MILID Yearbook 2021

A collaboration between UNESCO UNITWIN Cooperation Programme on Media and Information Literacy and Intercultural Dialogue, the University of Gothenburg and the Corporación Universitaria Minuto de Dios – UNIMINUTO.

MIL Cities and MIL Citizens: Informed, Engaged, Empowered by Media and Information Literacy (MIL)

Edited by Alton Grizzle, Maarit Jaakkola and Tomás Durán-Becerra

MILID Partner Universities: Autonomous University of Barcelona, University of the West Indies, Cairo University, University of Sao Paulo, Temple University, Tsinghua University, Moulay Ismail University, Sidi Mohamed Ben Abdellah University, University of Guadalajara, Western University, University of Gothenburg, Sorbonne Nouvelle University, Punjabi University, University of the South Pacific, University of South Africa, Nnamdi Azikiwe University, Ahmadu Bello University, Lagos State University, University of Jors, University of Calabar, Hosei University, University of Latvia, Moscow Pedagogical State University, Corporación Universitaria Minuto de Dios – UNIMINUTO, Vytautas Magnus University, MICA, University of Campinas.

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Introduction: Living in Media and Information Literate Cities

Alton Grizzle,[1] Maarit Jaakkola and Tomás Durán-Becerra

Cities are large learning spaces (McKenna, 2016). Over half of the world's population—3.9 billion people—currently lives in cities. The projection is that 2.5 billion more people will live in urban spaces by 2050, meaning the world will be almost 70% urban. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) Cities Platform responds to this plausible reality with eight networks and programs, drawing on its strong interdisciplinary approach to leverage city spaces for the maximum benefit for denizens (UNESCO, n.d.-b). One such initiative is Media and Information Literate Cities (UNESCO, n.d.-a).

Notwithstanding this mind-boggling phenomenon of urbanization, when we use the term "cities" in this book, we are referring to metaphors of human settlements going back to ancient times, with reference to not only the urban context of today's big cities but also the goal of reaching everyone with media and information literacy (MIL) opportunities through creative and innovative means. The etymology of the word "city" goes back to the word "civilization", derived from the Latin *civitas*, referring to citizenship or community members. Cities are fundamental social structures that have played a central role in human existence and connectivity for thousands of years. Throughout this time, conceptions of common or public spaces have been significantly reconfigured (Sennett, 2002). Contemporary cities are to a great extent driven by the collection, storage, processing, dissemination, re-processing, and re-distribution of information. Essentially, the notion of physical cities is merging with virtual information, communication, and technological ecology, creating new opportunities to inspire social learning innovation in the areas of information, digital technology, and media.

1 The editorial contribution to this book and this introduction is written as part of the author's work as a Program Specialist in the Section for Media and Information Literacy and Media Development, UNESCO. However, the ideas and opinions expressed are not necessarily those of UNESCO and do not commit the Organization as such.

Cities have become increasingly connected, with technology embedded in many aspects of city life. In the new "learning economy" (OECD, 2001), cities are anticipated to play a central role in promoting learning, innovation, productivity, and economic performance. In addition to economic growth, cities' learning economies have been connected to advancing the inclusion of sociocultural groups, democratic participation, and intercultural dialog. Recently, the concept of "smart cities" has emerged as a way to make cities more efficient. Smart cities seek to "make better use of information and communication technology to boost efficiency and quality of life in respect to security, health, recreation, community services, and interactions between citizens and government" (UNESCO, 2019, p. 4). The UNESCO promotes the concept of smart cities to make urban lifestyles more sustainable, which is regarded as important considering that two-thirds of the world's population will conceivably live in city environments by 2050 (Cathelat, 2019).

UNESCO is also mindful of the fact that access to and use of digital technology—and even access to information—are necessary, but not sufficient, to stimulate people's full self-empowerment. Stakeholders must go a step further to ensure that everyone has the necessary MIL competencies to critically access, search, evaluate, use, and contribute to information and content in all forms (UNESCO, 2021 vis. Grizzle et al., 2021).

During the recent decade, learning processes in cities have increasingly attracted scholarly attention, stimulating research on how these different kinds of processes can be identified and advanced in city environments (Glaeser, 1997; Liu et al., 2017; Longworth, 2006) and utilized for innovative and sustainable urban development (Biao, 2019; Campbell, 2012). In this book, we ask how MIL cities can be structured, conducted, and developed in MIL ecosystems that develop in and outside of academic settings. We draw on UNESCO's (2019) *Global Framework for Media and Information Literacy Cities (MIL Cities)*.

The MIL cities initiative (UNESCO, n.d.-a) is an initiative employed by UNESCO and stakeholders for examining and developing MIL as an interplay between actors of formal learning spaces and the type of social learning that occurs in various other physical and virtual spaces. The term "MIL cities" allows us to identify and develop structures of local intersectoral governance for the benefit of MIL, encouraging cities—as designated MIL platforms—to benchmark, learn from each other's efforts, and collaborate. The MIL cities framework intends to build bridges between traditional MIL actors ranging from authorities to nongovernmental organizations (NGOs), from schools to civic communities, and from companies to libraries and nontraditional actors such as municipalities, mayoral networks, election commissions, healthcare, transportation, entertainment, and urban development industries. One of the main objectives of MIL cities is the empowerment of citizens. Theoretically, it could also transpire to be a fruitful concept that allows us to address

diverging MIL activities and traditions that rarely speak to each other, namely, pedagogical, technocratic, entrepreneurial, and humanitarian discourses, under one umbrella term.

Cities as Learning Spaces

A focus of this book is to regard *cities as spaces for learning, social interaction, and dialog*. Many theorists have, rather early on, proposed so-called extramural teaching and learning activities, that is, taking learning outside of traditional classroom spaces (see, e.g., Dewey, 1938; Gee, 2004; Illich, 1970; McLuhan et al., 1977). What began as radical criticism toward traditional school settings has now become the central idea in informal education that unfolds outside the physical environments of formal schooling, including city environments (Werquin, 2010). Further, Oldenburg and Brissett (1982) differentiated public spaces of learning as "third places"—the home being the first and the workplace being the second. Oldenburg and Brissett suggested that public libraries, cafés, places of worship, community centers, youth centers, and other freely accessible places could establish feelings of belonging to a community, thriving on emotional expressiveness and social roles in which formal qualifications are irrelevant, thus becoming crucial for socializing and civic engagement. At present, physical spaces increasingly converge and blend with virtual communities of learning (Drotner et al., 2008), becoming hybrid spaces in which people are physically detached but have a strong sense of community. While the concept of "space" has become more complex and less tangible, opportunities for learning and education, along with our perceptions of these learning processes, have diversified.

There are increased opportunities for educators and various city actors, including authorities, NGOs, entrepreneurs, and multistakeholder networks, to meet, as places that were earlier regarded as private or semi-public, namely, separate from the public life—such as the home (Chan et al., 2009), family (Christensen, 2009), school (Clark & Barbour, 2015), higher education (Bennett & Kent, 2017), workplace (Ifenthaler, 2018), business (Beaumont, 2020; Markman, 2016), eldercare (Frennert & Östlund, 2018), and community life (Ohler, 2010)—are now increasingly becoming more public and connected to other areas of life. Participatory processes, particularly in urban environments (Cabannes, 2004; Nared & Bole, 2020; Nunez Silva, 2013), constitute inclusive processes, opening up spheres that people previously had limited access to and contributing to a more interconnected city life. The increased use of information and communication technology establishes favorable conditions for

enhanced connectivity while creating an increased need for enhanced education and training in MIL.

The recent reconfigurations of the MIL concept have more or less been connected to a conception of space, placing spatial, embodied, sensory, emotional, transmedia, and multimodal experiences on the agenda (Mills, 2016). Literacy theories in the digital age have paved the way for a number of reconstructed approaches, such as transliteracies (Frau-Meigs, 2012), multiliteracies (The New London Group, 1996), "new" or "digital" literacies and related practices (Lankshear & Knobel, 2006; Moje & Ellison, 2016), and Media and Information Literacy Expansion (MIL^{x}) (Grizzle & Hamada, 2019), which have all proposed new approaches to the situated reception of messages in the increasingly complex landscapes of media, organizations, and communities, thereby contributing to a better understanding of MIL cities—and the MIL citizens who live in them.

Educational initiatives in MIL cities typically require intersectoral cooperation and interdisciplinary academic approaches to be properly advanced and understood. Academic criticism has identified that implementation of e-governance does not automatically translate into enhanced democratic participation, and educational interventions, such as MIL, are needed (Grizzle & Pérez Tornero, 2018/2019). In this book, we explore the possibilities and challenges related to the MIL cities vision from an educational perspective. One clear need is to maintain a common understanding of MIL and its application to the vision of MIL cities.

Policies for MIL Cities

UNESCO, together with its partners, proposed the Media and Information Literate Cities framework in connection with the Global Media and Information Literacy Week in 2018, which was organized in Latvia and Lithuania (UNESCO, 2018). The concept of "Media and Information Literacy" has undergone development during the last decades—a progression that Bonami and Le Voci Sayad trace in their chapter in this book—and the suggestion of MIL cities is expected to add another layer of significance. It is proposed that media and information literate (MIL) cities could become an instrument for identifying, governing, and developing media and information literacy competencies at the municipal level.

MIL cities can dovetail with the recent outlines of theories of social change, such as the aforementioned Media and Information Literacy Expansion (MIL^{x}). MIL expansion intends to extend the notion of MIL from an individual-based concept toward simultaneously including groups, communities, institutions, and organizations. A central aim in these policy frameworks is to outline the role of cities and

regions in the new "learning economies" (OECD, 2001), where the mediatization and digitalization of local cultures have become prevalent. The concept of MIL cities may prove to be more relevant than previously expected in societies that have undergone major digital development during the pandemic. In post-COVID-19 societies, digital communication and exchange have become more quotidian and normalized than before the global virus outbreak, and changes that occurred at an accelerated rate may continue to exist in societies long—or even permanently—after the pandemic. How can tools for learning about MIL, digital innovation, and the development of MIL cities respond to the changes that will endure in societies even after the COVID-19 pandemic subsides?

Can MIL cities strengthen the existing and future smart cities, enabling new types of learning and entrepreneurial opportunities? Are there sociocultural concerns? Is there a symmetry between MIL cities and citizens? The chapters in this book seek to answer these questions—and many more.

Structure and Outline of the Book

Drawing on experiences from the global UNESCO-UNAOC Media and Information Literacy and Intercultural Dialog University Network (UNESCO/UNAOC-MILID Network), the objective of the MILID Yearbooks, which have been published since 2013, is to bring academics and practitioners together to discuss topical MIL issues. The activities between the member universities are aimed at facilitating exchanges between the academic world, civil society, local communities, and policymaking. MILID Yearbooks are an outcome of UNESCO's vision and convening leadership, academic collaboration, and network activities. Accordingly, the spirit of the MILID Yearbooks is to enable a fruitful cross-fertilization of theoretical and practical perspectives by encouraging the reflections of scholars and practitioners working in different parts of the world on MIL with relevance to MIL cities. The objective is theoretical and practical as well as analytical and visionary: to add to the existing knowledge and evidence of notions identified in global policy frameworks and to determine alternatives and cultivate a common understanding of the relevance of what is on the shared transnational policy agenda.

The first section of this book concerns the innovative endeavors attached to the notion of MIL cities and citizens. In the chapter "Dispositions, Sensitivities, and Inclinations: The Importance of the Smart-City Citizen," Michelle Ciccone gives an in-depth view of how, as we see the rise of more effective and efficient smart cities, we also pay less attention to the effects, reach, and other outcomes that the strengthening of this kind of city introduces. Ciccone asserts this lack of attention

is due to the invisibilization, or naturalization, of these changes, which can easily lead to "abuse and disempowerment of smart-city citizens." Bearing this in mind, Ciccone suggests that MIL ("infrastructure literacy," in her words) should be at the center of the regulation of smart cities, where different stakeholders must ensure the development of awareness in all citizens on technological developments, information infrastructures, data collection, and other issues that can embed ethical dilemmas. The only path for doing so is to support MIL citizens who become involved in, understand, and actively seek the development of regulation, as "MIL cities have the responsibility to help prepare and foster the active and equal participation of smart-city citizens."

In the chapter titled Theorizing Media and Information Literacy: Emotional Communication through Art for Young People during Unusual Life Experiences, Masatoshi Hamada and Alton Grizzle build on previous work. Starting with the theory of change and MIL expansion, Hamada and Grizzle propose that we cannot reach optimal social value proposition, value enhancement, and value expansion if MIL interventions focus on individuals only. Hamada and Grizzle also explore the likely positive changes in outcomes when MIL expansion is united with emotional competencies as another variable in the model. Specifically, the chapter focuses on the interaction that occurs in the selected target group through MIL expansion operating upon children and youth, their families, their friends, and institutions they engage with while incorporating "emotional literacy." Hamada and Grizzle offer a practical design of MIL expansion, demonstrating MIL can correspond with efforts to counter disinformation and misinformation with deeper changes in mindset. The authors theorize how emotional communication through artistic practices synergizes with MIL expansion.

Leo Van Audenhove, Ilse Mariën, Rob Heyman, Nils Walravens, Wendy Van den Broeck, and Pieter Ballon reflect upon the role of data literacy in their chapter "Data Literacy in the Smart City: Why Should Smart Cities Be Populated by MIL Citizens?" The chapter discusses the concept of smart cities, putting the concept into dialog with the more recent concept of MIL cities. These scholars argue that smart cities are not automatically and necessarily MIL cities. The creation of a MIL city requires developing open data, civil society participation, and the inclusion of citizens. In this respect, Van Audenhove and colleagues identify data literacy as a key term in bridging the policies and practices related to MIL cities. To achieve this goal, these authors present a data literacy competence model that may contribute to developing an active and open data city policy. According to Van Audenhove et al., an effective data literacy competence model balances the competences of using and understanding data, and these competences should be taught at all academic levels to make MIL cities a reality.

Harry Browne and Deborah Brennan give strong evidence for the need to foster critical MIL to broaden the understanding of the computational processes that configure the production, distribution, and consumption of media and information. In their chapter, "The Elusiveness of the Algorithm: The Case for Computation in Media and Information Literacy," Browne and Brennan highlight that such a program does not necessarily rely on teaching computation but on "a process of dialog that enables computation's logics, emergent properties, and lacunae to be better understood." Based on an example in Dublin—the home of numerous high-tech and social media companies—these authors advocate for the critical understanding of cities' corporate and data-processing infrastructures and are confident that the same can be fully explained, understood, and incorporated into citizens' lives through the planning and delivery of public talks, workshops, and conferences aimed at demystifying these complex matters.

The second section of the book focuses on the citizenship of MIL. In their chapter "Media and Information Literacy among Children on Three Continents: Insights into the Measurement and Mediation of Well-Being," Sonia Livingstone, Patrick Burton, Patricio Cabello, Ellen Helsper, Petar Kanchev, Daniel Kardefelt-Winther, Jelena Perovic, Mariya Stoilova, and Ssu-Han Yu draw on the scientific output of the Global Kids Online project that aims at developing population-focused approaches for measuring MIL. Livingstone et al. show that measuring digital skills may reveal some important differences in population with regard to Internet access and digital skills and that the outcome of these measures could be useful for piloting and developing MIL cities. For example, the identification of impoverished regions with children having weak digital skills may facilitate MIL city developers to focus on areas where collaboration with local authorities can be developed to decrease poverty.

Beatrice Bonami and Alexandre Le Voci Sayad embed the discussion of the concept of MIL cities into the overall development of the MIL policy discourse that took place during the last decades. In their chapter, "Adaption of the Media and Information Literacy Concept to Spanish and Portuguese: Mapping Public Policies in the Latin America and Caribbean Region," Bonami and Le Voci Sayad inquire into the Hispanic language community and examine the uses of vocabulary in public policy documents. The linguistic terms used to refer to MIL—the so-called core concepts (Jaakkola, 2020)—are essential, as these terms concretely inform and guide the implementation of policies as well as pertinent pedagogies and practices. Linguistic variation in different geographical areas (see, e.g., Jaakkola, 2020) is not only embedded in local traditions but also builds on the international exchange that has, above all, been fostered by UNESCO's MIL policy guidelines (Grizzle & Torras Calvo, 2013) and a new resource, *Media and Information Literate Citizens: Think Critically, Click Wisely (Second Edition of the UNESCO Model Media and Information Literacy Curriculum for Educators and Learners)*. Bonami and Le Voci

Sayad identify different dimensions that have been emphasized in the international policy discourse and translated into Portuguese and Spanish: human rights, media, information literacy, education, digital literacy, and MIL. In the Hispanic language area, there are a number of competing terms in use, with the analysis showing that different local areas are using different terms and that MIL does not function as a common term in practice. Hence, when tracing local discussions and MIL communities, we must remain sensitive to the local linguistic variations instead of adhering to international policy discourse terminology.

In the chapter called "Digital Falsehoods and their Analog Consequences: The 'Fake News' Strategy and its Mitigation," Lisa Jane de Gara focuses on the importance of deepening the understanding of the concept of "fake news." De Gara describes fake news in a holistic manner, which includes deliberated strategies to put fake news in the media. MIL cities are places where different stakeholders, the government, and organizations provide citizens with the tools to halt the dissemination of false information; some actors encourage the same by identifying their motivations (political and economic). De Gara pinpoints fake news as being easily disseminated through more vulnerable groups, where certain information or media have influence.

Michele Filippo Fontefrancesco provides an in-depth reflection on the consequences of hate speech among youngsters. In his chapter, "Words are Stones: Countering Hate Speech among Young Generations in Europe," Fontefrancesco draws several insights and conclusions from this phenomenon. His research identifies "the low level of digital awareness and scarce digital empathy that characterizes the use of the digital media among young adults," which triggers "fertile ground for hate speech." Fontefrancesco advocates promoting MIL among digital natives as a means to understand that online and offline spaces are interconnected, raise attention to hate speech, and broaden the understanding of the role that MIL stakeholders can play to contest this phenomenon.

The third thematic section in this book, focusing on practical implications, is introduced with a case study of crowdsourcing data in India by ElsaMarie D'Silva. In the chapter "Digital Citizenship through the Use of Crowdsourced Data: Mapping Sexual Violence in Public Places," D'Silva examines how using the crowdsourced data of women who have experienced sexual violence can help prevent other women from experiencing such violence. According to D'Silva, the collected data also shows patterns that can help enhance digital citizenship and provide local solutions to engage communities and public institutions in defending and planning organized actions against sexual violence. She concludes that asserting crowdmapping as a multifaceted tool, "can allow women to be aware of potentially dangerous locales, [empower] them to report incidents to help keep others safe, and [provide] a source of data to advise on best practices for navigating street harassment and assault in public spaces." D'Silva provides an extraordinary example of how MIL cities can

become safer by aggregating, understanding, and using critical data in a shrewd and advanced manner.

