrating MIL elements into their pedagogical and educational practices.

Methodology

In the working meetings with CEMID, a strategy was devised for engaging teachers: first, characterizing as many teachers as possible by inviting all schools to encourage their participation through a survey. Second, a selected group of teachers would undergo MIL training based on the pilot's results. Finally, teachers would receive ongoing support by establishing a learning community throughout the first semester.

The characterization survey comprised three sections: (i) demographic and professional details of the teachers (gender, school, location, subjects, and courses taught); (ii) open-ended questions about their integration of media and digital elements in classes; and (iii) aligning UNESCO's MIL curriculum learning objectives with their teaching content. To facilitate this, 115 MIL learning objectives aimed at learners (including educators) were prioritized. Teachers were asked to indicate the level at which their classes contributed to each objective. To ensure comprehensive feedback, the objectives were distributed across 10 random surveys, with each teacher evaluating only 11 or 12 objectives. Importantly, each objective received responses from at least 50 teachers.

The aim of this study was to correlate learning objectives with actual teaching practices to identify pertinent subjects for MIL training and pilot development. This process aimed to supplement theoretical cross-referencing by identifying relevant areas from the learning objectives and the Unique Learning Lists (LUAs) of these schools.

Results

Demographic and professional characterization of the teachers

A comparison of over 200 learning objectives outlined in the 14 modules of the UNESCO curriculum with the Unique Learning Lists of CEMID schools revealed a 34 percent correlation with the content currently taught by teachers in their daily educational practices. A significant finding of this analysis is that while there exists an underlying need for teacher training and student education in MIL content, it is equally crucial to reinforce pedagogical and educational practices in educational institutions. This

reinforcement is essential for a more organic integration into teacher training strategies.

Taking this into account and in collaboration with CEMID's curriculum advisors, we decided to conduct the pilot program with teachers who taught Spanish language, social sciences, and technology and computer science. These subjects were specifically identified because of their strong alignment with UNESCO's proposed learning objectives. Furthermore, we decided to work exclusively with students in the third, sixth, and ninth grades, as these grades generally face more challenges in terms of coexistence. This challenge is particularly influenced by the cognitive, emotional, and social development stages of children and adolescents, coupled with their usage of ICTs.

Although this specific sample was chosen for the pilot program, it was deemed crucial to grasp the overall context of schools regarding media and information literacy. Therefore, a survey was administered to all teachers at these institutions.

A total of 789 teachers from 21 schools in 8 of the 32 departments of Colombia, primarily from Cundinamarca and Bogota, participated in the survey.[1] Of these schools, 38 percent belong to the official sector, while the remaining 63 percent are private. Additionally, the number of teachers per school varies from 10 to 72, depending on the number of students and economic factors (see Figure 7).

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[1] Although it is the main city of Cundinamarca, Bogotá is considered a capital district, and its data is generally analyzed outside of the department to generate clearer readings, since around 70% of the population of Cundinamarca lives in Bogotá.

**Figure 7.** Teachers per department (%)
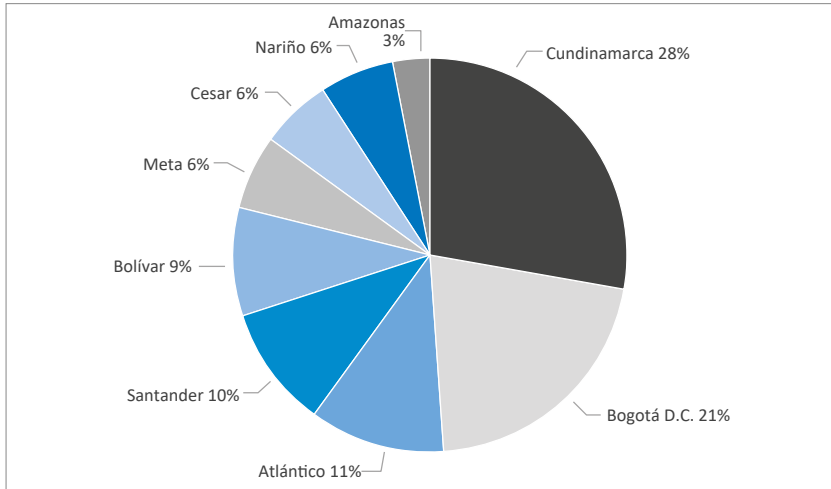
Source: Own elaboration (N = 789).

Most teachers typically instruct only 1 subject, but 24 percent of the respondents (190 teachers) are responsible for at least 2 subjects and, in some instances, up to 7 subjects within the same school. Departments such as Amazonas (35%) and Meta (32%) have a higher percentage of teachers who are responsible for multiple subjects. These educators not only manage multiple subjects but also teach across several school years. For instance, among the 10 teachers instructing 7 subjects, 50 percent oversee teaching between 3 and 6 years.

Of the 789 surveyed teachers, 72 percent oversee more than one school year, while 22 percent manage 5 or more. There are even 11 teachers responsible for teaching across 11 school years (see figures 8a and 8b).