In their chapter, "Reading the Word and the World: Empowering Mozambican Health Teachers through Video Production," Agnaldo Arroio and Clara Cacilda Mauaie present an experience on teachers' professional development. This program seeks to "support the improvement of teachers' skills in the use of different media in classrooms." The outcomes demonstrated that producing digital video for teaching material was an important achievement and that introducing media literacy helped teachers recognize the importance of context for instructional materials. For the part of the Mozambican population who could not speak Portuguese, "the videos produced can disseminate basic health information to improve the lives of these people who speak other languages."

Another teachers' development project is addressed by Tomás Durán-Becerra and Gerardo Machuca-Téllez, who present a case study of implementing MIL in higher education in Colombia in their chapter, "Self-Development at the Campus: A Case Study on MIL Development in Teachers' Education in Colombia." Exploring the challenges of implementing MIL in the curriculum for aspiring educators, these authors call for the promotion of spaces that allow us to become aware of the social importance acquired by new literacies to achieve experiences of empowerment. Here, they identify the coherence of the curriculum as a key component.

In his chapter, "Addressing Cyberbullying in Nigeria: A Case Study for the Media and Information Literacy City," Ayodeji Olonode reflects on the problems that an unconsidered use of media tools can cause. In concrete terms, Olonode focuses on cyberbullying, which affects not only Nigeria but also the world in general. Olonode gives a nuanced literature review and defines a solution for the need to act, which goes beyond asking for governmental action and the collaboration of industry, organizations, and stakeholders. For Olonode, to achieve citizens' empowerment, it is imperative to "include media and information literacy education as part of the deliverables of the national communication policy […] for the benefit of society"; to make media education part of the curricula at all levels, not only in mass communication or media studies courses; and to make parents take part in MIL learning.

Estrella Luna Muñoz gives an approximation on methodologies to generate learning, social integration, and MIL among young people in low-income communities with little access to technology in her chapter "The Self and the Other: Social Integration through Art and Communication in a Multicultural Context." The uses of art and communication activities, combined with a participatory action research methodology, are used to define principles and generate alternative and attractive forms of learning and digital inclusion and to generate the skills that are needed in a socially integrated society during the 21st century—or in a MIL city.

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Dispositions, Sensitivities, and Inclinations: The Importance of the Smart-City Citizen

Michelle Ciccone

Abstract

Smart cities promise to improve the lives of citizens. However, as smart-city systems become more effective and efficient, they become invisible, which may lead to the abuse and disempowerment of smart-city citizens. To achieve an equal and active participation of citizens in the development and regulation of the smart city, diverse stakeholders must work to ensure that the smart-city citizen develops certain dispositions, including sensitivity to opportunity and an inclination to engagement. Three essential principles for any media and information literacy city initiative include developing infrastructure literacy, a sense of continuous technological development, and a sensitivity to embedded ethical dilemmas.

Keywords: infrastructure literacy; maker empowerment; technology ethics; engagement

The smart city is an interconnected space, where "you can derive data from everything that is connected and utilize [that data] to improve the lives of citizens and improve communication between citizens and the government" (Maddox, 2018). The benefits of the smart city to the smart-city citizen range from the profound (e.g., improved efficiency and effectiveness in accessing social services provided by local governments) to the mundane (e.g., finding available parking spots more quickly). As objects become more connected and systems become more interconnected, the smart-city citizen her/himself becomes more connected, increasingly interacting with sensors and initiating identifiable communication with and via interconnected systems. The anticipated and inevitable outcome for the smart-city citizen is that processes that were once difficult to navigate, slow to actualize, and prone to error become highly convenient because of the decrease in necessary decision points and automation of services. As daily activities become more seamless, the "how" becomes invisible.

The smart-city citizen benefits from this increased efficacy, but the individuals and communities are exposed to risks. Assumptions are made when individuals are reduced to data points, and actual needs may be overlooked or misinterpreted when seen in aggregate. Moreover, the smart-city citizen may be unaware of the assumptions being made on her/his behalf because the invisibility of the interconnected systems hides the process. More worryingly, the inevitable invisibility of the process may lead to abuse.

Consider, for example, electronic tolling systems on toll roads which are an early-generation smart-city technology. Cars are automatically charged the required toll, either by scanning an electronic transponder or capturing an image of a car's registration plate using cameras and sensors, and later sending a bill to the address associated with the registration. This system is highly convenient for drivers and has reduced traffic delays (Scientific American, 2011). However, the data collected via this system—including date and time of travel, location, vehicle speed, and photos of the front and rear of the car—are often stored indefinitely and shared with other departments "when legally required to do so, including with federal officials, law enforcement agencies, and lawyers representing individuals in divorce and other civil cases who obtain court orders" (Rocheleau, 2016). Typically, the department of transportation "notifies people whose information is sought through subpoenas allowing them to take legal action to fight the subpoenas. However, exceptions could be made for serious and time-sensitive cases…" (ibid.), exposing the people to the risk of abuse.

The convenience of smart technologies can mask the necessary trade-offs, which quickly become as invisible as the cameras and sensors tracking car movement on toll roads. At the very least, the increased invisibility obscures how these systems work. This dynamic does not always result in dire outcomes: one can still drive

one's car without understanding exactly what the mechanic has fixed. However, a profound impact occurs on the smart-city citizen when the populace is excluded from all decision points, particularly as entities motivated by incentives other than benign convenience. When smart systems are abused, as is often the case, vulnerable communities are likely to suffer disproportionately. For example, facial recognition software has proven unreliable in identifying people of color (Schuppe, 2018), but the situation has not prevented the United States Customs and Border Protection from adopting facial recognition software to monitor the movement of individuals across the U.S.–Mexico border (Brandom, 2018).

Thus, it is critical but insufficient that the smart-city citizen can access and utilize smart-city technologies (an inability to do so would lead to disenfranchisement). The smart-city citizen must be an active and equal participant in the development and regulation of the smart city; ensuring this participation is a responsibility of media and information cities.

Models already exist for what an active and equal citizen can accomplish, from the perspectives of the technology developer and the regular user. Recently, multiple cases have been reported of developers at major technology corporations seeking a role in how the technology they are developing will be used. In 2018, over 3,000 Google engineers protested Google's intended contract with the United States Defense Department for developing artificial intelligence technologies for warfare. The protests gained attention in the media and contributed to the company's withdrawal from renewing the contract (Harwell, 2018).

The regular consumer has also proven to be powerful when engaged and armed with information, as evidenced by the net neutrality debate in the United States. Home Box Office host John Oliver raised an early public alarm when the Federal Communications Commission (FCC) signaled that it would revoke net neutrality laws, which would have resulted in the freedom for Internet Service Providers (ISPs) to treat all web traffic unequally. Oliver twice sent his audience to the FCC public comment page, and the high traffic volume crashed the webpage (Locker, 2017) on both occasions. Additionally, over 100 YouTube stars joined the discussion by signing an open letter to the FCC, calling to save net neutrality laws (Neidig, 2017), raising an awareness of the issue among young fans. Although the net neutrality regulations at the federal level were repealed, the attention drawn to the issue by regular Internet users contributed to legislators in 30 states introducing over 72 bills requiring ISPs to adhere to various net neutrality principles, as well as attorneys general from 22 states filing a "protective petition for review against the FCC in the U.S. Court of Appeals for the District of Columbia" (National Conference of State Legislators, 2018). What might otherwise have been an invisible policy change brought together millions of regular Internet users.

Consequently, informed and active citizens can have a profound impact on the development and deployment of technologies and systems. How then do we ensure the active participation of all smart-citizen? Different models are required to be developed for different contexts, but general principles should guide this development as smart cities grow, spread, and develop into MIL cities.

Dispositions of the Smart-City Citizen

For smart-city citizens to be equal and active participants in the development and regulation of the smart city (not being only consumers or data points to be analyzed), it is essential that the populace develops certain sensitivities and dispositions. To understand the practicality, we can start by examining the "maker movement," which is based on "the act of creating allows the maker to be a co-constructor of one's physical world, and not merely a consumer." Agency *by* Design (A*b*D), a project of Harvard University's Graduate School of Education's Project Zero, holds that "maker empowerment" is a "dispositional outcome… comprised of three elements: ability, inclination, and sensitivity… '[S]ensitivity to opportunity' is a key developmental bottleneck: in other words, people often do not activate dispositional behavior because they simply do not notice opportunities to do so" (A*b*D, n.d.). And so, to borrow these ideas, if we hope that the smart-city citizen becomes an active participant in the development of the smart city, then citizens must develop the ability, inclination, and sensitivity to do so.

Growing and developing the sensitivities and dispositions of smart-city citizens will require the efforts of many community stakeholders, including schools, libraries, journalists, technology developers, faith groups, activists, and many more. These diverse stakeholder groups will impact the behaviors, beliefs, and knowledge-base of their constituencies differently. For example, librarians' interaction with their clientele is different from that of pastors with their congregants. However, a general set of principles can aid the work across these contexts. The text below explores three principles that, when applied in any context, can develop the sensitivities and dispositions required for equal and active participation in the smart city.

Principle #1: Develop Infrastructure Literacy

Firstly, the smart-city citizen must develop sensitivity to the infrastructure that, almost by definition, becomes invisible in the smart city. Invisibility elides: we see this when we discuss "the cloud" instead of "the Internet." This terminology suggests ephemerality, but in reality, the Internet work is made up of very real

physical components. Similarly, as the systems and services provided by the smart city become more effective and efficient, the systems and services become more invisible, and the smart-city citizen becomes less sensitive in discerning how the systems work, or what part of the system makes the services possible.

Therefore, smart-city citizens must become sensitive to the smart-city infrastructure by developing an infrastructure literacy, which includes knowledge of and familiarity with the basic physical and digital components that interact in creating a coherent experience. Infrastructure literacy allows us to "visualize[ ] infrastructures in order to facilitate civic participation in debates about network ownership, development, and access" (Forsler, 2018, p. 88). When the infrastructure "become[s] such an embedded part of our lived environments that they fade into the background, they also become harder to critique" (ibid.). Hence, developing infrastructure literacy is the first essential step of participating genuinely to the development and regulation of an infrastructure.

To start noticing this invisible infrastructure, an "infrastructural inversion" (Bowker, 1994) is helpful to bring pieces that have faded from into the background to the foreground. This can be achieved by drawing the picture of a given system utilized and enacted by the smart city. This activity can reveal assumptions, misunderstandings, and incomprehensiveness. The desired level of technical knowledge will vary with each context, but it is critical in developing an "infrastructural disposition" (Parks, 2015, p. 357) that considers—concretely, physically, and elementally—system components. Thus, smart-city citizens can begin to ask: What do we miss out on when we do not see the systems we use every day? Answering this question will encourage the sensitivities and dispositions for, which this study is aimed at.

Principle #2: See Technology as Constantly Evolving

For smart-city citizens to become opportunity sensitive, they must believe that an opportunity for change exists. As infrastructure becomes invisible, opportunity for change seems to disappear, as it begins to feel like the way systems work now is "just the way things are." Susan Leigh Star and Karen Ruhleder's (1996) definition affirms that an infrastructure is built upon older structures and systems and linked to a community's established practices. It is no wonder, then, that the infrastructure embedded in our daily lives feels inevitable and natural. The smart-citizen citizen must interrogate these assumptions to view technology and systems as evolving.

To develop this sensitivity to opportunity, we can highlight the ways technologies have evolved and, more importantly, continue to evolve. It can be interesting—especially for young people with a developing sense of history—to examine the history

of the technologies and systems embedded in everyday life. As these histories are explored, it is important to also trace shifts in purpose. For example, the commercial purpose of the Internet has evolved over time and only really introduced 40 years into its history (Zimmermann & Emspak, 2017). Knowing and understanding that purposes can shift based on stakeholder input helps to develop the required sensitivity to opportunity.

When the system evolution is, the smart city becomes, in the eyes of citizens, changeable and malleable. The smart-city citizen can feel empowered to take a stand on net neutrality, for example, because of the expectation that policies can and do change. Truthfully, smart city has not reached a final development stage, and the smart-city citizen can help in developing and regulating the infrastructure, so that it can become better.

Principle #3: Explore Hidden Ethical Dilemmas

This third principle is where the assumptions that are made—and the risk of abuses associated with these assumptions—reveal themselves to the smart-city citizen. To see the ethical dilemmas the smart city raises, the smart-city citizen must develop sensitivity to them, and this sensitivity must go beyond a self-focused concern. Carrie James (2016) writes, "Central to ethical thinking is impartiality, or disinterest: the capacity to look beyond one's own interests, feelings, and empathy for close relations in order to make decisions that are in the interests of a larger group, public, or society" (p. 5). Without a sensitivity to these ethical dilemmas (in addition to an infrastructure literacy), smart-city citizens develop "blind spots" (ibid., p. 10), where the true impact of systems is rendered invisible. Powerful entities may be motivated to keep these blind spots invisible to the smart-city citizens as possible.

The goal is for these abstract and impersonal ethical dilemmas to become places where smart-city citizens can make choices that protect the interests and safety of fellow inhabitants. Kade Crockford, Director of the Technology for Liberty Program at the American Civil Liberties Union in Massachusetts, speaks of encryption like vaccines:

> "How is encryption useful for people who are not targets of government surveillance? It sort of works like vaccines… Maybe you are not likely to get the measles, but we get vaccines as a community…because of something called herd immunity. If we all do it, the weakest among us are protected from diseases like measles and mumps. The same thing is true with encryption. Maybe you yourself are not going to be a target of government surveillance in a special, individual kind of way. But what about other members of your

> community? Muslims, dissidents, young black people, immigrants -- those people are targets of government surveillance. And if you want to help protect them, you should use encryption because doing so works like herd immunity with vaccines. It makes it so that those communications don't look suspicious and it pushes back against the… argument that somehow encryption means you're doing something wrong" (ACLU of Massachusetts, 2016).

This understanding shifts the conversation from personal-based to community based, which is an essential disposition for a citizenry that is sensitive and eager to engage in the ethical development of these systems.

Some ethical dilemmas we face today are truly complex and difficult to grasp in the abstract. Hence, case studies are a helpful way of exploring these dilemmas. In this work, consider actual controversies that have touched the lives of your constituencies (knowingly or unknowingly) and explore how these controversies have been resolved. Highlight the choices that were available (or unavailable). Why was the situation resolved in this way and not in another way? By highlighting the choices available, that sensitivity to opportunity will grow.

Below are four categories of ethical dilemmas that may be meaningful to various constituencies of the smart city:

1. Inequality of access: We incorrectly assume that all are connected in the smart city. Consider, who does a smart city leave out? Whose basic connection needs must be addressed? Why are these people and places still not connected? What policies are in place that extend or limit access?
2. Customization of experience: The customized experience that the smart city provides can feel like "magic," but this customization is actually very predictable. Information literacy–related dilemmas, particularly around targeted ads, spread of disinformation on social networks, and the existence of a "filter bubble," are all important topics to explore.
3. Rise of automation: As discussed, smart cities are automated cities; complex and nuanced decisions are being made based on rapid analysis of diverse sets of data. Self-driving car technologies can be an interesting case study to explore the implications of automated decision making: When a self-driving car must decide its next move between two bad choices, what considerations should guide the vehicle's decision? MIT's Moral Machine is a great conversation starter (http://moralmachine.mit.edu/).
4. Surveillance: Smart cities are surveilled cities; the data collected in smart cities can be surveyed on a mass scale. Exploring the interplay between governmental and commercial surveillance capabilities and systems opens the door to divergent thinking. The evolving use of facial recognition software, as discussed above, makes for an interesting case study.

Conclusion

The smart city has the potential of improving the lives of people around the world, only if the smart-city citizen is an active participant in the smart city development. With a developing infrastructure literacy, an understanding of constantly evolving technology, and a sensitivity to the ethical dilemmas embedded within technologies, the smart-city citizen can develop the necessary opportunity sensitivities and dispositions required to become an equal and active participant in that development. Getting necessary stakeholders to address these needs will be based on the hard work of media and information literacy cities, otherwise, the smart city will inevitably disempower and disenfranchise.

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Theorizing Media and Information Literacy: Emotional Communication through Art for Young People during Unusual Life Experiences

Masatoshi Hamada, Alton Grizzle[1] and Kofoworola Oyeleye

Abstract

This study applies the new social change theory called Media and Information Literacy Expansion (MIL^{x}), as developed by Grizzle and Hamada (2019), to the UNESCO Media and Information Literacy (MIL) Cities framework (UNESCO, 2019). MIL^{x} considers MIL competencies, acquisition, and application by individuals, groups, and institutions simultaneously. MIL^{x} also models the potential multiplier outcomes of this approach when MIL is integrated with other social competences. MIL^{X} proposes that we cannot reach optimal social value proposition, value enhancement, and value expansion if MIL interventions only focus on individuals. The study also explores the likely positive changes in outcomes when MIL^{X} is united with emotional competencies as another variable in the model. Specifically, this paper focuses on MIL$^{\mathbf{x}}$ incorporating "emotional literacy" (Singh & Duraiappah, 2020) and the interaction that occurs in the selected target group of children and youth, their peers, their families, and the institutions with which they engage. A practical design of MIL$^{\mathbf{x}}$ demonstrates how MIL can correspond with efforts to counter disinformation and misinformation with deeper changes in mindset (Cinzia et al., 2015). It theorizes how, with MIL$^{\mathbf{x}}$, emotional communication through art

1 The contribution to this chapter is connected to the author's work as a Program Specialist in the Section for Media and Information Literacy and Media Development, UNESCO. However, the ideas and opinions expressed are not necessarily those of UNESCO and do not commit the Organization as such.

creates a synergistic effect on individuals, groups, and institutions. Art is widely used for psychological therapy because it can identify relationships between physical and psychological states. We used an art-based research methodology to theorize communication from the individual to society based on empirical analysis. Data from youth and children's responses to the 2011 tsunami catastrophe area in Ishinomaki, Japan, were analyzed in this context. Further research is required to strengthen the findings to actualize the strong emotional dimensions that exist in people's engagement in the information ecology toward and beyond the 2030 Agenda for Sustainable Development Goals.

Keywords: Media and Information Literacy expansion (MIL^{X}); youth, children's psychological needs; emotional communication through art; emotional literacy; emotional intelligence; social literacy; unusual life.