This amalgamation results in a diverse group of teachers, although there is a trend toward non-specialization. This lack of specialization poses a challenge when implementing the pilot program for two primary reasons: i) Teachers with numerous obligations and multiple subjects find it challenging to devote ample time to comprehend the curriculum, and ii) it is difficult to segregate participating teachers from nonparticipating ones, as most teachers are involved in some courses or subjects. This situation may introduce biases into the sample.

Figure 8a. Number of subjects oriented by the same teacher (%)
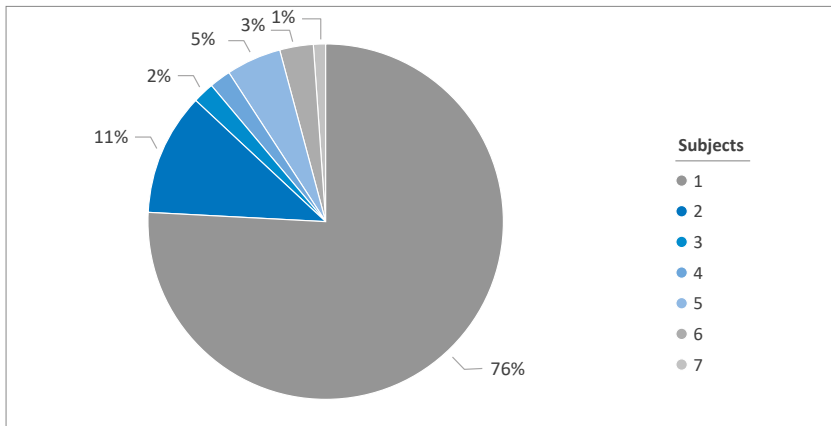
Source: Own elaboration (N Teachers=789; N Subjects=9).

Figure 8b. Number of grades oriented by the same teacher (%)
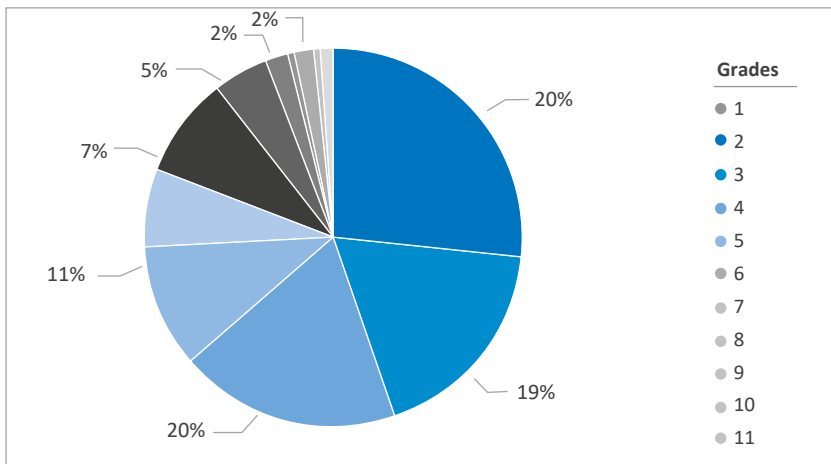
Source**:** Own elaboration (N Teachers=789; N Years=12).

This situation can be viewed as both a challenge and an opportunity: Teachers involved in the pilot program can impart their understanding of MIL to students across grades or subjects beyond those targeted by the pilot program. However, teachers handling multiple subjects or grades often lack sufficient time to introduce innovations based on their new learning. This aspect is particularly crucial as it was observed that the teachers instructing the subjects selected for the pilot program were typically those overseeing multiple subjects.

Linking the subjects to the learning objectives of the MIL curriculum

The survey administered to the teachers aimed to validate two hypotheses:

1. Teachers are already addressing MIL learning outcomes in the classroom.
2. The MIL curriculum content is being addressed in the subjects selected for the pilot program.

To test these hypotheses, teachers were asked to indicate for each of the 11 or 12 randomly selected MIL learning objectives (belonging to the modules in Figure 9) whether they felt the objectives were related to what they already covered in their classroom and whether they believed they should be related.

These responses were assigned scores of 6 = significantly related, and it should be; 5 = significantly related, but it should not be; 4 = partially related, and it should be; 3 = partially related, but it should not be; 2 = unrelated, but it should be; and 1 = unrelated, and it should not be.

Figure 9. Modules of the UNESCO MIL curriculum considered
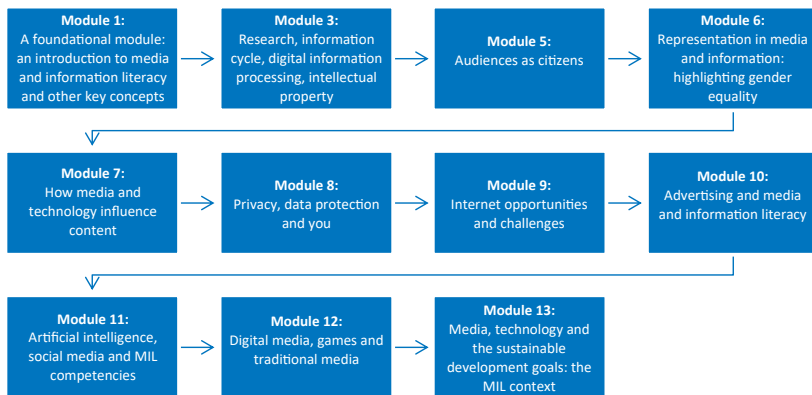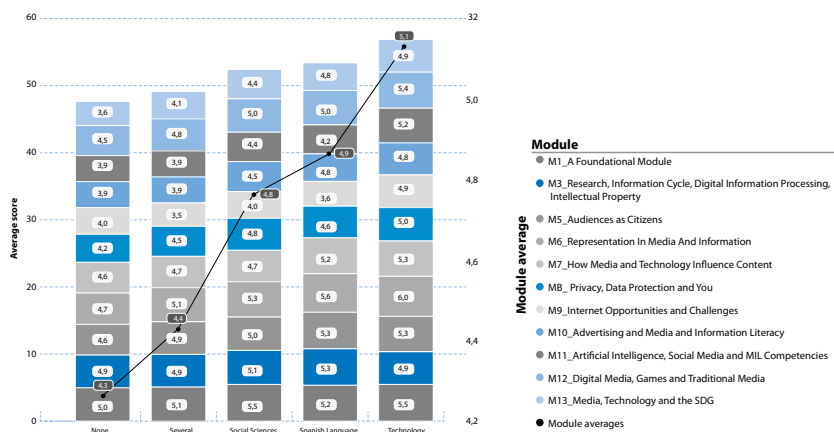

Source: Own elaboration.

Out of the 789 surveyed teachers, approximately half (46%) stated that the learning outcomes are significantly related to what they teach in their classrooms and should be, while another 33 percent indicated a partial relationship. Only 14 percent stated that these outcomes should not be related to their content. Notably, 11 percent believed that the outcomes are neither related nor should be related. This was particularly prominent in modules 9: Internet opportunities and challenges, 10: Advertising and MIL, 11: Artificial intelligence, social media, and MIL competencies, and 13: Media, technology, and sustainable development goals. The last module saw the highest percentage (20%) of respondents choosing this option, possibly due to its advanced focus on property rights and information commodification, which are generally not addressed in schools.

Furthermore, 7 percent of the respondents indicated "not related, but should be", suggesting MIL content that teachers find relevant to their subjects but are not being addressed currently. This sentiment was prominent in modules 11: Artificial intelligence, social networking, and MIL competencies (11%), 9: Internet opportunities and challenges (9%), 10: Advertising and MIL (8%), and 7: How media and technology influence content (8%). Modules 9, 10, and 11 could be considered controversial as they are not being addressed in classrooms, and opinions on whether they should be addressed are divided.

Figure 10 displays the scores assigned to each of the MIL curriculum modules (consisting of 3 or more learning objectives). Perception of MIL

varies across subjects. Technology teachers, followed by Spanish and social sciences teachers, tend to believe that learning objectives significantly relate to their teachings. It is also noticeable that when teachers guide more than one subject in the pilot program, they perceive a lesser relationship. This is possibly due to managing multiple subjects, resulting in less depth in planning and teaching. Finally, teachers overseeing subjects not chosen for the pilot program believe that MIL curriculum learning objectives are less related to their teachings, reinforcing the second hypothesis.

Figure 10. The average response for the question "Is your subject related to this learning objective?"

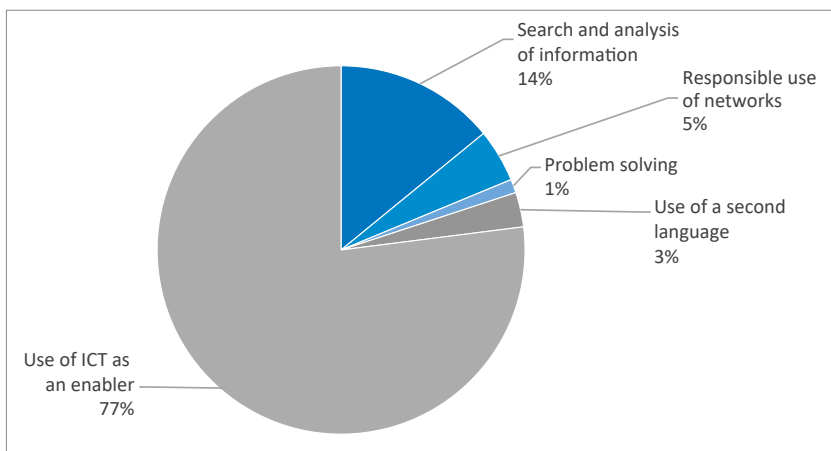Source: Own elaboration (N Teachers=789; N Subjects = 9, N Modules = 11).

Furthermore, teachers were asked about their methods of incorporating media and digital elements into their classes to identify existing classroom practices and their interpretation of media and digital elements (see Figure 11). It became clear that teachers integrate the use of videos (the most popular medium), applications, platforms, and various interactive tools to facilitate learning in the classroom. These tools are employed for activities such as research, consultation, observation, and other learning strategies.