Introduction

This article explores how media and information literacy (MIL) complements the emotional resilience of youth and children during unusual life experiences, such as the COVID-19 pandemic and those who have become refugees. Traditional models of MIL have two limitations in these and similar circumstances. One is how literacy simultaneously reaches each youth/child (individuals) versus families, communities, and institutions (groups). During unusual life experiences, psychological needs are heightened not only for children but also for adults, their families, and actors in institutions who work collectively with the affected people (Šakan et al., 2020). Accordingly, addressing these psychosocial needs in combination with critical thinking competencies through MIL is essential to surmount the negative context and related disinformation and misinformation that surrounds the experience, as with COVID-19 (Prime, Wade and Browne, 2020; Kimura, 2020; Hamada, Grizzle and Oyeleye, 2020). Another consideration is how MIL achieves social competences, such as social/emotional literacy, health literacy, science literacy, and intercultural and interreligious competencies. A simple question is as follows: "what is different between people who have knowledge of MIL and those who do not during COVID-19 life?" We postulate that "there are differences in how they relate to disinformation related to COVID-19, for example but also that some people with such knowledge still get caught in the web of disinformation." We consider that a dearth of emotional facets in MIL knowledge is a main reason. Emotions are omnipresent, and it is necessary to create a balanced interaction between the rational brain or thinking brain and the emotional or feeling brain (Goleman, 1995). Therefore, MIL models should incorporate social and emotional literacy aspects to generate synergetic operations among youth/children, their peers, families, communities, and the institutions with which they interact.

Kofoworola et al. (2020) suggest that artistic edutainment in MIL^X for children creates a synergistic effect of understanding among children, friends, and families as it enhances and extends positive emotions from the child to other family members. The suggestion allows MIL to integrate emotional literacy, intercultural dialog, and interreligious dialog into individuals, groups, and institutions. Thus, this paper investigates a theory that covers the psychological aspects of MIL in unusual life situations. We mainly used arts-based research methodology (McNiff, 2011) as per an empirical analysis of the tsunami disaster that occurred in Japan on March 11, 2011. The arts-based research is a methodology that is simultaneously theoretical and empirical.

A key research question is as follows: when emotional literacy and psychological therapy are also synergized with MIL^X and UNESCO #MIL City, what are the possible outcomes or benefits to individuals, groups, and institutions in unusual life situations?

This study is organized into four sections, which are as follows. Theoretical Section 1 includes MIL^X in unusual life experiences and explains the basic idea by reconsidering the application of Maslow's hierarchy of needs. Here, the interrelation among the central concepts of MIL^X and MIL Cities and how emotional literacy relates to them is theorized. Theoretical Section 2 further dissects how emotional literacy is reflected in the concept of communication through art and relates to emotional responses. Here, we theorize emotional communication through art in a tsunami catastrophe area and involve MIL^X. In Section 3, we present additional methods as well as data analysis and discuss and clarify the context of children in a tsunami area and how arts integrated with MIL can help survivors be resilient, then share some empirical findings. This section is simultaneously theoretical and empirical in nature. Finally, we close with a further discussion and the conclusion.

Theoretical Section 1: Central concepts of MILx, MIL Cities, and the relation of emotional literacy

Media and Information Literacy Expansion (MILX) in unusual life: Reflections on Maslow's hierarchy of needs

As a starting point in contemplating MIL^X and how reasoning processes correspond with emotional processes, could Maslow's hierarchy of needs (Maslow, 1943), an authoritative foundational hierarchical model of human motivation, invite some rethinking in terms of its modes of application during unusual life circumstances? A general understanding, in ascending order, shown in Figure 1, is that, first, there

are the *basic needs* (physiological: food, water, warmth, and rest plus security and safety), and then, there are the *psychological needs* (love/belonging, esteem, and feeling of accomplishment). Two considerations emerge here. First, unmistakably, cognition or thinking, whether conscious or unconscious, is implicit in this renowned pyramidal illustration. Maslow theorized that people desire to increase their intelligence; consequently, they pursue new information or knowledge[2]. The desire to understand themselves, the world around them, and their place in it is cognition in action. This argument corresponds to Laws 2 and 4 of the UNESCO Five Laws of MIL (Grizzle and Singh, 2016).

- **Law 2:** Every citizen is a creator of information/knowledge and has a message. They must be empowered to access new information/knowledge and to express themselves. MIL is for all—women and men equally—and a nexus of human rights.
- **Law 4:** Every citizen wants to know and understand new information, knowledge, and messages as well as to communicate, even if she/he is not aware, admits, or expresses that he/she does. Her/his rights must however never be compromised.

"It is most likely reasonable to believe that the need to know and to understand is a basic need in Maslow's opinion and ignorance of this need apparently is a big gap in almost all resources" (Saeednia, 2009, p.3). Kenyon (2004) and other authors sought to correct this by adding the need to know and to understand in a revised model of Maslow's hierarchy (as cited in Saeednia, 2009).

However, our basic and psychological needs are mediated by media and digital technologies. With what benefits and how should critical thinking competencies (knowledge, skills, attitudes, and values) about all types of information intermingling with this group of needs be more explicit and superimposed on the model? Second, could it be that based on experiences, the ascending order from basic to psychological needs requires reconsideration? Is it possible for people's resilience and flourishing after catastrophes, such as the tsunami (Kamakura, 2013) and during COVID-19 experiences (Hamada, Grizzle, and Oyeleye, 2020), to benefit from addressing basic and psychological needs simultaneously?

In our discussions, we note that emotions can be both positive and negative. Stimulating and feeding negative emotions, especially in the absence of critical thinking, can lead to objectionable actions. Demonstratively, the positive emotions and thinking about youth and children's future dreams ought to be brought to the fore when addressing their psychological needs. Many studies focus on the negative

2 Climbing Maslow, https://climbingmaslow.org/blogs/the-concept-behind-the-brand/the-concept-behind-the-brand. Accessed on January 29, 2022.

emotions of the children, such as post-traumatic stress disorder (Hamada, M., Tsubaki, M., and Suzuki, T., 2020). Equally, much MIL research emphasizes critical thinking about societal ills and challenges rather than social opportunities and positive social developments (Buckingham, 2018; Narjes et al., 2015). This article delineates two ideas of the practical design of MIL Expansion (explained in detail further on) on UNESCO #MIL Cities during COVID-19 emergencies and theorizing emotional communication through art in an area ravaged by tsunami-induced catastrophes.

All these considerations have implications for Sustainable Development Goals (SDGs). It is important for communication about SDGs and the post-SDGs agenda to highlight MIL and the social emotional literacy of all peoples. We believe this can strengthen "futures literacy," perceiving, seeing our place in, and charting paths to the futures[3] we want beyond the 2030 Agenda.

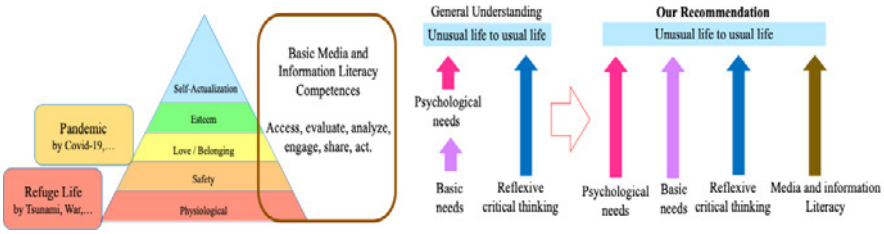

Figure 1. *Reconsideration of the application of Maslow's hierarchy of needs*

MIL Expansion on UNESCO #MIL Cities during unusual life

MIL Expansion (MIL^{X}), shown in Figure 2, expands literacy from individuals to individuals only, group, and institutions simultaneously and integrates MIL with social competences (Grizzle, 2017; see also Kuzmin, Parkashova et al., 2017), including the emotional dimension. MIL^{X} proposes that we cannot reach optimal social value proposition, value enhancement, and value expansion if MIL interventions focus only on individuals (Grizzle and Hamada, 2019).

MIL^{X} applied to the reconsideration of Maslow's hierarchy of needs is one of the suggested solutions. Let us take this a step further. MIL^{X} addresses individuals, groups, and communities of people in their physical and virtual environments. If we use cities in this context to encapsulate people and their physical and virtual environments, the cities become a living unit. How people relate to information

3 Futures Literacy: An essential competency for the 21st century. https://en.unesco.org/futuresliteracy/about. Accessed on January 29, 2022.

in unusual or urgent life circumstances becomes a factor then of their individual faculties as well as the multiple layers of responses within collective living units, cities. UNESCO #MIL Cities (UNESCO, 2018) is an initiative about creative learning in MIL in city life and spaces. Figure 3 submits how, by applying the combined UNESCO MIL^{X} with the UNESCO MIL Cities Framework, actors can help people to better assimilate information and thereby build their resilience against disinformation and misinformation so as to better handle crisis situations.

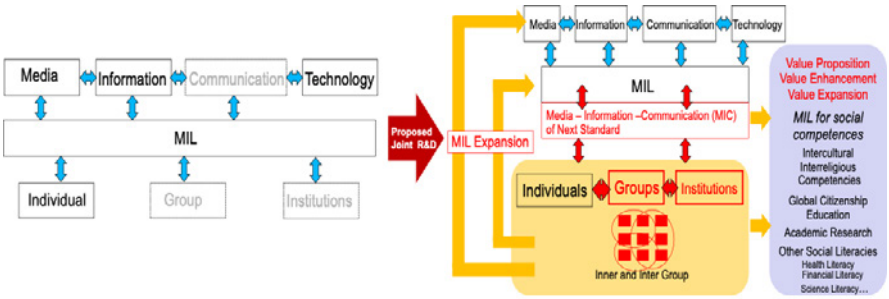

Figure 2. *MIL Expansion (MIL^{X}) (Grizzle and Hamada, 2019)*

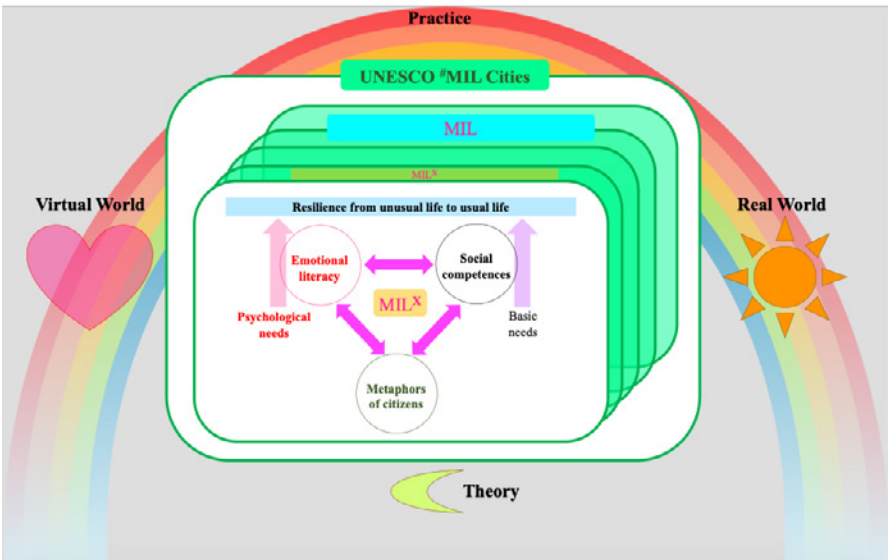

Figure 3. *MIL^{X} on UNESCO #MIL Cities during unusual life*

This practical design shows how to implement MIL^{X} with the emotional aspects of adults, youth, and children during their unusual experiences. The COVID-19 pandemic is an assumed unusual life experience. It helps cities with people who are

media and information literate, with a high level of emotional and social literacy, to resist disinformation and misinformation and heightens people's ability to satisfy and sustain their psychological and basic needs. Some experts call this situational awareness (Endsley, 2015). The International Code Council (2021) has applied this concept to how to effectively provide accurate information to people so that they can make decisions about their safety after and during emergencies in tall buildings. In times of public health emergencies, using formal information sources as situational awareness is crucial because situational awareness can increase public health behavior significantly (Qazi et al., 2020). The experiences of the COVID-19 pandemic draw attention to the lack of people's prior knowledge of such a global crisis, as well as the little information available at the beginning of the emergency. Thus, MIL^{X} applied to the MIL Cities model in Figure 3 also implies the necessary progression of situational information in Figure 4 below.

Figure 4. *Situational awareness on MIL^{X} for disinformation and misinformation*

Therefore, by incorporating emotional literacy and social literacy into MIL^{X}, improved or augmented situation awareness could be achieved. The proposition here is that practical design outputs will lead to better engagement with information, media, and technology (See Figure 5). In the next section, we exemplify how specific social competencies, such as intercultural and interreligious competencies, can affect information engagement.

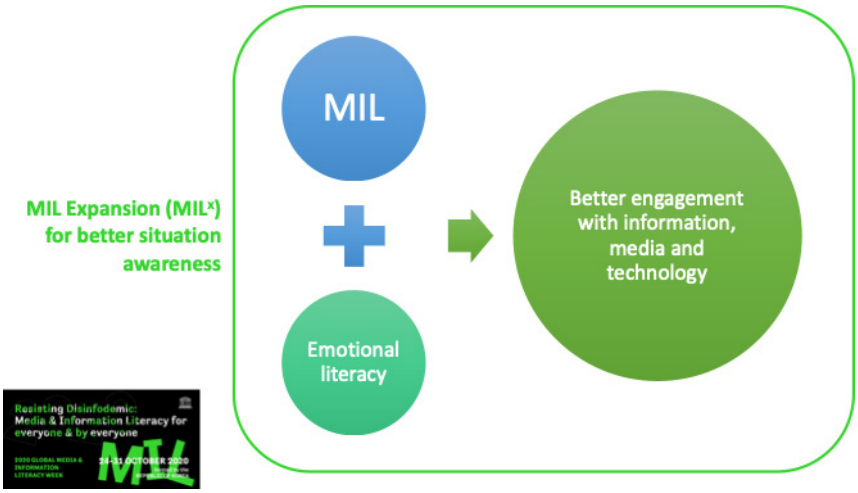

Figure 5. *Practical design of MIL^X in the COVID-19 context*

Practical design of MIL^X from emotional literacy to other social competences

In the model of MIL^X in Figure 2, we posit that MIL can enhance other social competencies, such as intercultural and interreligious competencies, health literacy, financial literacy, and science literacy. Here, we focus on how the lack of intercultural and interreligious competencies can be a barrier to information assimilation (Chibas Ortiz, 2019; Grizzle, 2018). An interview with a refugee youth and children's therapist was conducted in October 2018 at Caritas Luxembourg ONG. The information garnered was used as background for the study. Some main difficulties the therapists identified in helping these persons and enabling them to help themselves are summarized as follows (Hamada, 2018).

a. Addressing issues around intercultural dialog and interreligious dialog: Therapy for refugee youth/children is different from general therapy because of gaps in intercultural understanding and language barriers.
b. Emotional literacy: Compounded stress generates emotional disassociation in that they guard not only their bodies (basic needs) but also their emotions, the future they want, etc. More explicitly, it is not so much that they "guard" emotions and desires for the future but that they are buried under a mountain of stress and clouded by mistrust. At the beginning, recovering their emotions by communicating comprehensible words is important.
c. Unusual life to usual life: Progressing from the unusual life experiences of being a refugee requires a minimum of one year of therapy. This can lead to "their whole lives [being] changed."

d. Use of art, music, and drawing: The therapists use art, particularly during the early events of a camp, to help refugee children recover their emotions. The importance of knowledge change in the youth and children is a key means to an end but also an end itself. There is a long scholarship of art therapy to treat persons suffering from trauma (Schouten, 2014).

The most difficult aspect of therapy for refugee youth and children is the differences in cultures and language barriers. Beiser et al. (2015) and Trovao (2012) indicate that new knowledge provides opportunities to generate intercultural and interreligious competencies and thus aids dialog. Applying MIL^{X} to these situations expands the outcomes of knowledge change.

Box 1 Intercultural content during the COVID-19 crisis

Here we offer an example of a practical design for intercultural and interreligious dialog. ANILINGO and Animation Summer Camp are led by the organization IYIN-CREATIVE in Nigeria. ANILINGO is an animation series and mobile application that promotes native languages and cultures by engaging children through cartoons using figures they identify with and in a language they understand.

During the COVID-19 crisis, the organization has used cartoons as a way of educating children to stay safe. Seeing characters that look like them is very important to transmitting their message, particularly for the children of African descent. The content is now remotely accessible and updated regularly to give the children something new to look forward to.

Animation Summer Camp, Figure 8, has been educating children in Nigeria by teaching them how to create cartoon productions that bring stories and emotions to life against negative contexts, including COVID-19. They have been doing this since 2014 (IYIN-CREATIVE, Animation Summer Camp).

The campers are introduced to 2D and 3D animation as a tool for creatively telling stories of their own. The stories they tell through animation are, in some cases, reflective of their experiences and give them an avenue to release unexpressed emotions. Parents view their children's perspective through their projects, fostering better understanding. The 2020 camp was virtual and focused on the campers reflecting how COVID-19 affected them socially and emotionally.

These considerations illustrate that by helping children and youth stimulate positive emotions through animation, art, and entertainment, they accomplish knowledge change that broadens their intercultural and interreligious understanding.

Theoretical Section 2: Specifying emotional literacy, the concept of communication through art, and emotional responses

Theorizing emotional communication through art in a tsunami-induced catastrophe area: Enveloping MILX

Art is widely used as psychological therapy because it can bridge communication from individual to society (McNiff, 2011). Thus, we draw on arts therapy to respond to certain dimensions of the main research question. By comparing MIL and MIL^{X}, we construct a theory while analyzing the emotional responses by way of creating art in terms of communication from individual to society. The data set comes from youth and children from the 2011 tsunami catastrophe area in Ishinomaki, Japan, focusing on the area most damaged by the tsunami. We theorize emotional communication through art by utilizing an arts-based research methodology that is simultaneously theoretical and empirical.

Emotions transmitted through art have been studied since the early 1900s (Bartsch and Hübner, 2005). Information is transmitted even in emotional communication. However, what security systems can be developed to guard against manipulation online and offline? Theorizing emotional communication through art is introduced in this section. Here, we reflect on the synergetic possibilities of youth and children's positive emotions when MIL^{x} is introduced. MIL^{x} should operate bi-directionally, on critical thinking and social competences, such as emotional literacy, and with emotional communication through art considered to illuminate this bidirectional operation.