The responses underwent coding and categorization, revealing that most teachers (77%) utilized ICTs as facilitators within the classroom. For example:

- "Information and communication technologies can be applied in the classroom to promote collaboration and innovation."

- "Utilizing technological tools to aid the teaching-learning process using resources such as TV and sound recorders."
- "Engaging students through meme analysis, utilizing games on digital platforms, and employing digital resources that contribute to the topics covered in class."

Figure 11. How do you incorporate media and digital elements into your classes?

Source: Own elaboration (N Teachers = 789).

Teacher's training

Considering the findings of the survey and aiming to familiarize teachers with MIL and its integration into classes for the upcoming school year, training spaces were developed. These spaces were based on the MIL competency framework for trainers (Grizzle et al., 2021), which encompassed the following competencies:

- Understanding the role of information, media, and digital communications in sustainable development and democracy.
- Understanding content and its uses.
- Accessing information effectively and efficiently and practicing ethics.
- Critically evaluating information and information sources and ethical practices.
- Applying digital and traditional media formats.

- Situating the sociocultural context of information, media, and digital content.
- Promoting MIL among learners/citizens and managing required changes.

The training aimed to qualify CEMID's teachers in integrating the MIL curriculum by using the proposed competency framework for MIL trainers. By the end of the training, teachers were expected to accomplish various goals, such as raising awareness about the MIL curriculum (including historical generalities and MIL concepts), recognizing how MIL competencies manifest in their daily works, comprehending MIL competencies and their adaptation mechanisms, and crafting a proposal for MIL adaptation to the grades and subjects they teach.

This pedagogical experience included a 20-hour training program delivered through 4 synchronous sessions and an individual assignment. Notably, UNESCO's MIL curriculum was adapted after considering the unique characteristics of each educational institution. A total of Consequently, 17 educational institutions participated, engaging 116 teachers who were trained through online sessions with instructors. Various tools and methodologies, such as PowerPoint presentations, Miro, videos, infographics, Virtual Learning Objects, group discussions, and case studies, were employed during these sessions.

In addition, the curriculum was adapted as a certification program for the professional development of active educators. The sessions covered different topics, including the seven competencies, pedagogical approaches, and the benefits of MIL. Due to internet connectivity issues, a face-to-face training session was conducted at Colegio Cristo Rey in Leticia (frontier with Brazil). At the training's conclusion, an evaluation revealed that while the time allocated was insufficient to cover the topics comprehensively, the teachers found the training relevant to their daily work. They expressed a desire to deepen their understanding of the MIL curriculum further.

During the program, the teachers presented several proposals, which showcased various alternatives for incorporating MIL within the official curriculum (Competency Standards and Basic Learning Rights), manifested in the LUAs for CEMID. It was notable how the teachers incorporated elements related to intercultural and interreligious competencies, promoting tolerance and combating hate and radicalization. Furthermore, they linked

these aspects with MIL and integrated gender equality issues into the process.

This scenario led to the development of a pathway for MIL curriculum adaptation, involving the following:

- Alignment of curricula through collective work considering the correlations between the official curriculum and MIL strategies.
- Teacher training in MIL through workshops emphasizing the configuration of learning communities, recognizing MIL practices and components, and prioritizing articulation mechanisms with national curricular frameworks.
- Recognition of teacher training in MIL through the process of linking teachers to processes, knowledge, and practices.
- Disseminating MIL culture in educational settings, providing environments for collective knowledge construction and experiences among students, institutions, and academic communities.
- Learning communities with experts (webinars) as a means of the ongoing consolidation of MIL learning communities.

Thus, the establishment of networks and meeting spaces around MIL is driven by the necessity to connect dispersed actors within educational communities. This effort also aims to foster a culture focused on longitudinal processes present in the curriculum through research and the systematization of institutional agents' experiences. It also aims to recognize and address social issues stemming from glocal tensions, digital media, and information.

Discussion

Colombia has established a legislative route, policies, and programs aimed at enhancing installed capacities and MIL facilitators, mainly associated with technological coverage, internet access, and technology appropriation (especially within a digital competency scenario). This pathway has facilitated governmental actions concerning endowment, access to technology and resources, and, to some extent, training programs and policies regarding specific MIL components related to technology use and digital issues. This scenario is promising for the development of MIL programs and policies because it builds upon a contextual situation

nurtured by years of programs aimed at enhancing the country's digital and technological capabilities.

From the educational system's perspective, the positive correlation of scores in the skills evaluated by different Saber tests highlights both an opportunity and a necessity for MIL development across various educational scenarios and levels. These results indicate that passing through higher education does not enhance the exit scores related to MIL-related competencies.

In the evaluation results of educational systems, Colombia ranks lower when compared with reference countries in international comparisons (TALIS tests). This emphasizes the need to include programs, micro-curricula, and methodologies in curricular spaces at different levels to improve results in various evaluated areas. Based on these results, MIL presents a significant opportunity for enhancing competencies related to critical reading, mathematical logic, and citizenship.

Additionally, a comparison between the MIL learning objectives and the LUAs of the three grades and the three prioritized areas revealed that most of these learning objectives are not directly associated with any specific area. However, 34 percent of the objectives, which are related, are primarily linked to the Spanish language, followed by social sciences and digital technology. Extrapolating from this, cross-checking LUAs for all grades and areas might indicate that a significant portion of the MIL curriculum is already being addressed in prioritized schools. Moreover, 73 percent of the MIL learning outcomes relate to the analyzed LUAs, indicating that much of the MIL curriculum content might already be covered in schools.

The characterization of teachers revealed significant heterogeneity in terms of the number of areas and grades they teach. This highlights a major challenge within educational institutions during the pilot implementation, as teachers in charge of multiple areas and grades tend to cover the content with less depth. Consequently, teachers in this situation could identify fewer connections between what they teach in the classroom and the MIL learning objectives.

The collected data also revealed that the teachers are already addressing a large portion of the MIL learning objectives in their classrooms. Among

the learning objectives that are not fully covered, those from three specific modules (related to 9: Internet opportunities and challenges, 10: Advertisement and MIL, and 11: Artificial intelligence, social media, and MIL competencies) are contentious, as the teachers could not reach a consensus on their integration into their teachings. This might be because these modules are considered "advanced," potentially exceeding the scope deemed appropriate for secondary education by teachers.

Furthermore, the teacher training raised awareness among CEMID's academic community regarding the historical, conceptual, and curricular aspects of MIL. It also facilitated the recognition of these competencies in teachers' daily practices, adaptation mechanisms, and training opportunities. From this pedagogical experience, one aspect to improve upon is the possibility of conducting face-to-face sessions to encourage deeper discussions on the implementation of MIL content. It is also crucial for the teaching team to ground different MIL contents through experiential practice. Similarly, it is important to motivate teachers to contribute from their practices toward strengthening MIL topics in educational institutions.

Conclusion

Even though it may require additional resources, maintaining constant dialog with teachers' directors is key to enabling spaces for teacher qualification in MIL. This close collaboration generates opportunities for implementing MIL content in the curriculum. By providing time and resources, the educational community can be mobilized to work on this subject in an integrated manner. Furthermore, despite the training focusing on certain areas, ensuring that MIL teachers take leadership roles in promoting curricular integration processes is vital. Eventually, different areas can be involved in harmonizing MIL contents.

All these elements lay the groundwork for further work on the MIL curriculum implementation pilot program in Colombia, considering the lessons learned from teacher training and insights gained from the characterization of teachers. Working with CEMID schools offers a significant opportunity to pave the way for national adaptation. These schools belong to both the official and private sectors and are situated in diverse contexts across the country (rural and urban), each with distinct

social needs, connectivity levels, and teaching facilities. This diversity allows for the measurement of results across a wide spectrum of scenarios closer to the national reality.

In the forthcoming months, we will continue to work with teachers to build the learning community, and a baseline survey will be conducted with students. This survey will aim to understand students' information consumption and production habits, their relationship with the media, and their level of MIL competencies. The findings will enable recommendations for curriculum implementation through public policies and contribute to discussions concerning the current state of the country in this area. Moreover, it will provide data and information to support decision-making processes.

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Graphic Design and Visual Creation: The Flipped Classroom in Remote Learning in Academic Journalism Education

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This article presents a case study exploring the remote learning experience of the Graphic Planning and Visual Creation classes of a journalism course offered at the Araguaia Campus of Universidade Federal de Mato Grosso, Brazil. This study focused on the second semester of 2021 during the COVID-19 pandemic, when the active learning methodology of the flipped classroom was employed in these classes. Using a qualitative and descriptive approach, we analyze the experience of teaching practical subjects — normally taught in person in university labs using specific software programs — in a remote setting without hampering the teaching–learning process. In this case study, the students and professors used Canva as an innovative learning method to effectively create high-quality advertising and journalistic works.

Keywords: graphic planning, visual creation, remote learning, flipped classroom, journalism education.

Education in Brazil has undergone considerable changes since March 2020 owing to the COVID-19 pandemic. Remote classes, online teaching, *lives*, and synchronous and asynchronous activities have become the classroom reality of Brazilian teachers and students.

The Brazilian Ministry of Education's Ordinance 343, which was published in the Official Gazette (Diário Oficial da União) on March 18, 2020, authorized remote learning; per the ordinance, the ministry "establishes the replacement of in-person classes for remote learning while the pandemic situation of the new Coronavirus – Covid-19 lasts."

Given this scenario, the present study aims to understand the experience of remote learning in the Graphic Planning and Visual Creation classes of the Journalism course at the Universidade Federal de Mato Grosso (UFMT)'s Araguaia Campus, which took place in the second semester of 2021. Based on the proposal of Salman as cited in Polato (2017), this study investigates the active learning methodology of the flipped classroom. According to the authors, the flipped classroom is understood as an attempt to bring traditional classes closer to the new model facilitated by technology. In a flipped classroom, activities previously conducted at school are executed at home using virtual learning environments (VLEs): "the classroom, in this model, transcends the space barrier and reframe the concept of collectivity" (Kiefer & Lampert Batista, 2020, p. 5).

Before the pandemic, practical learning using labs was prioritized for teaching graphic design of journalistic and nonjournalistic products. With the pandemic, the challenge was to find an innovative and effective methodology to ensure that students without access to computers and software programs with high-cost licenses continue to learn and do not suffer negative consequences.