Experience speaks powerfully although isolated individual experiences might not be an exact science. Here, we offer an anecdote to prompt the reader's memory regarding similar experiences. As we amalgamate our individual experience, we approximate scientific methods. This experience is from one of the co-authors named at the end:

> Sometime in 2021, during one of the periods of a slight ease in the social restrictions due to the COVID-19 pandemic, I had the opportunity to meet with some young people for our monthly social activities. We were to have a meal together after a long time of not being able to do so due to social restrictions. I was to lead discussions with the young people in that meeting. I was so excited that I was also the one to prepare the meal for that day (Well, I shall not lie, I am married, so I anticipated help from my wife also, but I was committed to the bulk of the work…gender equality…). Back to the main point. Stay with me. On my wife's advice, I had already resolved, in my head, a simple meal to prepare given my very demanding schedule. Then, on the eve of the meeting, after we had already

> made all the necessary purchases, I was on Facebook browsing (my do nothing time, little thinking, rest my frontal lobe some, playful—but not for too long). I came across this video of a woman and man preparing chicken legs tantalizingly wrapped in bacon and potatoes, etc. The video was less than five minutes long, and, at the end, I have never seen something so succulent online for a while. At least I rarely stopped to take notice. I hope that you are salivating as I am now. Now of watching the video, I had a eureka moment. I must prepare this for the young people. It is easy, I thought. After all, I watch ed the video two times. Now recall that we had already shopped for all that was needed! Convinced and super excited, I was determined to prepare the exact meal as I saw in the video. I boldly and confidently approached my wife and shared my newly found genius idea. You can imagine the response… 'Don't be stupid, there is no way you can prepare that for tomorrow the day of the meeting,' she gently warned. Now, of course I am not stupid. I consider myself a slightly sophisticated user of information, media, and digital technologies, having studied information systems, media and communication and having engaged in research and practice of MIL. Yet, I was ultra-convinced by a short video (obviously a summary of a much more complicated and longer preparation process) that I could defy my wife's better and experiential judgment. To shorten the story, I ventured into what I only soon realized was the unknown. Did a second round of shopping for all that was needed…With the benefit of her more rational thinking in command at the time, my wife abandoned me, somewhat…I continued with the emotional feeling side of my brain firing on high speed…Then a second eureka moment, two or three hours in to the process, I allowed myself to be duped by a short video! Call ed my mom for help as the potatoes were getting black…wife came to rescue but with some distance for me to learn a lesson…She asked to see the video that I had watched but we failed to fine it again on Facebook…I was too "emotional" to make a mental note of the source…I did learn my lesson. One I 'knew' very well from before, given much study…five more hours, with the second round of preparation the next morning (day the meeting). Some eight hours to prepare checking legs…It was not as easy as I thought…I needed 'emotional self-regulation' before starting this project based a decision driven by emotions…My thinking brain was obscured by my feeling brain" (Alton Grizzle).

This could happen to any of us. More importantly, the results are and could be more deleterious for many who engage in this type of decision-making. Goleman (1995), in his book on emotional intelligence, a term used interchangeably with emotional literacy in this article, puts it this way: He suggests that emotional intelligence requires synchronization between the emotional/feeling brain and the rational/thinking brain. Our thinking and feeling are inextricably linked. He explained that, for example, if someone hears a loud bang, this sends the feeling brain into overdrive, as it processes the bang as a threat and puts the body in state of alarm. However, we

need our thinking brain to assess whether there is a real threat; if not, it calms the feeling brain and body. He calls this emotional self-regulation.
To explain more specifically, we show on-site data of the 11,029 youth and children at the 2011 tsunami catastrophe area in Ishinomaki Japan and classify the combined quantitative analysis with qualitative analysis data. The data and classification analysis (Hamada, Tsubaki, and Suzuki, 2020) are explained in Appendix A and Appendix B.

Definition of emotional communication through art

Art, such as music, animation, and theater, has an opportunity to develop emotional resilience and positive mental well-being in children and young people (Zarobe and Bungay, 2017). Figure 6 is a drawing of the children in their refugee life caused by the tsunami on March 2011 in Japan. What do you feel by looking at this lovely drawing? The children may draw a variety of expressions or a partial expression of their emotions. This way, different emotional deductions and relations between the children and viewers may be created by means of one drawing. This section defines such kinds of emotional relations as emotional communication in art.

Figure 6. *Artwork by children in their refugee life (November 2011, Hashikami Elementary School, Kesennuma, Japan)*

Emotional communication can have bidirectional operations, as shown in Figure 7. The two directions generate a multiple-to-multiple communication of emotions from the side of the producer to the side of those watching, listening to, or reading the art. Contained here is information and messages being transmitted, as stated earlier. Information and messages transmitted through media, digital platforms, books, museums, etc. are synonymous, meaning that critical thinking through MIL is needed and can reinforce the emotional processes taking place.

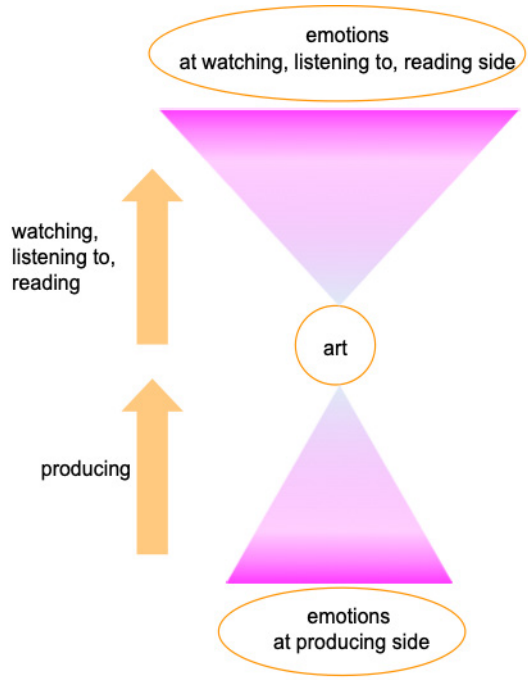

Figure 7. *Emotional communication through art*

Theorizing emotional communication through art

Emotions through art have been studied since the early 1900s (Langer, 1953). However, emotional communication has not been fully theorized (Bartsch and Hübner, 2005). We suggest that this is partly because emotional communication has not developed any theory on its effectiveness and characteristic features. Conversely, established communication theories with characteristic features have been tested and

proven (Berthon, Pitt, Katsikeas, and Berthon, 1999). For instance, Kerr et al. (2020) introduces the quantitative theory of emotion information, based on Shannon's mathematical theory of information in communication systems. They posit that the theory explains various aspects of emotional communication and opens paths for new directions in research. Here we applied the communication theory of service science to emotional communication through art (Hamada and Grizzle, 2020). In the theory of service science, the characteristic features are amorphousness or intangibility, simultaneity, and heterogeneity (Berthon, Pitt, Katsikeas, and Berthon, 1999).

Amorphousness is effectively the result of the providers' intangible activities. Simultaneity refers to the bidirectional characteristics of providing and consuming concurrently. Heterogeneity is a divergence of customers to receive services. Customers receive different emotions even on the same services.

Kurosumi and Tsubaki (2014) analyze simultaneity and heterogeneity among the learning styles of the students, educational improvements, and learning outcomes. Miyamoto and Tsubaki (2018) analyze heterogeneity between customers and service providers. Both focus on providing services classified by students' type or customers' type to improve the effectiveness of education or marketing. Relational analysis (Haraga, Tsubaki, and Suzuki, 2014) classifies students or customers into several types according to their features of how much resemblance comes from factor scores and factor loadings. This classification results in near-optimal effectiveness in each group with high-simultaneity and high-heterogeneity communication. Theorizing emotional communication, proposed in this paper, examines amorphousness, simultaneity, and heterogeneity in a similar way in connection with information, emotion, and critical thinking with MIL as a base (Hamada and Grizzle, 2020).

Tomasso (2010) scrutinizes relationships between new information and the knowledge of youth and children who have had experiences as refugees and asylum seekers. The study concludes that the youth and children have little or no portion of new information, thus not changing their knowledge significantly. The disconnection between information and knowledge also results in a lower connection among knowledge, behavior, and attitude. Servaes (2003) and Warr (2010) mention that the disconnection is caused by psychological dissociation and propose therapeutic approaches. Consequently, it is urgent to connect children's access to information with the children's knowledge change.

Interacting with information transmitted in emotional exchanges is an opportunity toward generating new knowledge (Stephens and Carmeli, 2016), and positive emotions are a part of the resolution to create intercultural and interreligious dialogs. Ljujic et al., (2013), Wilson (2013), Beiser et al. (2015), and Trovão (2012) also identified connections between new knowledge and intercultural dialog and interreligious dialog. Harris et al. (1981) conclude that children have a changing

conception of emotions and that art has an opportunity to develop resilience and positive mental well-being in children and young people (Zarobe and Bungay, 2017). The output of emotional communication and the knowledge change with the incoming information generate diversification, such as recovering emotions based on intercultural and interreligious experiences, leading to positive behavior change and attitude change (Trevor et al., 2017; Servaes, 2003; Ljujic et al., 2013; Wilson, 2013). These considerations design emotional communication through art, as shown in Figure 8 (Hamada and Grizzle, 2020). Art, in itself, transmits much new information.

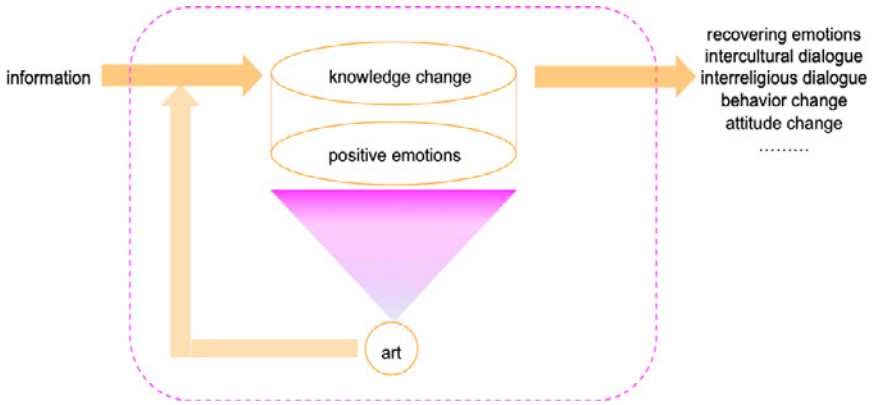

Figure 8. *Emotional communication through art*

Characteristic features of emotional communication through art

This paper assumes that amorphousness, simultaneity, and heterogeneity are fundamental characteristic features of emotional communication that are similar to elements of service science communication theory as explained above. Theorizing these features can result in an optimal performance of emotional communication through art.

Amorphousness (intangibility) of service science is effective as the result of the providers' intangible activities (Berthon et al, 1999). The effectiveness of unearthing positive emotions, with information and critical thinking embedded, is knowledge change (Tomasso, 2010; Servaes, 2003). Therefore, amorphousness in emotional communication can be knowledge change (Hamada and Grizzle, 2020).

We consider simultaneity of emotional communication through art. The simultaneity of service science is the bidirectional characteristic of providing and consuming concurrently (Berthon, Pitt, Katsikeas, and Berthon, 1999). Simultaneity improves the effectiveness of communication (Kurosumi and Tsubaki, 2014). Emotional communication through art is designed to have this kind of bidirectional characteristic (Hamada and Grizzle, 2020).

Forward paths and backward paths, shown in Figure 9, indicate bidirectional characteristics. The sum of all the forward paths means the maximum capability of communication, from art to positive emotions and knowledge change. The forward path suggests the capability of communication through art. The sum of all the backward paths means the maximum usability of communication from positive emotions and knowledge change through art. The backward path communicates the usability of communication through art.

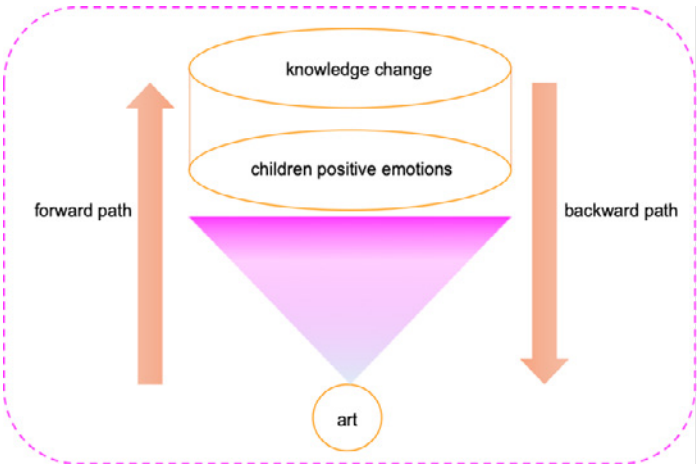

Figure 9. *Forward path and backward path of emotional communication through art*

Finally, there is the heterogeneity of emotional communication through art. Heterogeneity is the divergence of customers in receiving services (Berthon et al., 1999). Customers receive different emotions even on the same services. Heterogeneity is crucial so that providers can serve various types of customers with high quality. Kurosumi et al. (2014), Miyamoto et al. (2018), Biringen et al. (1999), and Kerr et al. (2019) explain that not only children's emotions but also their family's emotions are important to improve emotional relationships between family and children. Friends, school, and community are also positive effectors of children's positive emotions (Bonanno et al., 2004; Veronese et al., 2012). The MIL Expansion (MIL^X) theory of change, explained earlier in this chapter, brings these individual,

institutional, and communal dynamics to keep in mind when addressing information, knowledge, and critical thinking in mediated emotional communication. We posit that the heterogeneity of emotional communication through art can improve the relationships between art, children's positive emotions, positive effectors, and children's knowledge change. The emotional communication through art with positive effectors, shown in Figure 10, is characterized by high heterogeneity (Hamada and Grizzle, 2020). Children improve opportunities to attain knowledge changes.

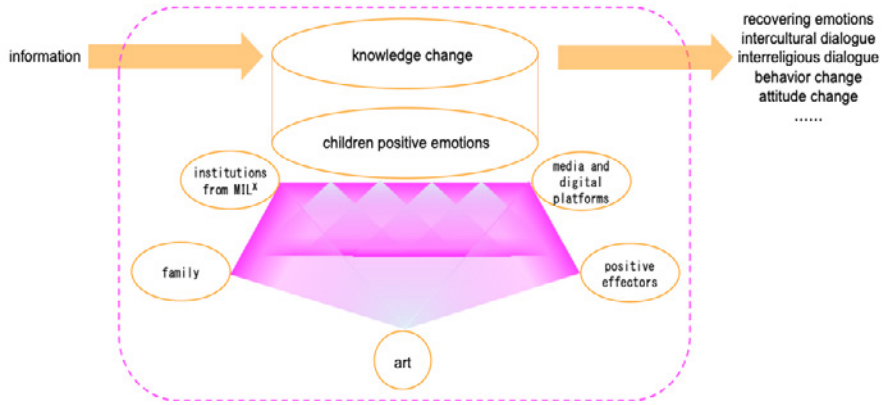

Figure 10. *Emotional communication through art with positive effectors, institutions in MIL^X, and media and digital platforms*

Section 3: Presentation of methods, data analysis, clarify of context, and empirical findings

Correspondences between MILX and emotional communication through art

Table 1 summarizes the correspondences between MIL^X and emotional communication using art. Traditional MIL focuses on an individual's competencies (Grizzle, et al. 2013) so that the emotional communication through art of Figure 9 corresponds to the MIL. MIL^X expands the literacy of individuals, groups, and institutes (Grizzle and Hamada, 2019) so that the emotional communication through art of Figure 10 corresponds to MIL^X. The emotional communication through art has a bidirectional function as well as the practical design of MIL^X.

Art is defined as the creation of forms symbolic of human feeling (Langer, 1953), and knowledge change generates social competences, such as intercultural dialog and interreligious dialog, as argued earlier. Thus, there is a capability from art to knowledge change that corresponds to the direction from emotional literacy toward the social competences of the practical design of MIL^{X} and vice versa, in relation to the usability from knowledge change toward art, which corresponds to the direction from social competences toward emotional literacy of the practical design of MIL^{X}.

Table 1. *Correspondences between MIL^{X} and emotional communication through art*

	Emotional communication on art	**Emotional communication on art with positive effects, institutions from MIL^{x} and media and digital platforms**
Media and information literacy	MIL	MIL^{x}
Capability from art to knowledge change	Direction from emotional literacy to social literacy	
Usability from knowledge change to art	From social competences to emotional literacy	

Emotional communication through art in a tsunami catastrophe area

Data shown in Appendix A (Hamada, Tsubaki, and Suzuki, 2020) were collected from a questionnaire from all elementary and junior high school students (11,029 youth and children, aged 5–15 years old), from Ishinomaki city, Japan within two years after the 2011 tsunami. A combination of factor analysis and text mining, shown in Appendix B (Hamada, Tsubaki and Suzuki, 2020), classifies the data and analyzes the paths between art and the youth/children's knowledge change. The analysis classifies 11,029 youth and children into 32 types, according to their correspondences with art, the people around them, and their positive emotions. The analysis of the youth and children in the non-tsunami area of Tokyo resulted in 16 types specific to the tsunami area (Hamada, Tsubaki, and Suzuki, 2020). Two models of Table 1, the MIL model of Figure 9 and the MIL^{X} model of Figure 10, are compared using the indicators of capability and usability. Art (music, manga, cartoon, or animation in Japan) and media (books and newspapers) are also compared.

Paths of MIL and MIL^{X} between art and youth and children's knowledge change

Art, youth/children's positive emotions, and their knowledge change of the following are considered the paths of MIL and MIL^{X} (Hamada, Grizzle, and Oyeleye, 2020).

Art: music, manga, painting, craft
Positive emotions: want to meet, want to talk, want to make people happy,
want to have gratitude, want to be useful, want to have fun,
want to have a hobby
Knowledge change: about family, about idol/heartthrob,
about contribute to peace, about interestedness,
about learning, about favorite things

The paths of MIL between art and youth/children's knowledge change, shown in Figure 11, is related to the paths of interiority of each youth and child without the people around them (Hamada, Grizzle and Oyeleye, 2020). The paths provide only music (as an art) and sports.

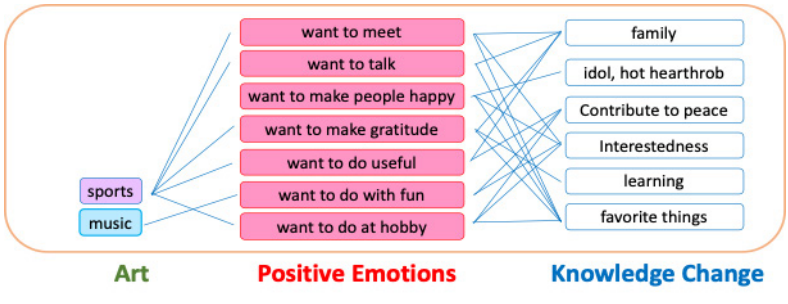

Figure 11. *Paths of MIL*

MIL^{X} expands the intra-paths outside each youth and child with the intra- and inter-relations of the people (Hamada, Grizzle and Oyeleye, 2020). The paths all have art, shown in Figure 12, and music as an intra-path; and music, manga, painting, and craft, as an inter-path.

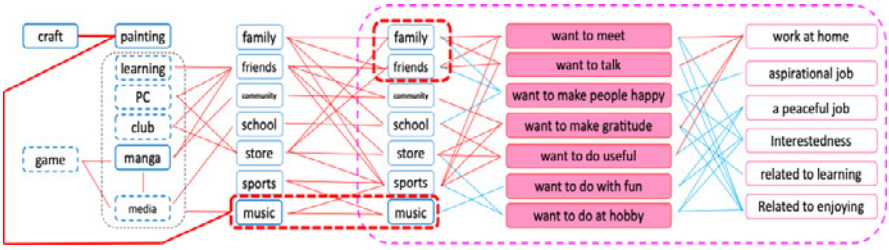

Figure 12. *Paths of MIL^X*

Capability of MIL and MIL^X

Table 2 compares the result of emotional communication through art on MIL and MIL^X and indicates the maximum capability, the sum of all capability, and all forward paths of MIL in Figure 11 and all forward paths of MIL^X in Figure 12 (Hamada and Grizzle, 2020). MIL generates a small capability, 9.0% by music, 0% by manga, and 10.7% by the media. MIL^X expands the capability with 61.2% by music, 75.5% by manga, and 30.6% by the media. By means of MIL^X, art makes extreme gains in capability when compared with the media. The combination of music and manga heightens capability from 9.0% by MIL to 95.8% by MIL^X; music and the media from 19.7% by MIL to 76.7% by MIL^X; manga and media from 10.7% by MIL to 100% by MIL^X; and music, manga, and media from 19.7% by MIL to 100% by MIL^X.

The deduction here that calls for further research is that emotional communication through art with MIL^X can extremely improve its effectiveness and amorphousness. In addition, the capability of MIL^X finds a synergistic effect on youth and children, their family, their friends, and institutions in the practical design shown in Figure 2.

Table 2. *Maximum capability of MIL and MIL^{X}*

	MIL	MIL^{X}
Music	9.00%	61.20%
Manga (cartoon)	0%	75.50%
Book & Newspaper	10.70%	30.60%
Music and Manga	9.0% (double routes 0%)	95.8% (double routes 49.3%)
Music and Book & Newspaper	19.7% (double routes 0%)	76.7% (double routes 4.7%)
Manga and Book & Newspaper	10.7% (double routes 0%)	100% (double routes 6.1%)
Music, Manga and Book & Newspaper	19.7% (double routs 0%) (triple routs 0%)	100% (double routs 55.3%) (triple routs 4.8%)

Usability of emotional communication through art

The usability paths of MIL in areas with little damage by the tsunami are shown in Figure 13 below. There is no connection from knowledge change to art. MIL^{X} can create usability with youth and children's intra-relations with their families and friends, as shown in Figure 14. The knowledge change regarding working at home can connect to art and interrelations via families and friends based on MIL^{X}.

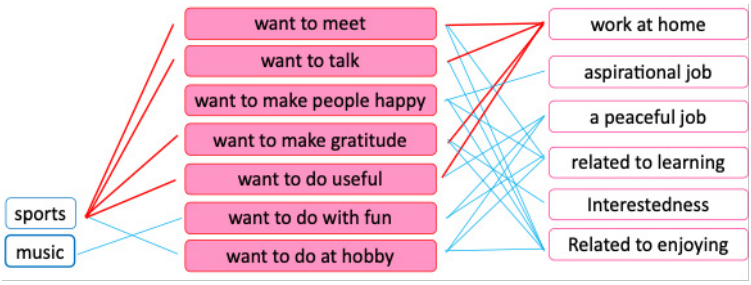

Figure 13. *Usability of MIL in areas with little damage*

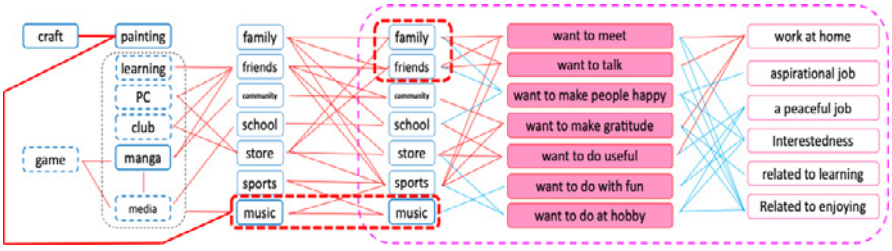

Figure 14. *Usability of MIL^X in areas with little damage*

The usability paths of MIL in areas with much damage, shown in Figure 15, have a connection to music from knowledge change. MIL^X can expand the usability in a way similar to that in areas with little damage. However, the youth/children's relations with their families and friends become their interrelations. The knowledge change can connect to music directly inside their intra-relations and connect to their interrelations via their families and friends by MIL^X (Figure 16).

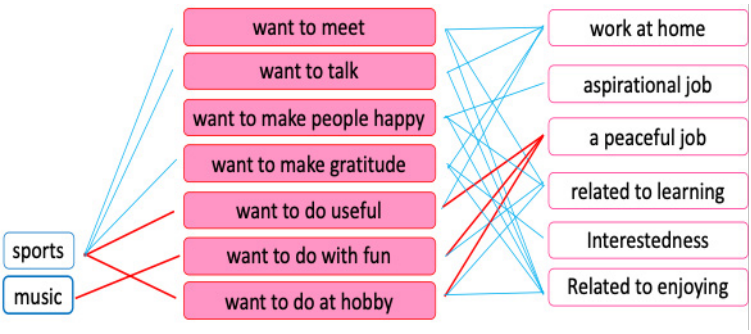

Figure 15. *Usability of MIL in areas with more damage*

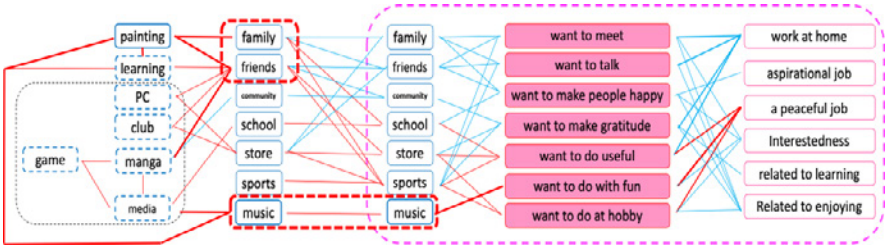

Figure 16. *Usability of MIL^{X} in areas with more damage*

Table 3 below compares the result of usability of emotional communication through art based on MIL and MIL^{X} and indicates the maximum usability, the sum of all usability, and all backward paths of MIL in Figure 13 and Figure 15, as well as all backward paths of MIL^{X} in Figure 14 and Figure 16. MIL generates small usability, only 20.0% by music in areas with much damage; MIL^{X} expands the maximum usability, up to 100%, with 56% areas with little damage; and 44% in areas with much more damage. The percentages are similar to those of youth and children in areas with much more physical damage, with 60% usability in areas with little damage and with 40% usability in areas with much more damage. Thus, MIL^{X} seems to spill over in relation to effectiveness, regardless of the physical damages.

It seems that emotional communication through art with MIL^{X} can significantly improve its effectiveness and amorphousness, which is the same as the capability. In addition, the usability of MIL^{X} finds synergistic effect among youth, children, their families, and their friends in the practical design shown in Figure 2, from social competences toward emotional literacy.

Table 3. *Maximum usability of MIL and MIL^{X}*

	MIL	MIL^{X}	Physial damage
In little damaged places	0%	56%	60% similar to non-Tsunami area, Tokyo
In much damaged places	20%	44%	40% With specific in Tsunami area, Ishinomaki
Total	20%	100%	100%

Conclusion

Our research question is how UNESCO #MIL City can bridge emotional literacy and social competences, such as psychological therapy, to create synergistic effects on individuals/groups/institutions. The empirical analysis of the 2011 tsunami area showed the possibility of using MIL^{X} to intervene in the relationships between positive emotions and knowledge change in youth and children in a #MIL City.

An interview with a therapist of refugee children in Caritas Luxembourg in October 2018 aided with exploring the different effects of art and media. The therapists used art, such as music and drawing, but did not use media, especially in the first series of events in the camps. This was on the basis that recovering children exploring emotions by communicating using familiar words was important for the refugee children. In what is similar to their experiences, our findings seem to suggest that art via MIL^{X} can provide significantly more opportunities to expand the capability and usability of youth and children's emotional communication than the media can because art, such as drawing and animation, can create the synergy effects among youth/children, their families, and their friends, based on MIL^{X}. We further explored the different culture and language barriers. Our practical design and theory explain how MIL^{X} can stimulate children's knowledge change. This allows children to expand their opportunities to obtain intercultural dialog as well as interreligious dialog.

Based on the data from youth and children's responses to the 2011 tsunami catastrophe area in Ishinomaki, Japan, the relation factor analysis (Appendix B), a quantitative analysis, can detect all the combinations of high factor loadings among art, children's positive emotions, and knowledge change. Therefore, the result of relations analysis means the maximum capability and maximum usability of the emotional communication through art without positive effectors, as in Figure 12 (Hamada, Tsubaki, and Suzuki, 2020).

Thus, the analysis by factor analysis is equivalent to the application for the ordinal MIL; its results are equivalent to those of the ordinal MIL.

The text mining, a qualitative analysis (Appendix B), can detect connections around the high factor scores of the factor analysis. Therefore, the relation analysis, combined factor analysis, and text mining, an analysis combining quantitative analysis and qualitative analysis, can detect all the combinations among art, positive effectors, children's positive emotions, and knowledge change. Therefore, the result of relationship analysis by factor analysis and text mining suggests the maximum capability and usability of emotional communication on art with positive effectors in Figure 14 (Hamada, Tsubaki and, Suzuki, 2020).

Thus, the analysis by factor analysis and text mining is equivalent to the application of MIL^{X}, and its results are equivalent to those of MIL^{X}.

The findings suggest that MIL^{X} can expand the capability and usability between emotions and art activities in youth and children even in unusual life. It could be one of UNESCO #MIL City's applications to aid emotional well-being in youth and children.

This article first shows the practical design of MIL^{X} as a theory of change to address disinformation and misinformation during our unusual life experiences, such as COVID-19. It then theorizes the emotional communication through art in a tsunami area. During unusual life experiences, the basic needs and psychological needs ought to be addressed simultaneously. The synergistic effects are resilient positive emotions among youth/children, their families, and their friends, which are important for our psychological needs.

Communication regarding achieving the SDGs has big gaps to address in respect of emotional communication. Incorporating emotional literacy or intelligence in MIL and MIL^{X} may strengthen our consideration toward the post-SDGs agenda. Much more research in this area is required.

Appendix A: Children's data in a city damaged by the tsunami in Japan (Hamada, Tsubaki, and Suzuki, 2020)

Oral inquiry

An oral inquiry survey, at one elementary school and one junior high school in an area damaged by the tsunami (Kesennuma City), finds some principal relationships of the children's positive emotions among the positive effectors and the children's interests in the library properties, as in Figure 21. This study focuses on the children's positive emotions, such as their future dreams in Figure 21 against the negative context of the tsunami catastrophe.

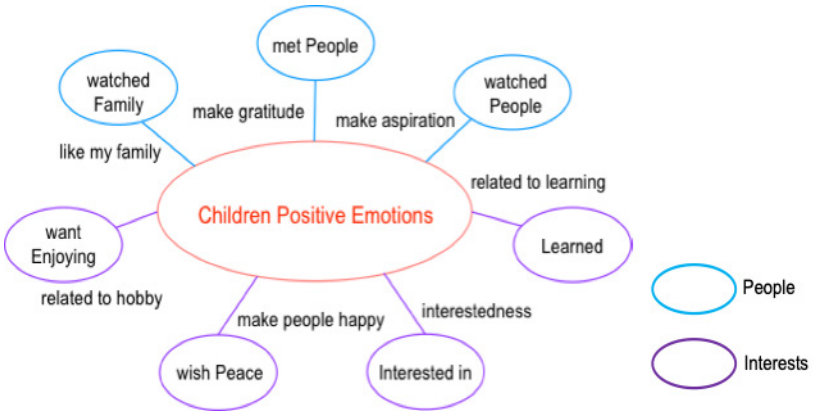

Figure 21. *Principal relations of the children's positive emotions*

Data collection

The data collection is summarized in Table 4. The data were collected by a questionnaire, which reflects oral inquiries. All the elementary and junior high schools in Isinomaki City, the area most damaged by the March 11, 2011, tsunami, were selected. The total number of children was 11,029 (42 elementary schools with N = 7,121; 21 junior high schools with N = 3,908) from 5 to 15 years old. To find the heterogeneity, specifically in the tsunami area, the children in non-tsunami area, (Tokyo) were selected. The number of children in Tokyo (N = 2108), Choufu City, and Tachikawa City, is reliable, with less than 3% error at 95% reliability. The data were collected by the questionnaire within two years after the tsunami.

Table 4. *Data collection*

Who was surveyed	All 11,029 pupils in Ishinomaki's elementary and junior high schools in a Tsunami area 7,121 pupils in 42 elementary schools, 3,908 pupils in 21 junior high schools 1,124 pupils in an elementary and a junior high school in Chofu City, Tokyo as non-Tsunami area 624 pupils in 1 elementary school, 500 pupils in 1 junior high school 984 pupils in an elementary and a junior high school in Tachikawa City, Tokyo as non-Tsunami area 522 pupils in 1 elementary school, 462 pupils in 1 junior high school
When the survey was conducted	Ishinomaki City: February–March 2013 Chofu City: August–September 2013 Tachikawa City: September–October 2013
How the survey was conducted	Surveys were distributed in class, filled out and collected
How the survey was answered	Free writing and a 5-point Likert-type scale
Survey categories	① Future dreams (7 questions) ② Why are they your dreams? (8 questions) ③ How long have you had those dreams? (7 questions) ④ When do you feel good? (5 questions) ⑤ How do you normally spend your time? (13 questions) ⑥ What do you do while watching TV? (7 questions) ⑦ Why do you watch TV? (9 questions) ⑧ What media do you use the most? (8 questions)

Appendix B: Relation analysis combining quantitative analysis with qualitative analysis
(Hamada, Tsubaki and Suzuki, 2020)

An image of relation analysis combining quantitative analysis with qualitative analysis

As shown in Figure 22, the input of the relationship analysis is a multi-point, Likert-type scale question, and the output is the people group classified by services', such as library services, usage. The relationship analysis, such as that on usage based on factor loading of multiple-choice variables in quantitative analysis, classifies the people and the services. This study classifies the children's positive emotions, the people, and the library services by combining text mining with factor loading and combining qualitative and quantitative analyses.

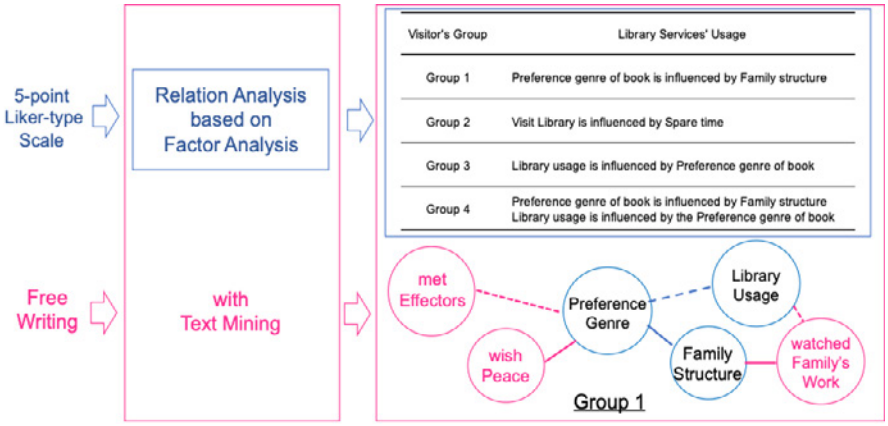

Figure 22. *An image of relation analysis combining quantitative analysis with qualitative analysis*

Relation analysis by factor analysis

Fabrigar and Wegener (2012) used the principal method, promax rotation, and parallel analysis criteria on factor analysis. The relation analysis of Haraga, Tsubaki, and Suzuki (2014) is based on the factor analysis to classify the people in the services. This study conducts a factor analysis and relation analysis by comparing the children at two separate areas of the tsunami area—Ishinomaki and the non-tsunami area in Tokyo. The classification is proceeded by five steps, as shown in Figure 23 (Haraga, Tsubaki and Suzuki, 2014).

1. Grasp the structure of data:

First, we grasp the data structure by basic statistics.

2. Extraction of latent factors:

Next, we carry out the factor analysis for the repeat data at two time points and understand the relationship structure of the children's positive emotions among their interests in the library properties and the people around them.

3. Classification of children into several types:

We perform the factor loading based on the factor score and classify the positive emotions into several types for the repeat data at two time points.

4. Grasp the relationship between the objective variable and the explanatory variable factors:

We grasp the relationships between the objective variable and the explanatory variable factors by modeling the structural equation for the repeat data at two time points.

5. Extraction of latent factors:

We analyze the relationships by the type of the children's positive emotions, comparing the conditional probability distributions of the objective variable with the preconditions of the ordered or categorical explanatory variables by type and extract the feedback proposal about the children's positive emotions by type.

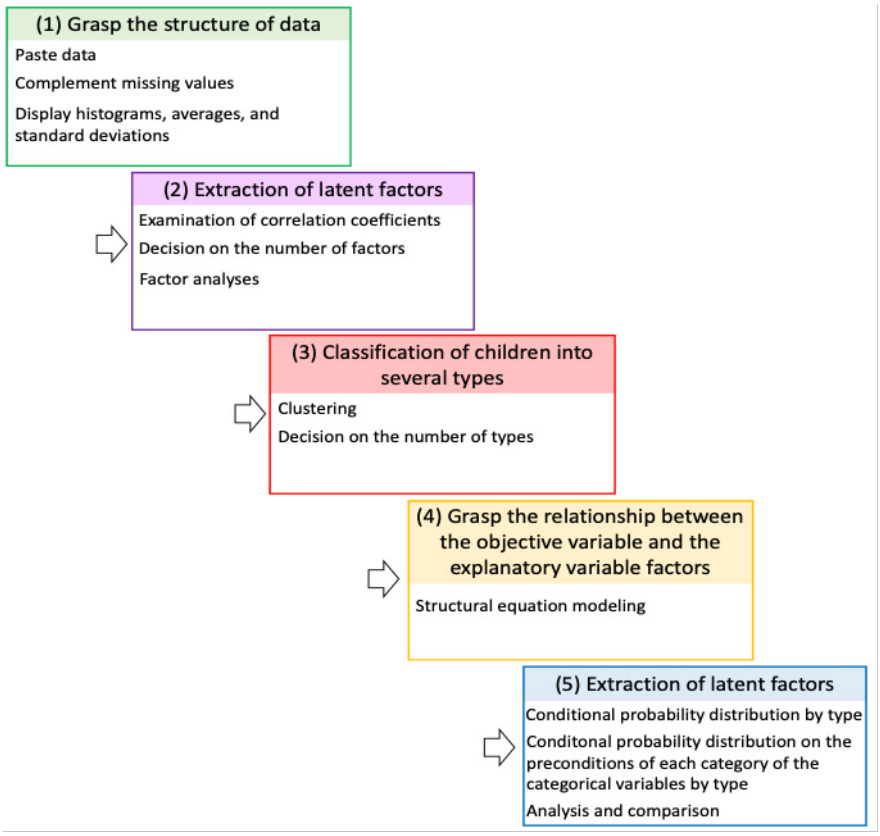

Figure 23. *Relation analysis by factor analysis*

(Haraga, Tsubaki and Suzuki, 2014) analyze the data under the same conditions of Miyamoto and Tsubaki (2018). The analysis reduces variables in which the factor loading is less than 0.4 and more than 0.4 in two factors and repeats the factor analysis until each variable's factor loading becomes more than 0.4 in one factor.