This qualitative research describes a case study highlighting the active teaching methodology of the flipped classroom using the Canva website to obviate the need for using labs or high-cost software programs. To

complement synchronous classes, students could also access VLEs provided by the UFMT, which allowed access to books, journal articles, and practical tips in the form of YouTube videos regarding how to use various software.

This study demonstrates the effectiveness of the active learning methodology of the flipped classroom mainly based on students' *feedback* and their journalistic and advertising projects completed during the course. Notably, theory (regarding graphic design) and practice (using online tools) were learned synchronously and homogeneously; students could easily create their work by learning to use Canva, thus demonstrating the abovementioned active learning methodology.

Flipped Classroom and Visual Creation

It is important to note that the flipped classroom's active learning methodology was administered remotely with synchronous activities, i.e., live, mediated by technology (in the present case, via Google Meet and the Canva website). Active learning methodology involves strategies that aim to stimulate student participation and autonomy in contrast to the banking model of education (Freire, 2006), in which educators are transmitters of knowledge and students are merely its receivers. According to Dotta and colleagues (2013), the synchronous class model is an online version of face-to-face classes mediated by videoconferencing, chat, web conferencing, and other means.

Today, there are many free software options that allow synchronous remote learning, and the teacher can select the optimal option based on their preference. Some commonly used options include Google Meet, Jitsi Meet, Zoom, and Microsoft Teams. According to Keegan (1991), in remote learning, the teacher interacts with students through technological resources, such as online meetings and web conferences. Such technological resources allow teachers to create a study plan, a calendar, and dynamic and customized teaching materials.

Since March 2020, UFMT's in-person professors found themselves grappling with the challenge of adapting their work routine to remote classes, whether graduate or postgraduate, demonstrating the need for innovation in higher education. This innovation does not entail a complete

break from established educational processes; rather, it involves planning and organizing academic education to address the objective of effective learning. Veiga, Resende, and Fonseca (2007) discuss education outside formal teaching environments, favoring the exchange of knowledge between students and teachers. However, how education outside the academic environment can be streamlined remains unclear when the use of laboratories and equipment and the presence of the educator-advisor define teaching practices in the first place.

Notably, despite the use of VLEs as technical aids in in-person classes before the pandemic, translating this use to remote learning and active methodologies to teach practical classes has been a challenge. The pandemic effected a rapid change, with the student's role being transformed from that of a receiver of information to that of an active learner, adopting a reflective and active attitude toward knowledge.

According to Leandro and Côrrea (2018, p. 15), changes in the education process require discipline and being open to new methods of learning: "teacher training to remote learning, student and teacher's adaptation to the new learning platforms are some of the challenges faced." According to Moreira et al. (2020), the pandemic enabled the development of new ways to connect; educational methods, resources, and their presentation; and cooperation and individual records. The authors noted that digital tools that were previously restricted to the business world were now being used in the academic realm.

It is in this realm of classes mediated by technology that Salman's concept of the flipped classroom is found to be an active learning methodology alternative. According to Datig and Ruswick (2013), this concept involves taking content instruction outside the classroom, thus freeing class time to address questions and execute activities with teacher supervision.

In the Graphic Design and Visual Creation classes of the Journalism course at UFMT's Araguaia Campus, Google Meet was used to organize synchronous classes in the second semester of 2021; further, VLEs were used to organize the teaching material, and the Canva website was employed to support practical classes on graphic design pertaining to journalistic and nonjournalistic projects. According to Vale (2020), the use of Google Meet in remote learning enables interactivity, collaborative activities, and screen sharing, providing an effective learning environment in the classroom. Kenski (2003) states that VLEs allow for the dissemination

of knowledge through collaborative and individual activities, developing novel thinking with the use of technological equipment.

Therefore, VLEs act as channels of mediation, interaction, and collaboration between teachers and students by allowing the use of visual media (PowerPoint presentations, documents, text in PDF format, live links, and documentaries) for accessing educational material and enabling indirect student participation via institutional e-mail, forum discussions, and chats. Canva, according to Kiefer and Lampert Batista (2020), is a free and user-friendly collaborative tool for creating graphic designs for journalistic and advertising purposes.

Methodology

This qualitative descriptive research discusses a case study about students' and teachers' experience of using Canva in their Graphic Planning (6th period) and Visual Creation (8th period) classes in the Journalism course at UFMT's Araguaia Campus. The study discusses the use of Canva as an active learning methodology of the flipped classroom.

The classes were conducted twice weekly on the Google Meet platform in the second semester of the academic year of 2020–2021. The classes were offered in two phases: the first phase involved lectures on graphic design, such as the use of fonts and colors, graphic design principles, esthetic and spacing, and use of white space as a graphic element; the second phase included sessions in which students implemented practical activities of the basic to advanced levels using the Canva tool. The classes were conducted by the professor and guest lecturers via live video conferencing.