The number of factors is decided by a point where the eigenvalue and the parallel analysis become almost same with an adequate contribution ratio. As an example, in Table 5, the number is 12. The names of the 12 factors and the factor loading are shown in Tables 6 and 7, respectively, as examples.

The classification of children is according to the factor loading. This study shall analyze the types of children and the similarities and differences among their positive emotions, their interests, and the people around them. Based on the factor score, the pupils were clustered using the Ward method and divided into types. Figure 24 indicates the number of pupils and the average value of the factor score when there is an example of four clusters, five clusters, and six clusters. In this study, groupings that result from clustering are called "groups," while "type" expresses that which is particular to each individual group. Moreover, each group was assessed as being "high," "medium," or "low" based on the size of the type's average of the factor score values, which is referred to when defining the number of clusters. This assessment was conducted as presented below.

f_{im} is the average value of a factor's score, with factor m ($m = 1, \ldots, M$) for group i ($i = 1, \ldots, k$), where M is the number of factor and k is the number of groups, then

- For groups assessed as "high": $f_{im} \geq 0.5$
- For groups assessed as "medium": $-0.5 \leq f_{im} < 0.5$
- For groups assessed as "low": $f_{im} < -0.5$

According to standard normal distribution, approximately 40% of the assessments fell between 0.5 and −0.5, while approximately 30% fell both above and below these values. Before the categorization of the types, the distribution of factor scores in the sample as a whole was examined using standard normal distribution and the averages were evaluated.

Table 5. *An example of eigenvalues, parallel analysis, cumulative contribution ratio*

	Eigenvalue	Parallel analysis	Contribution ratio	Cumulative contribution ratio
Factor 1	9.551	1.388	14.9	14.9
Factor 2	4.189	1.356	4.9	21.5
Factor 3	3.138	1.337	3.9	26.4
Factor 4	2.489	1.32	3.0	30.3
Factor 5	1.971	1.302	3.0	33.3
Factor 6	1.922	1.285	2.7	36.3
Factor 7	1.721	1.273	2.4	39.0
Factor 8	1.486	1.257	2.1	41.4
Factor 9	1.403	1.243	2.1	43.5
Factor 10	1.332	1.229	2.0	45.6
Factor 11	1.275	1.216	1.9	47.6
Factor 12	1.219	1.202	1.8	49.5
Factor 13	1.146	1.191	1.8	51.3
Factor 14	1.121	1.178	1.6	53.1
Factor 15	1.033	1.169	1.5	54.7

Table 6. *The names of the 12 factors of Table 5*

Factor	Factor Name
Factor 1	Interested in relations with people and enjoying themselves
Factor 2	Interested in relations with family, study and homework
Factor 3	Duration dream has been held
Factor 4	Listening to music and using their mobile phones
Factor 5	Interest in TV
Factor 6	Interest in computer games
Factor 7	Computer use
Factor 8	Activities while watching TV
Factor 9	Learning or club activities
Factor 10	Interest in reading
Factor 11	Interest in the news
Factor 12	Relationships with friends and activities outside the house

Table 7. *Factor Loading of Table 6*

	factor 1	factor 2	factor 3	factor 4	factor 5	factor 6	factor 7	factor 8	factor 9	factor 10	factor 11	factor 12
I'd like to work at home	0.171	0.497	0.009	0.093	0.22	0.047	0.009	0.006	0.016	0.029	0.043	0.114
I'd like a job where I meet people	0.206	0.345	0.053	0.024	0.081	0.046	0.025	0.068	0	0.034	0.015	0.177
I'd like an aspirational job	0.457	0.127	0.003	0.112	0.112	0.003	0.004	0.079	0.011	0.025	0.056	0.007
I'd like a peaceful job	0.424	0.062	0.12	0.103	0.026	0.107	0.025	0.047	0.016	0.02	0.025	0.114
I'd like a job related to learning something	0.226	0.26	0.055	0.049	0.057	0.009	0.02	0.046	0.247	0.151	0.02	0.246
I'd like a job where I am interested in something	0.529	0.148	0.045	0.11	0.045	0.024	0.007	0.009	0.081	0.122	0.011	0.221
I'd like a job related to something I enjoy	0.349	0.132	0.055	0.185	0.121	0.078	0.029	0.063	0.005	0.037	0.081	0.049
I like meeting people	0.535	0.164	0.013	0.061	0.004	0.071	0.027	0.12	0.008	0.093	0.051	0.183
I like talking to people	0.604	0.063	0.02	0.113	0.001	0.084	0.003	0.143	0.01	0.021	0.014	0.252
I like enjoying myself	0.611	0.088	0.086	0.006	0.066	0.035	0.017	0.031	0.001	0.03	0.044	0.17
I like to be useful	0.511	0.12	0.101	0.033	0.032	0.039	0.048	0.008	0.025	0.009	0.126	0.056
I like being proud of what I do	0.54	0.003	0.076	0.053	0.03	0.038	0.041	0.003	0.107	0.065	0.081	0.075
I'd like to be in the news headlines	0.239	0.095	0.014	0.001	0.064	0.078	0.017	0.01	0.098	0.014	0.598	0.007
I'd like to give something back	0.508	0.088	0.022	0.008	0.001	0.055	0.013	0.011	0.05	0.045	0.103	0.012
I'd like to brighten people's lives	0.585	0.126	0.003	0.064	0.006	0.082	0.012	0.013	0.051	0.041	0.035	0.098
With my family	0.002	0.505	0.069	0.057	0.099	0.076	0.022	0.063	0.001	0.034	0.002	0.114
With my friends	0.055	0.125	0.03	0.027	0.001	0.087	0.055	0.05	0.296	0.028	0.072	0.296
Doing something with the neighbours	0.103	0.261	0.163	0.044	0.056	0.017	0.028	0.05	0.302	0.075	0.071	0.097
Shopping	0.006	0.36	0.063	0.107	0.015	0.083	0.042	0.025	0.208	0.115	0.115	0.2
Playing computer games	0.066	0.058	0.057	0.023	0.053	0.803	0.01	0.042	0.033	0.045	0.069	0.083
Using the computer	0.011	0.027	0.024	0.006	0.049	0.03	0.848	0.028	0.055	0.021	0.004	0.06
Doing my homework or studying	0.041	0.553	0.174	0.091	0.06	0.098	0.002	0.116	0.081	0.106	0.029	0.006
Listening to music or playing an instrument	0.023	0.108	0.106	0.609	0.09	0.018	0.047	0.028	0.147	0.127	0.014	0.006
Learning something	0.046	0.228	0.035	0.024	0.052	0.07	0.067	0.06	0.467	0.016	0.078	0.046
Club activities	0.098	0.017	0.061	0.121	0.046	0.031	0.038	0.025	0.588	0.038	0.07	0.041
Playing sports	0.093	0.022	0.015	0.021	0.088	0.002	0.065	0.012	0.69	0.029	0.007	0.002
Reading manga (cartoon)	0.033	0.135	0.009	0.053	0.114	0.101	0.022	0.064	0.146	0.465	0.068	0.027
Reading novels or newspapers	0.019	0.146	0.018	0.017	0.122	0.085	0.051	0.033	0.058	0.735	0.097	0.011

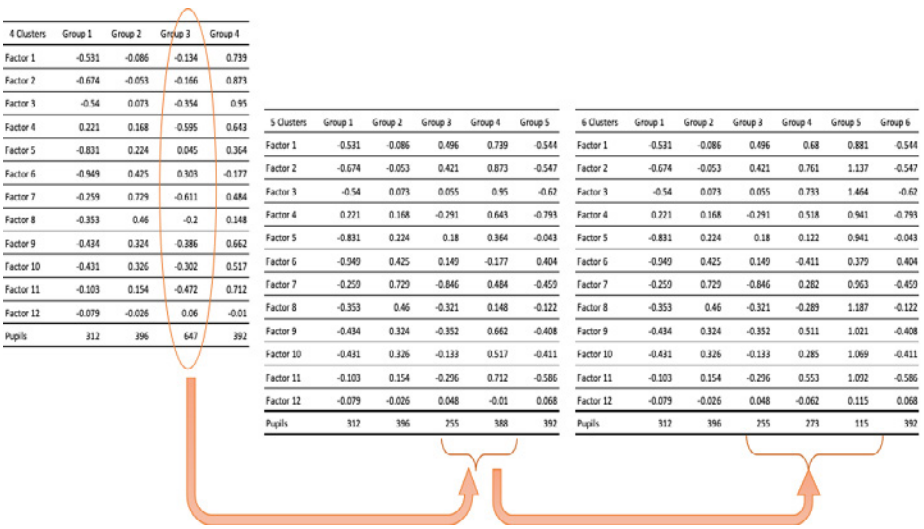

Figure 24. *An example of the classification*

Relation analysis by factor analysis and text mining

The text mining can find the relationship, as in Figure 25, where black nodes denote high-frequency words; red nodes indicate low-frequency words strongly linked with black nodes; green-circled nodes indicate nodes often co-occurring with other nodes or keywords; black links signify links joining nodes with significant co-occurrence; and red-dashed links denote columns linking nodes, etc., with significant connections not located in the section linked in black.
Red nodes are low-frequency words but are strongly linked to black nodes, which indicate a potential factor or chance, while green-circled nodes are keywords.

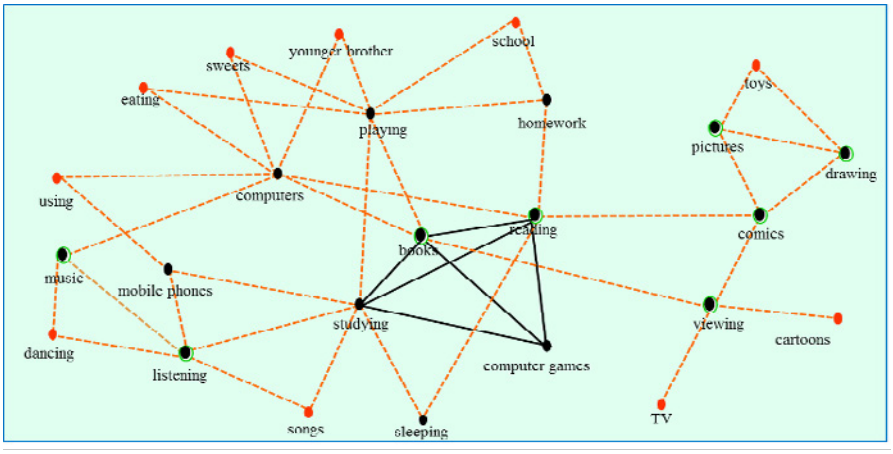

Figure 25. *An example of the relations classified by text mining*

The combination of factor loading and text mining has an opportunity to find the relationships among the children's positive emotions, their interests in the library's properties, and the people around the children. The classification is according to four processes, as in Figure 26:

1. Grasp the structure of data:

First, we grasp the data structure by basic statistics.

2. Extraction of latent factors:

Next, we carry out the factor analysis for the repeat data at two time points and understand the relationship structure of the children's positive emotions among their interests in the library properties and the people around them.

3. Classification of children into several types:

We perform the factor loading based on the factor score and classify the positive emotions into several types for the repeat data at two time points.

4. Connect free writing data to the children's interests by text mining:

A text mining tool, such as KeyGraph, analyzes the free writing entries after classifying students into types as a means of examining the characteristics and differences for each category. Thus, both quantitative and qualitative outputs are combined by this relation analysis.

The differences from the factor loading in Figure 23 are the steps shortened from five steps to four steps, with free writing data to the children's interests by text mining. The others, from Step 1. to Step 3., are the exact same procedures.

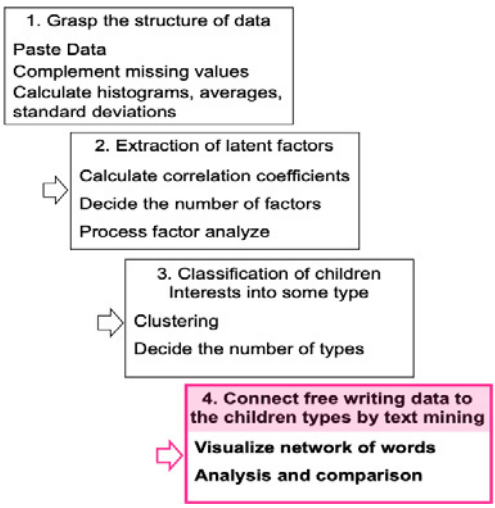

Figure 26. *Relation analysis by factor loading and text mining*

Application of MIL and MIL^{x}

The relation analysis by factor analysis, a quantitative analysis, can detect all the combinations of high factor loadings among art, children's positive emotions, and knowledge change. Therefore, the result of the relation analysis indicates the maximum capability and maximum usability of the emotional communication through art without positive effectors, as in Figure 12 (Hamada, Tsubaki and Suzuki, 2020).

Thus, the analysis by factor analysis is equivalent to the application for ordinal MIL, and its results are equivalent to those of ordinal MIL.

The text mining, a qualitative analysis, can detect connections around the high factor scores of the factor analysis. Therefore, the relation analysis, combined factor analysis, and text mining, an analysis combined quantitative analysis and qualitative analysis, can detect all the combinations among art, positive effectors, children's positive emotions, and knowledge change. Therefore, the result of relationship analysis by factor analysis and text mining indicates the maximum capability and usability of emotional communication through art with positive effectors, as in Figure 14 (Hamada, Tsubaki and Suzuki, 2020).

Thus, the analysis by factor analysis and text mining is equivalent to the application of MIL^{X}, and its results are equivalent to those of MIL^{X}.

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Data Literacy in the Smart City: Why Smart Cities Should be Populated by MIL Citizens

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Abstract

Smart Cities typify the current and future data-rich environments. In these types of environments, technology and the analysis of vast data facilitate more intelligent choices and actions—largely automated using algorithms and artificial intelligence—related to mobility, security, energy use, culture, markets, etc. (Ballon, van der Graaf, & Walravens, 2017). A discussion on the necessity of data literacy has emerged from debates on datafication, big data, open data, artificial intelligence, and algorithms. The question, however, lies on the relation between media and data literacy. In this contribution, we reflect on aspects of data literacy by examining the literature on smart cities and data in smart cities. We argue that smart cities are not automatically media and information-literate cities. Furthermore, smart cities can only become media and information-literate cities by actively developing an open data context, involving citizens in data projects, empowering civil society participation, and stimulating data literacy in a broad sense.

Keywords: data literacy; Smart Cities; big data; digital turn; algorithms.

We live in an "age of data" (Bhargava et al., 2015), where everything surrounding us is linked to data sources, and our lives are captured digitally (Mojsilovic, 2018). "[T]he physical world around us has turned into raw information: Internet, video, call data records, customer transactions, healthcare records, news, literature, scientific publications, economic data, weather data, geo-spatial data, stock market data, city and government records" (Mojsilovic, 2018). A discussion has begun around the necessity of data literacy from debates on datafication, big data, open data, artificial intelligence, and algorithms This new discussion resonates with former debates on digital literacy during the digital turn and with current debates on algorithmic literacy (Oldridge, 2017), big data literacy (D'Ignazio & Bhargava, 2015), and coding literacy (Vee, 2017). We prefer the term "data literacy" because the data are the defining element in algorithms, artificial intelligence, deep learning, and platforms.
The "age of data" presents new challenges for media and information literacy scholarly community. On the one hand, some datafication processes are clearly situated in the field of media, such as search engines, recommendation engines, personalization of news, and the datafication of the user. On the other hand, some of these data-driven evolutions are situated in other fields, such as smart cities, smart environments, and data-based decision-making processes and policies. This evolution provides new opportunities but is also accompanied with possible risks, both within the media (such as filter bubbles and fake news) and in society(such as social sorting and digital exclusion mechanisms). Thus, the questions are as follows: what is the relation between media and data literacies? Are current models for media literacy sufficient to understand data literacy? What are their similarities and differences? How can we adapt existing models and frameworks to integrate data literacy?
In this contribution, we do not provide answers to all the questions. However, by considering the literature on smart cities and data in smart cities, we examine issues of data literacy. Precisely, why do we discuss data literacy in the smart city context? Should all citizens be data literate? In principle, the answer would be *yes*. However, some compelling arguments to consider on data literacy in the city context as follows:

1. Many medium- to large-sized cities are engaged in processes that encourage smart cities, which comprise technologies that result in time-sensitive, person-related, and location-based data that can be used by the city and its citizens. These data are gathered using sensors, tags, actuators, cameras, beacons, smartphones, wearables, and their associated apps, systems and applications (Ballon et al., 2017). These new technologies are referred to as *smart* because their use and the combination and analysis of all the data supposedly enables more intelligent choices and actions—both at the individual level (by citizens) and at the collective level (by companies and city governments)—related to mobility, security, energy use, culture, and markets at the city level (Ballon et al., 2017)

2. Cities harbor dense urban spaces that tend to generate denser and richer data than peri-urban and rural areas. Cities tend to contain more sophisticated infrastructures, sensors, and data points for data collection. Thus, it is logical that cities will be first movers in terms of digital and smart systems and processes.
3. Smart Cities and other cities are typically more engaged in open data projects, which provide citizens and intermediaries access to open datasets, allowing them to engage in data-driven policy preparation, advocacy, or protest.
4. Citizens might be more willing to engage politically—in the broad sense of the term—at the city level than at the national level.

In other words, smart cities make a good context to reflect on aspects of data literacy. Subsequently, we 1) map the current discussions on data literacy, 2) critically analyze the perceived goals of data literacy, 3) discuss three visions on the smart city, 4) examine the role of data in smart cities, 5) present a data literacy competence model, and 6) draw conclusions related to data literacy in the smart city.

Current Discussions on Data Literacy

The discussion on data literacy is only recent and certainly not as *mature* as those on media or information literacies. We should, therefore, be cautious of exaggerated reports of data literacy as promoted by certain think tanks and consultants. More so, the concept still remains unclear and has obvious associations with other *upcoming* literacies, such as algorithmic literacy (Oldridge, 2017), coding literacy (Vee, 2017), and big data literacy (D'Ignazio & Bhargava, 2015), as well as *established* literacies, such as numeracy and statistical literacies. We should carefully consider the boundaries of these types of literacies and their connection to media and information literacy. We begin by discussing the current definitions of data literacy. The Data-Pop Alliance defines data literacy as "the desire and ability to constructively engage in society through and about data (Bhargava et al., 2015)." This is a high-level definition that excels at indicating two basic components of data literacy: *using data* and *understanding data*. This is consistent with many definitions and competence models on media literacy (Van Audenhove et al., 2018). Numerous studies related to data literacy tend to focus on technical, computational, and statistical competences for working with datasets, referred to as *using data* (Gray et al., 2018). For instance, Prado & Marzel (2013) define data literacy as "(…) the component of information literacy that enables individuals to access, interpret, critically assess, manage, handle

and ethically use data." Only a few studies have examined the role of data in society, the social construction of data, and the related biases. The Education Development Center defines that "The data literate individual understands, explains, and documents the utility and limitations of data by becoming a critical consumer of data, controlling his/her personal data (Oceans of Data Institute, 2016)." This definition, which initially lies between the concepts of *understanding data* and *using data*, proceeds to focus on competences for *using data:* "(He/she) can identify, collect, evaluate, analyze, interpret, present and protect data (Oceans of Data Institute, 2016)." Gray et al. (2018) focused on *understanding data* and proposed the concept of *data infrastructure literacy* "in order to both conceptualize and encourage critical inquiry, imagination, intervention and public experimentation around the infrastructures through which data is created, used and shared. Through this notion, we hope to suggest ways in which literacy initiatives might broaden their aspirations beyond data as an informational resource to be effectively utilized, by looking at how data infrastructures materially organize and instantiate relations between people, things, perspectives and technologies (Gray et al., 2018)." Knaus (2019), in a special data literacy issue of the *Journal of Media Literacy Education* argues similarly, calling for a critical media literacy in relation to data and technology, that moves beyond "(…) the 'outer shell' of machines—their interfaces—through to the technology itself and the data and algorithms which make it function" (Knaus, 2019).

The Goals of Data Literacy

In the literature, multiple reasons are provided for the need to invest in data literacy. In several works on open data, data literacy is regarded as a means of augmenting the impact of open data available to citizens (Boychuk et al., 2016; Frank & Walker, 2016), which is an instrumental view. Frank and Walker (2016), for instance, state that "(…) without data literacy, the impact of open data would be substantially reduced." These authors apparently question the feasibility of reaching sufficient levels of data literacy among the general population to engage with open data. The authors wonder whether *awareness by all* and *specific skills by experts* are the way forward (Frank & Walker, 2016). Others recommend that governments prepare datasets and translate data for citizen involvement (Boychuk et al., 2016). Wolf et al. (2017) opine that data literacy should be part of everyday thinking and reasoning for solving real-world problems. These problems can be tackled by using data as evidence, tool for innovation, and job opportunity. In terms of innovation, Wolf et al. (2017) specifically refer to open data and smart cities, stating that "in bottom-up smart cities, citizens are drivers for change, better placed for understanding

their own local problems and proposing solutions that take citizens needs fully into account."

The current discussion is flawed by underlying assumptions that need further questioning, scrutiny, and tests. We briefly describe the assumptions in this section and address them further when discussing the role of data in the city context.

1. Several accounts on data literacy contain an inherent assumption that strengthening data skills and competences in terms of *using data* will automatically lead to a critical understanding of data as well as its role in different sectors and society (that is, *understanding data*). Similar views are held by some media-literacy authors (Van Audenhove et al., 2018). The idea is that *making media* leads to a better understanding of how media operate and its possible effects.
2. Numerous accounts on data literacy are premised on data being available, open, accessible, and free. In other words, data are available, and users with the skills to *read data, work with data, analyze data*, and *argue with data* (Bhargava et al., 2015) can exploit the data for personal gain or to change society politically.
3. Some accounts of data literacy reflect on the possible biases in datasets as well as in data collection and usage, or they consider possible risks of datafication, big data, and a data-driven society. These accounts apparently assume that citizens find it easy to recognize, uncover, and understand the biases and risks.
4. All accounts highlighted so far are based on a Western democratic philosophy, which relays that citizens can actively engage in civic processes in general and through and with data more specifically.

The Smart City

The smart city has multiple conceptualizations, and we begin by discussing two extreme perspectives before discussing a more integrated perspective. The first perspective is the technology-determined top-down approach. This perspective begins from the idea of a "control room" for the city, from which all urban activities are monitored and optimized (Hall, 2008). An Information and Communication Technologies (ICT)-based architecture in the city gathers vast amounts of data that form the basis of calculations, visualizations, and predictions (Campkin & Ross, 2013). This perspective has high economic prospects. Different services and infrastructure systems can be managed from one central hub that oversees several aspects of life in the city. Major IT companies (e.g., Cisco, IBM, Siemens) and municipalities around

the world are exploring the possibilities of this approach (Townsend, 2013). Similar top-down visions have been criticized, the main argument being that they are driven by commercial interests while raising questions of control and privacy (Hollands, 2008; Kithchin & Dodge, 2011). Citizens are often unaware of the data gathered and the purpose for the gathering because decision-making processes based on these data are often untransparent for citizens and users of the systems.

The second perspective is the bottom-up approach. In this perspective, change and improvement proceed only from the people *using* the city. This perspective dismisses forms of top-down urbanization, particularly with the involvement of powerful private companies. The bottom-up smart city is, foremost, about the Smart Citizens: those who live, work, and engage in all kinds of activities in the city. Hence, rather than working toward centralization, this view adopts a distributed approach (De la Peña, 2013). While these characteristics have a positive impact on the local scale, they often conflict with the objectives of decision-makers, urban-planners, and the dynamics of the globalized economy. Chaotic bottom-up processes oppose the idea of a master plan: an "ideal" state of place. Here, the smart city is not defined by the infrastructures or architecture it offers but by the ways in which its citizens interact with these systems and with one other. However, relying solely on bottom-up initiatives remains problematic with regards to scalability, regulation, interoperability, barriers, and incentives to entry.

While both smart city perspectives have their merits, they are each flawed with certain characteristics: "Change seldom arises from purely top-down or bottom-up systems and processes" (Shepard & Simeti, 2013). A more integrated perspective is one that combines both top-down and bottom-up approaches: this perspective establishes the smart city as a platform that fosters a collective (local) intelligence of all affected stakeholders. After all, cities essentially constitute shared responsibility and resources (Campkin & Ross, 2013). Hence, we consider the smart city as a meeting place where the public sector, private interest, and citizens converge to generate new value, collaborate, and innovate, an idea that has also been referred to as the triple helix (private sector, government, and university actors) or quadruple helix (including citizens, the public, or the user, depending on the formulation) (Leydesdorff & Deakin, 2011). Smart Cities can only succeed if they act as local innovation platforms that bring together all involved stakeholders (Shepard & Simeti, 2013). The *government as a platform* (O'Reilly, 2011) is the intermediary: the enabler of multiple interactions among actors who have similar interests or needs. Public service delivery through such a reciprocal relationship between all stakeholders is a promising view for developing truly *smart cities* (Camponeschi, 2011). This type of collaboration also assumes a deep understanding of the data collected, used, interpreted, shared, and opened up for such an ecosystem to achieve sustainable results; this is where a more profound data literacy becomes important.

Data in the Smart City

An aspect deemed particularly important to "smarter" forms of governance is open data (Schaffers et al., 2011; Townsend, 2013). The idea is that governments possess a vast amount of information related to several aspects of life in the city, but these data are neither public nor easily interpretable. This has stirred a movement to encourage the opening of datasets in structured and machine-readable ways (under the "open data" coinage), which has gained significant attraction across local and national governments. The Open Knowledge Foundation is a strong proponent of this view and has come up with a generally accepted definition: "Open means anyone can freely access, use, modify and share for any purpose (subject, at most, to requirements that preserve provenance and openness)" (Open Knowledge Foundation, 2015). Thus, open data can be used for any goal at no cost with the exception that re-users credit the data source or do not in any way hinder the further sharing of the data.

In practice, however, a few challenges remain, and "merely" making data open has seldom proven successful (Lee et al., 2014; Peled, 2011). Making data open already poses considerable challenges for governments and public organizations before any data *leaves* the organization. Examples of these challenges include establishing internal processes to safeguard internal data hygiene, quality control, or implementation of new database systems or updating of existing ones. Relevant data can be distributed to different government organizations or levels of governance in different formats. This raises further challenges in combining the data into larger datasets for governments and citizens.

A substantial amount of data at the city level will most likely be gathered by private companies, as part of their own business within cities or as part of the tasks they execute for governments. Thus, some data may be under the control of private stakeholders who are generally less inclined to open the data up to the public. Höchtl et al. (2016) notes that data-driven policy making is prone to bias as most data-driven decision-making processes stem from industry, which has distinct needs and wants compared with the public sector. Therefore, there should always be a critical questioning of whether data-processing operations reflect the interests of the data owner and the public.

Vast amounts of data—even within public spaces—are automatically collected without the explicit consent of users. The big question is to what extent citizens are aware of data being gathered by automated processes at the city level. It is reasonable that automated data collection is more challenging for data literacy than consensual data collection. This is because automated data collection methods are less transparent and visible; thus, they are more difficult to grasp and understand by the population in general.

Data Literacy Competence Model

The smart cities discussions above demonstrate that the role of data in smart cities is highly complex, largely invisible, and, therefore, difficult to grasp. The role of data in society is not directly observable, neither at the level of data collection and processing, nor at the level of outcomes and impacts. In this sense, data literacy differs from media literacy. The outcome of the media is observable by the senses and directly visible or audible; the outcome of data is often not directly observable, and the data is inaccessible to citizens in numerous cases. Merely learning how to *use data* is insufficient to raise questions about who is collecting what data, for what use, and with what possible effects. This type of questions, knowledge, and the methods for uncovering data processes lie outside the spectrum of *using data* but reside within the humanities and social sciences fields while being less connected to the statistics, technology, and data science fields. Thus, we support the increased attention on data literacy but warn against current overemphasis on *using data*:

- the assumption that *using data* automatically leads to *understanding data* should be questioned and further investigated;
- the assumption that all citizens can and will acquire high levels of data literacy in terms of *using data* should also be questioned;
- it is reasonable to explore a more nuanced approach of viewing different levels of data literacy (who needs what levels of *data literacy* in terms of *using data* and *understanding data?*);
- we thus strongly argue for a competence framework that combines *using* and *understanding* data while placing them on an equal footing.

A similar model was recently developed by the Flemish Knowledge Centre for Media Literacy. The model comprises two major competence clusters: *using data* and *understanding data* (Mediawijs, 2020a). Competences refer to the knowledge, skills, and attitudes that allow individuals to act adequately in a given situation (Mediawijs, 2020b). The competence clusters are defined in more detail below.

- *Using data* (the knowledge, skills, and attitudes to use data actively and creatively)
  - interpreting: being able to read a graph, table, or list of data and understand what they mean;
  - navigating: finding one's way through a collection of data types and their processing methods while being able to extract the message of interest;
  - collecting: being able to establish a raw data collection process and organize a corresponding analysis; and

  - presenting: being able to present and visualize the results of a well-targeted data analysis to a an audience.
- *Understanding data*: (the knowledge, skills, and attitudes to critically and consciously assess the role of data)
  - observing: being able to observe how data is communicated and used;
  - analyzing: being able to analyze the individual and social consequences of the way in which data is communicated and used;
  - evaluating: being able to evaluate whether those consequences are harmful or constructive; and
  - reflecting: being able to reflect on adjusting how you and others communicate and use data, to minimize the harmful consequences.

Figure 1. *Data Literacy Competence Model (DLCM)*

The cluster of competences for *using data* is more practical than *understanding data*. However, it breaks with the view, promoted by many data literacy researchers, that data literacy begins by identifying a problem to which data analysis is the answer. The model of the Knowledge Centre follows the levels of literacy in relation to data. The model starts with the questions: Can I read data? Can I navigate types of data? Can I organize data to analytically understand them? Can I collect and work on existing and new data? Can I present and communicate those data? Therefore, the

sub-competences are 1) interpreting, 2) navigating, 3) collecting, and 4) presenting. In this model, collecting and actively working with data is not presented as the most valuable or pressing competence. The cluster of competences for *understanding data* is more oriented toward the critical and conscious understanding of data's role in society and individual lives. It is subdivided into 1) observing, 2) analyzing, 3) evaluating, and 4) reflecting.

Conclusion

Smart Cities exemplify the data-rich environments that people live in over time. In these types of environments, technology and the analysis of large data collected provides more intelligent choices and actions—largely automated using algorithms and artificial intelligence—related to mobility, security, energy use, culture, markets, etc. (Ballon et al., 2017). Many of these processes are highly complex and invisible. Yet, some studies on data literacy—and on smart cities—assume that these data will be readily accessible to citizens who will be able to *use the data* actively. We have argued that this may not be the case: not all data gathered at the city level are open source or collected by government. In other words, smart cities are not automatically media and information literate cities. Even if access to data would be warranted, its complex nature makes working with them exclusive to some people. This is the reason why the DLCM begins with *interpreting data* as the basic competence in *using data.*

Thus, it is important for citizens to also *understand* what is going on in their city, how algorithms steer their behavior, and how automated decision-making systems limit—or extend—their choices. Citizens can be navigated through the city or recommended to visit cultural events. Understanding how these systems operate and being able to question their outcomes makes citizens more resilient against biased processes. In the end, *understanding data* should help citizens to keep city planners and local politicians accountable for how these technologies influence their cities. This also implies that cities should be as open and transparent as possible on what technology is used, for what, and how? What data are collected in what form? In addition, cities should work toward open data systems that are easily accessible and allow citizens—and civil society—access and use. Only by developing an active open data context, involving citizens in data projects, empowering civil society participation, and stimulating data literacy in a broad sense will smart cities become media and information literate cities.

We have presented the DLCM, which balances the competences of *using data* and *understanding data*. We have argued that this competence model does not

place *collecting* and *actively working with data* at its core but starts with the basic competences of being able to *read* or *interpret data*. We believe this to be a more realistic approach to enhance *data literacy*. As with all competence models, this model is ideal and typical; it concedes that not all citizens will achieve high levels of competences for all sub-competences. Perhaps *actively working with data* might be a more difficult competence in the model. It is also impracticable to shift an entire population to high levels of literacy on all the sub-competences. The goal, however, should be to augment the general level of data literacy throughout society through educational initiatives.

As media literacy is introduced at all levels of education, data literacy should become part of primary, secondary (see Wolff et al., 2017), and tertiary education (see Carlson & Stowell Bracke, 2015; Csernoch & Biró, 2015; MacMillan, 2015; Prado & Marzal, 2013) Initiatives should also focus on improving the *data literacy* of intermediary organizations, civil society, and city personnel. Our experience with smart cities suggests that even within these organizations, expertise to engage with data is lacking. An active city policy around citizens science initiatives—actively involving citizens in data gathering and analysis—might be an excellent way of stimulating engagements in *data literacy*. Data literacy needs an interdisciplinary approach given that data are ubiquitous, and the competences necessary for *using data* and *understanding data* are diverse. The media and information literacy community, which already is highly interdisciplinary in nature (Hobbs, 2005), is well placed to lead data literacy advancements.

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Elusiveness of the Algorithm: The Case for Computation in Media and Information Literacy

Deborah Brennan and Harry Browne

Abstract

Based primarily on a case study of a civically engaged and place-based collaboration in Dublin, Ireland (involving traditional media scholarship and computational expertise that began in 2017), this paper argues for a wider program of critical media and information literacy that engages with the computational processes in which media production, consumption, and distribution are embedded. The authors argue that such program does not require direct teaching of computation to guarantee success; it rather requires a process of dialog that enables computation's logics, emergent properties, and lacunae to be better understood. In the context of the Global Framework for Media and Information Literacy Cities, the program highlights Dublin's important role as the European home to many technology and social media companies. It also notes how a critical understanding of the city's corporate and data-processing infrastructure can be and have been encouraged through public events as exemplary activities, including workshops, public talks, conferences, and walking tours. The authors conclude that such program helps to demystify computation as it relates to media required for the necessary expansion of democratic regulation and control.

Keywords: computation; artificial intelligence (AI); algorithm; algorithmic culture.

This paper is based on a review and theorizing of our scholarly experiences. We consider and advocate a transdisciplinary project to integrate an in-depth understanding of computational science and its exploitation of research and outreach in media and information literacy (MIL) as well as engagement with education, industry, and diverse urban communities. Notwithstanding the risk of "mission creep," in which the field of MIL theoretically expands to fill the entire communicative domain, it is crucial that the software systems and platforms in which media production, consumption, and distribution are now embedded are subject to critical and sophisticated examination in MIL scholarship, advocacy, and policy development. MIL without computation would be, in the third decade of the 21st century, as hollow and inadequate as MIL without, say, a critical political economy (see, e.g., Karaduman, 2015). It is argued that such transdisciplinary collaboration in the context of MIL can and should enrich the evolution of a critical framework for MIL Cities. The argument is presented below in an essay-like structure that moves between accounts of our experiences in Dublin as well as the critical, computational, and theoretical ideas that we believe help to motivate and explain them.

The authors, one a journalist and media scholar and the other a theoretical physicist who teaches software and mathematics, co-founded the Centre for Critical Media Literacy in 2017 in Technological University Dublin, based in one of Europe's most tech-centric cities. In the center's first three annual conferences and in publications and seminars, the authors, with colleagues and research students, sought to demonstrate that contemporary critical media literacy can be built with knowledge of the evolving processes and parameters of computation (Browne & Brennan, 2018). The center has several ongoing projects. First, experiments are being conducted using social media and other online and offline tools to promote journalistic transparency in diverse urban neighborhoods. Second, public events are held to link academic research in media and technology with community education and production practice, seeking to expand the concept of included "publics" to incorporate people often left out by barriers (e.g., intellectual disability, age, and class). Third, research is being conducted into the discursive and systemic dimensions of such exclusion, including in the context of the Covid-19 pandemic (Brennan & Browne, 2019; Murphy et al., 2020). Finally, studies are ongoing on the potential consequences of computational advances on media and communication.