Practical Experience of Canva

Canva is a free and user-friendly website used in graphic design and social media posts. It contains ready-to-use templates, an image database, and editing tools to facilitate and accelerate the creation of digital graphic works. Archanjo and Santos (2020) explain that Canva is a graphic design tool that allows users to create social media posts, presentations, posters, office communication, and other visual content. The website can be accessed via notebooks, tablets, desktops, and smart phones. It allows editing in real time, as well as collaborative editing with a team of up to 10 people.

While the free version of Canva (https://www.canva.com/) was used throughout the semester, this tool also has a Pro version (Figure 1), which costs approximately R$34,90/month. The homepage shows options for creating a project, such as page size, and ready-to-use templates.

Figure 1. Canva website showing the option of free or paid registration
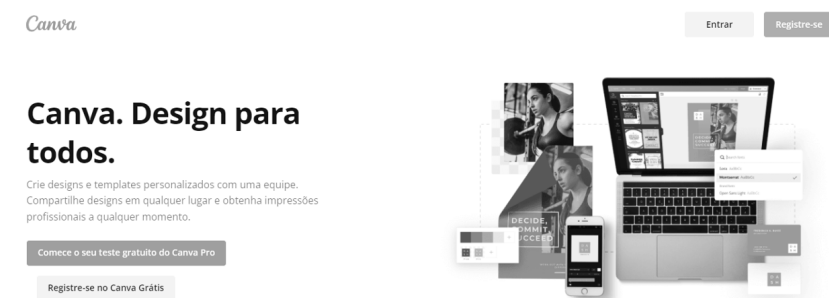
Source: Canva site at Google (n.d.).

After choosing a version of the app (free or paid), the user is invited to select the type of project they want to start. Options such as business cards, stationery, animated presentations, posters for Instagram stories and feeds, certificates, menus, and other graphic material are listed, as demonstrated in Figure 2.

Figure 2. Template options for graphic creation on the Canva homepage
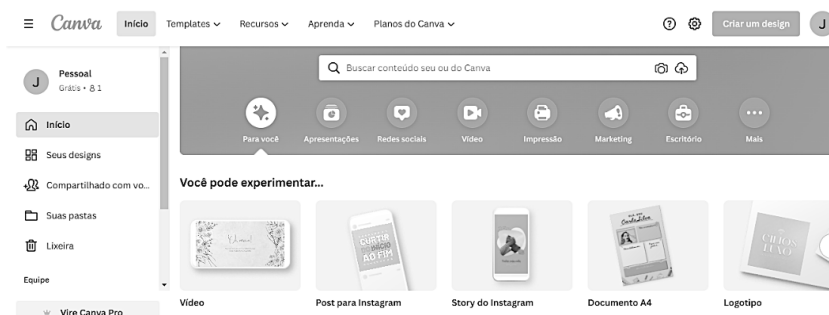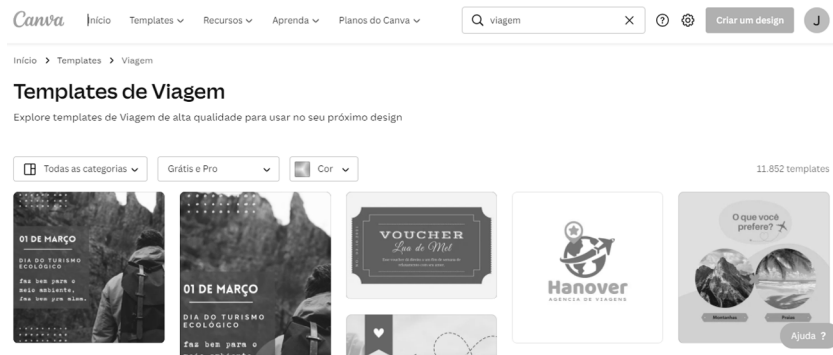

Source: Canva (n.d.).

The tool allows inexperienced individuals to explore ready-to-use templates related to various themes in the free and paid versions. The tool also allows the creation of projects from scratch, that is, with a blank canvas

without a template; this can be useful for more experienced designers or those who want to produce unique creations, exercise creativity, and be daring in innovation, thereby reinforcing media and information literacy. Some ready-to-use templates can be seen in Figure 3.

Figure 3. Sample templates under the travel theme in Canva

Source: Canva (n.d).

After the phase-one lectures about the use of fonts, colors, design principles, white spaces, and other creative techniques, the students were invited to join creative workshops with guest lecturers from creative fields, such as marketing, to learn how to use every available feature of Canva. The students had approximately a month of practice along with practical exercises connected with theory, which helped them develop the critical thinking skills required in their work.

Finally, students in the Graphic Planning class created themed newspapers, and those in the Visual Creation class developed book covers, *folders*, pamphlets, and logos. Figure 4 provides examples of these projects.

Figure 4. Examples of themed newspaper layouts

Source: VLE/UFMT/Graphic Planning Class (n.d.).

By adopting the conventional newspaper layout, using popular journalistic language, and placing images next to text, students create newspapers written in the traditional journalistic style. As shown in Figure 4, a student used appropriate casing of words (e.g., titles were presented in capital letters) in their report on women expressing themselves freely and wearing clothes that felt good in a kind of "cry of freedom against the tyranny of thinness."

> In the mainstream press, an event will have a better chance of being news if: the individuals involved are importante [...]. In the popular press, an event is more likely to be reported if: it is entertaining, is geographically or culturally close to the reader, can be simplified, can be narrated dramatically, has character identification with readers (personalization), or is useful. (Amaral, 2006, p. 63)

Readers are attracted to mainstream media reports based on their entertainment value and geographic or cultural proximity. For local news, readers' attraction is based on the importance of the individuals involved and the impact on the nation. By understanding these differences,

students can produce journalistic content with appropriate layouts and language to convey information to the public.

Figure 5. Examples of nonjournalistic products

Source: VLE/UFMT/Visual Creation Class (n.d).

This study aimed to demonstrate the potential application of Canva as a resource for remote learning in the UFMT's Journalism course and its practical use in the Visual Creation and Graphic Planning classes, with real examples of journalistic and nonjournalistic works of students who were using the tool for the first time. This shows the ease, speed, and relevance of using Canva in creative courses.

In the university, education requires participation and a dialogic relationship between students and between students and the professor for effective learning. We conclude by emphasizing that the dialogic interaction in the academic space shows that the classroom needs to be marked by a multiplicity of voices and not only by the voice of the teacher, being permeated by subjects who learn and who are constituted from the language and the confrontation with the otherness.

Scientific Discussion

As institutions that are open to dialogue, universities experience the challenge of identifying concrete solutions for the present and future. Universities must meet the educational needs of society using, for example, teaching and learning strategies that help students understand the content effectively. To fulfill their primary responsibility of training future professionals, universities must consider real social and technological demands (Almeida and Pimenta, 2011). They have the task of not only passing on content but also proposing strategies and uses of technological tools to ensure students' growth.

With the development of accessible and user-friendly technological tools, journalism education is no longer restrained to expensive software and physical laboratories; rather, such tools stimulate creativity and production in an accessible manner, providing significant opportunities for innovation. Therefore, the use of Canva in a remote classroom setting helped students understand that journalism is within their reach owing to technological advances, as stated by Ribeiro and Almeida (2012, p. 170): "we seek to transmit knowledge in a way that interacts with the real world we have today and with future uncertainties."

Notably, when developing creative activities in the classroom, some aspects could be explored better, especially with regard to graphic design, introducing the tool, and ensuring harmony between text and image. However, such activities should be designed and implemented in line with other subjects and not in isolation because isolated actions generate learning without intercommunication. Possibilities for connections and interactions of these classes with other curricular components of the journalism course were noted. Morin (2006, p.16) has discussed the importance of such interactions: "knowledge becomes increasingly pertinent when it is possible to fit it into a more global context. On the other hand, if we have very sophisticated knowledge, but it is isolated, we are led to error and illusion."

Conclusion

The present study aimed to explore the experience of remote learning in the Graphic Planning and Visual Creation classes of the Journalism course at UFMT's Araguaia Campus in Brazil, which took place in the second semester of 2021, based on the active learning methodology of the flipped classroom.

The main challenge constituted ensuring effective learning in a practical class taught remotely, which was conducted in person at the Journalism course's labs before the pandemic. With the suspension of in-person classes and transition to remote activities, the practical Graphic Planning and Visual Creation classes had to be remodeled to ensure that there was no loss in the teaching–learning process. To this end, the use of the active learning methodology of the flipped classroom was essential; students performed the Journalism course's educational activities at home to gain knowledge themselves.

Synchronous classes on theory and practical workshops about using Canva contributed to the development of practical activities. Students' asynchronous work on the website helped them assimilate theory and exercise autonomy in executing their projects. Thus, the study demonstrated the effectiveness of the flipped classroom mainly through students' feedback and the journalistic and advertising works made by them as the final projects of the classes.

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This UNITWIN Network is composed of universities from different geographical areas: Autonomous University of Barcelona (Spain), University of the West Indies (Jamaica), Cairo University (Egypt), University of Sao Paulo (Brazil), Temple University (USA), Tsinghua University (China), Moulay Ismail University (Morocco), Sidi Mohamed Ben Abdellah University (Morocco), University of Guadalajara (Mexico), Western University (Canada), University of Gothenburg (Sweden), Sorbonne Nouvelle University (France), Punjabi University, Patiala (India), University of the South Pacific (Fiji), University of South Africa (South Africa), Nnamdi Azikiwe University (Nigeria), Ahmadu Bello University (Nigeria), Lagos State University (Nigeria), University of Jors (Nigeria), University of Calabar (Nigeria), Hosei University (Japan), University of Latvia (Latvia), Moscow Pedagogical State University (Russia), Corporación Universitaria Minuto de Dios UNIMINUTO (Colombia), Vytautas Magnus University (Lithuania), MICA (India), University of Campinas (Brazil). The main objectives of the Network are to foster collaboration among member universities, to build capacity in each of the countries in order to empower them to advance media and information literacy and intercultural dialogue, and to promote freedom of speech, freedom of information and the free flow of ideas and knowledge. Specific objectives include acting as an observatory for the role of media and information literacy (MIL) in promoting civic participation, democracy and development as well as enhancing.