The computation centrality in such work, both theoretically and methodologically, is based on an understanding. The understanding is that in an era of surveillance capitalism (Doctorow, 2020; Zuboff, 2019), scholars in this field and the wider public should seek to explore, teach, and learn vital topics [e.g., algorithms; artificial intelligence (AI)—including machine learning and natural language processing; quantum computing; data mining; blockchain technology; as well as communications and cloud security (Brennan, 2018)]. We can enhance public comprehension of and

capacity to respond to crises and developments in media production, consumption, interaction, and distribution. We can achieve this enhancement by including computational expertise and collaboratively analyzing common misunderstandings in public discussion and scholarship about these issues while seeking to address them in a distinctly local context.

"True literacy," scholar James Bridle writes, "goes beyond a system's functional use to comprehend its context and consequences. It refuses to see the application of any one system as a cure-all, insisting upon the interrelationships of systems" (Bridle, 2018, p. 3). Our approach to MIL as a program of action in Dublin is based on the understanding of media as fundamentally and inextricably linked with their computational contexts and consequences, as embedded in complex interrelated systems.

Demystification

An approach to popular empowerment and demystification, which our project has embraced, is to draw attention to the materiality of the Internet in our urban spaces. The Internet is often ascribed as an immaterial, metaphorical, or ethereal existence—from old terminologies, such as "information superhighway" to the more recent dominant metaphor of "cloud computing." An example of the materialization that can counter such mystique-ridden metaphors is a graphic image called "Anatomy of an AI System," created by a pair of researchers and published by the SHARE Lab group (Crawford & Joler, 2018). In the image, which is available online, the immaterially conceived object, an "artificial intelligence" object is analyzed (in this case, the object is the Amazon Echo, a voice-controlled speaker sold for domestic use). The object is analyzed in vast and highly visualized detail according to the substances from which it is constructed; the labor involved in the extraction of those substances; the assembly of the unit and its eventual disposal; the data required to feed and train it; the energy required for those processes; and the resulting environmental consequences. The image works both as a work of art (fine white lines and graphics playing ominously across a black background) and as a meticulously researched investigative report. The viewer can, for example, zoom in on the graphic and read about toxic chemical hazards posed to workers when the Amazon Echo unit is being dismantled, after it has been "abandoned" by the consumer. As the European digital rights group (EDRi) puts it in an appreciative post about the "Anatomy" graphic, both material and philosophical questions are raised:

> These extractive processes have an enormous toll in terms of pollution and energy consumption, although it is not visible until you scratch the surface. Also, many aspects

> of human behavior are being recorded, quantified into data and used to train AI systems and enclosed as 'intellectual property'. Many of the assumptions about human life made by machine learning systems are narrow, normative and laden with errors, yet they are inscribing and building those assumptions into a new world, and will increasingly play a role in how opportunities, wealth, and knowledge are distributed. (EDRi, 2018)

These inscriptions are written directly about the cities in which we seek to create an enhanced and critical MIL.

Irish scholar and artist, Paul O'Neill (2018), has made similar "anatomical" efforts, in the context of Dublin's vast computational infrastructure, to highlight the materiality of the Internet. His research on the array and networks of towers above, cables below, and data centers ringing the greater Dublin area raises important questions about the lack of transparency in the way municipalities and states facilitate private companies and their informational stores and requirements through taxation, planning, and other means. (Ireland has been for many years an important European headquarters for numerous technology companies and provides a welcoming climate, in terms of both weather and finance, for the storage of large amounts of data that are gathered and used around the world.) In October 2018, the authors and others were led by O'Neill on a tour that examined some of this infrastructure around Dublin, including many acres of unmarked data centers in the city's grittier suburbs (where visible security guards and invisible voices warned against taking photographs of the drab, dark facilities, a little different in appearance from any windowless warehouse). O'Neill has been a featured speaker at events of the Center for Critical Media Literacy. Almost a week after that tour in 2018, he led a workshop on the Aungier Street campus of Technological University Dublin explaining his work: the workshop specifically included children and people with intellectual disabilities. For the authors, the memory of O'Neill and other prominent media-literacy scholars exploring their often-complex findings and ideas with this diverse and inclusive audience remains a landmark in our aspiration to build a genuine and critical "MIL city" in Dublin.

This sort of workshop and walking tour, like the SHARE Lab graphic, highlights the tangibility and potential accountability of the Internet, but the security and sense of hidden activities to be found around the facilities in the Dublin suburbs point toward something less tangible. Such security arrangements, and the array of encryption technologies deployed in relation to commercially stored data, ostensibly relate to protecting "our" data from malicious and/or profit-seeking attacks. These arrangements also serve, as the EDRi quote above indicates, to "enclose" data as companies' intellectual property. Regulatory frameworks such as the European Union's General Data Protection Regulation (GDPR) appear to offer myriad protections, which include insisting on the anonymizing of substantial amounts of stored

data. However, they do not necessarily prevent the use of anonymous data to train algorithms and AI to better "understand" the patterns of people's behaviors [from consumption of goods and services to political interests and preferences (European Union, 2018)] and to act on that training and learning. Your "anonymous" data are not necessarily turned to probe and exploit you; rather, for people like you: a hundred points of detailed but anonymized data may be more revealing and commercially useful than a dozen that relate specifically to a given identifiable individual. The power of massive amounts of people's collective, anonymized information that allows AI to learn how to profile and target you is real. Thus, merely knowing that the data centers are there as well as their potential functions, entirely within the law, has been only the beginning of finding the place of computation in our research, education, and outreach work in Dublin.

Into the Unknown

As these efforts to highlight the materialism of computational infrastructure in Dublin and environs suggest, we contend that computational literacy in the context of MIL is not a matter of simply "understanding technology" nor is it simply addressable by teaching children and other students to write code. (Coding is inherently an interesting and worthwhile exercise but is not "necessary" and cannot substitute for a deeper, systemic, and ongoing process of enquiry into evolving and interrelated contexts and consequences.) We argue that computational thinking leads to an appreciation that complex and dynamic systems, joined with the emergent properties (that characterize the working of software and unintended consequences that may arise from its use) may steer us to adopt powerful tools that are not fully predictable or knowable. (This new and unbreakable barrier to "knowledge" is part of the "new dark age" that Bridle (2018) references in the title to his provocative book, which is not at all as hopeless as the title suggests.) The demands for transparency that have characterized, for example, the reaction to Facebook's troubles in recent years may have failed to elicit the desired and desirable responses from the company, not only because of its now-notorious strategic crisis-management (as documented in Frenkel et al., 2018), but also because, to some extent, the systems involved actually prevent transparency; this misunderstanding has led us to a place where demands have changed from transparency to censorship. The algorithms upon which social media run are profoundly characterized by a dizzying web of emergent properties—that is, the properties that come from several components working together—that are not coded for directly. Hence, their behaviors are unpredictable, e.g., in the case of security; a planned emergent property; or bias, an unplanned emergent property

(generally unplanned, though this is a complex question). These systems are the structures upon which much of our media and information environments rest.

Based on this sort of MIL and by exploring the elusiveness of the algorithm, the authors rallied computation scholars and practitioners from their own university and elsewhere to address largely nonscientific audiences at workshops and conferences in Dublin and in the ensuing publications (e.g., Llorens, 2018). In 2019, for example, the keynote speaker at the annual conference of the Centre for Critical Media Literacy was Dan McQuillan, a lecturer in computing at Goldsmiths, University of London. His intricate and disturbing talk on "Anti-Fascist AI" [much of which is echoed in a recent book chapter (McQuillan, 2020)] was exemplary in demystifying the algorithm by clarifying the similarities and differences between artificial intelligence and other forms of bureaucratic information gathering and management.

One need not look beyond the famously bewildered face of Mark Zuckerberg before a United States congressional enquiry to understand emergent properties and unintended consequences of software. Other examples abound in our information environments. For example, the eagerness of apps, such as Snapchat, Instagram, and Facebook to seek to use and record our mobile phone numbers was partly borne of a genuine intent to improve security protocols for the use of those apps, but hackers through SIM-swapping have been able to use account security and phone number linkages to "steal" numerous accounts alongside their user data (Franceschi–Bicchierai, 2018). Another example is the evolution of the New York Police Department's CompStat computer system: a software platform from the early 1990s onward, upon which police officers recorded crime data; a system seemingly created to make crimes more "equal" and their solving more efficient has become one that leads police to minimize and hide crimes as well as find ways to exaggerate their own effectiveness (see Vogt, n.d.). Our vision of MIL could and would not possibly avoid how fundamental urban concepts such as crime have important computational dimensions.

We also argue against a widespread misconception among software users who assume that there is a smooth and clear relationship from intention, through design, to implementation—a misconception that most software engineers would recognize as naive at best. Emphasis on computational literacy within the world of MIL would help the public get beyond the simplistic idea that software only and inevitably reflects its intended purposes. Software is dependent on inputs and assumptions that make it prone to inaccuracies and manipulations. Indeed, most programs today comprise numerous little programs—often with odd old bits of code left in them, because, with the vast and growing processing power of today's computers, it is easier to ignore than to edit them out. In addition to this basic structural fact, there are often hidden purposes in software, related to their revenue model. In a university module in which the authors jointly teach scientific approaches to data science

to journalism students, the students found that a "free" app they downloaded to track their menstrual cycles was earning money by sharing information about their missed periods with apps such as Instagram, which duly displayed advertisements for pregnancy tests.

In a city, such as Dublin, where MIL must contend with the presence of major software companies that produce and exploit such technologies, the Centre for Critical Media Literacy has been directly engaged with those companies: cooperatively, such as when Facebook Ireland's public-affairs director was invited to speak at the inaugural conference of the center; and more critically, as when the center participated in organizing public meetings with "whistleblowing" technologists from the companies. Dr Jack Poulson, a former research scientist at Google, spoke at a similar meeting in 2019; Chris Gray, a former content moderator at Facebook, spoke at another in 2020. Both meetings were well attended and attracted workers from relevant companies. The meetings highlighted the vast reservoir of direct Big Tech employment experience that is available as a resource for developing MIL, not only in Dublin, but in so many urban settings globally.

As these speakers and others attest, given the dynamic, emergent, interfacing, and even accidental nature of technology and the Internet, it is imperative that we always ask several questions about any software or platform: Who bred this system? In whose interest? With what tests and controls? And where is it likely to be going? We refer to the idea of "breeding" carefully: software develops through an evolutionary process, and "natural selection" in this sphere does not necessarily work in ways that are socially desirable; and, as in nature, mutations are unpredictable.

This is a difficult conversation to start in societies where we think we are often "talking about technology" but are doing so in largely superficial ways. Understanding computation means conceptualizing the small inaccuracies or errors in the input parameters and how they develop, being aware of the drift caused by small ambiguities, and where that can lead you. It is understandable that assumptions about software always represent a simplification of reality. Understanding computation positions you to begin to question "trust" in ways that run deeper than scandals and conspiracy theories.

To embed a behavior into software, you need to abstract, design, code, and test it. For example, detecting and eliminating bias can end up amplifying it, which is only observable after the fact. The emerging scholarly investigations of algorithmic gender and racial bias such as "data feminism" (D'Ignazio & Klein, 2020) and "the new Jim Code" (Benjamin, 2019) can and must inform MIL if it is to be a truly useful form of literacy in the diverse and often oppressive cities of the 21st century.

As software and behaviors become more complex, this process of observation gets more difficult. The capabilities of AI are changing so much and so fast; hence, history has become an insufficient guide to the future. Computers that "think" but whose

thinking is structurally different from ours (despite our insistence on describing them with "neural" metaphors), give new meanings to the word "unknowable." Systems of interconnected AIs introduce a level of complexity that is quite literally beyond comprehension. We could describe them from several perspectives but computational literacy suggest that we must abandon the chimera of "knowledge" of these systems. We should instead focus, as Bridle's definition of literacy suggests, on the systemic tracking of context and consequences—as a fundamental competency at the heart of any MIL city.

Conclusion

Does Europe's GDPR protect data centers more than it protects citizens of would-be MIL cities? Did the AI and bots used to manipulate the 2020 US elections bear much resemblance to those of 2016? When it comes to addressing these, MIL—with emphasis on computation—will not "restore trust" and "fix media." To use the outdated mottos of some of our media-literacy forebears, it will rather lead to deeper and better questions about these issues.

Despite the echoes of science fiction that some readers may find in our ideas, this is not necessarily a blueprint for a dystopian future where HAL takes over the spaceship in *2001* or Skynet takes over the world in *The Terminator*. Among all their intrinsic and internal mysteries, we recognize that the complex computational systems we seek to describe remain embedded, for better and worse, in wider systems of human control and power. There is no reason to imagine that "the machines" are poised to upend the structures of social, political, as well as economic power and oppression by which we are governed, nor is computationally informed MIL a substitute for understanding, addressing, and challenging these structures.

However, it is not just MIL that needs to have this conversation about computers (and indeed computer scientists who need to have a conversation about MIL). This difficult and worrying task needs to run across other disciplines because societies have developed information and communication systems that are not only big, complex, and indeterminate but are also interfaced with other big and complex systems, and have potentially challenging, unpredictable, and unknowable effects on them. For starters, this conversation needs to involve political scientists and philosophers. The discussion is wider than media—but media, especially social media, represent the most obvious experimental domain for these systems to act on billions of people, as well as a platform where ideas about technology and democracy play out and can be discussed. Recall that encryption itself was classified as a munition and its export restricted by the US until the Internet made that impracticable (US Department of

State, 1992); while the world order has changed and jurisdiction over these systems seem almost impossible in the face of borderless weapons, such as AI, there remains no substitute for democratic regulation and control.

Without succumbing to facile technological determinism of either utopian or dystopian hue, students and publics can and should be enabled to address the complex relations of content and medium that computational systems create and facilitate. We believe that, in its own small way, the experience of the Centre for Critical Media Literacy has enabled such literacy among hundreds of participants in Dublin. Along with gaining other competencies and capacities, such media and information literate publics can be empowered to confidently challenge the pretenses of trustworthy competence and inevitability that help sustain and legitimize the deeply unequal contemporary media and information order.

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Media and Information Literacy Among Children on Three Continents: Insights into the Measurement and Mediation of Well-being

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Abstract

In understanding and promoting positive outcomes for children's Internet use, media and information literacies (MILs) play a crucial mediating role, by enabling opportunities for learning, creating, expressing oneself and participating and by facilitating coping and building resilience. This chapter explains the approach adopted by Global Kids Online (GKO), a multinational research partnership, seeking to generate robust evidence that can inform policy and practice regarding children's internet use in diverse cities and countries internationally. The chapter presents the rationale for GKO's multidimensional approach to MIL and issues of measurement, social desirability, and cross-national comparison. Additionally, it presents recent findings showing cross-national similarities in higher operational levels than creative skills and differences between higher and lower income countries; it is noteworthy that gender differences in children's digital skills are found to be minimal. Having shown that the GKO quantitative research toolkit successfully operationalizes the range of MILs also addressed by comparable international frameworks, we recommend the approach to future researchers, concluding with an evidence that GKO's research results are now being used to inform national policy and practice regarding children's learning in a digital age.

Keywords: Global Kids Online; online risk and opportunities; digital skills measurement; cross-national comparisons; policy implications.

As Internet access advances globally, with societies increasingly relying on digital connectivity for their daily functioning, it is crucial to understand whether people can operate within digital environments and what skills and literacies they require. Inequalities in well-being are known to stem from variations in digital skills and engagement. Geo-mapping research shows that these inequalities are in turn pronounced in cities, differentiating among otherwise-similar families living in different neighborhoods with different characteristics. That is, the local context of the cities and neighborhoods in which people live is part of what drives differences in literacy and well-being (Helsper, 2019; Mossberger, Tolbert, & Lacombe, 2021).

Little, however, is yet known concerning children in this regard, aside that both family and country or cultural factors shape children's opportunities and outcomes in crucial ways. Noting that UNESCO's "MIL cities" initiative strives to connect cities globally by providing a general understanding of MIL and empowering citizens with media and information literacy (MIL) competences, this chapter seeks to rectify the evidence gap regarding children, themselves an estimated one in three of the world's internet users (Livingstone, Carr & Byrne, 2015). We draw on the research conducted by the Global Kids Online (GKO) network which, like "MIL cities," strives to achieve a cross-national approach for measuring digital skills and empowering children by treating the children as active contributors to their online experiences.

The motivation of providing Internet access to children in several societies is constructive—to support their well-being, especially regarding education and learning. However, many studies have shown that access to the Internet alone is insufficient to guarantee positive outcomes: education is required to develop MIL. The studies also show that support for access and literacies must attend to pre-existing inequalities (in gender, socio-economic status, ethnicity, disability, and other factors) if those who are already disadvantaged are not to be further excluded (Banaji, Livingstone, Nandi, & Stoilova, 2018; Van Dijk, 2020). Moreover, policymakers often prioritize the challenges posed by online risk of harm, raising questions as to whether digital skills can increase children's online resilience and safety.

Until recently, most research has examined the global North, with uncertain application or relevance to the global South, where internet use is rapidly expanding. Focusing on children aged 9–17, the GKO network asks, first, when and how does Internet use (and associated online, digital, and networked technologies) contribute positively to children's lives, providing opportunities to benefit in diverse ways that contribute to their well-being? And second, when and how is the Internet use problematic in children's lives—amplifying the risk of harms that may undermine their well-being? (Livingstone, Kardefelt Winther, & Hussein, 2019). The network adopts a holistic, child rights approach for understanding the consequences of internet use on children's rights of participation, information, freedom of expression, education, and play and protection from harm (UN, 1989). Furthermore, it places children's

online skills and practices at the center of its research framework, recognizing that children's digital skills mediate their opportunities to learn, create, express themselves, and participate in digital environments, as well as their ability to build resilience against online risk of harm (Livingstone, 2016).

In building GKO research framework, work began with the EU Kids Online, putting children's internet use into dialog with insights from its country partners in Argentina, Brazil, Philippines, South Africa, and elsewhere (Stoilova, et al., 2016). For digital skills, however, a fresh approach was required because the original EU Kids Online project focused on safety skills (Livingstone, Ólafsson, Helsper, Lupianez-Villanueva, Veltri, & Volkford, 2017). Thus, GKO collaborated with the DiSTO project (*From digital skills to tangible outcomes*) which has developed a multidimensional measure of digital skills, tested cross-nationally and linked to measures of inequalities, online activities, and offline outcomes (Helsper, et al., 2015). While recognizing the history of debates over definitions and measurement that have sometimes undermined the promotion of MIL (e.g., Litt, 2013; Van Dijk, 2020), our aim focuses on presenting a practical approach for measuring children's digital skills across diverse countries as a step toward informing policy makers and practitioners seeking to develop the digital skills that mediate children's well-being and rights.

Measuring Digital Skills: The Approach of Global Kids Online

Early research and policy focused on operational or technical skills. Recognizing the digital technology expansions into different areas of daily life, subsequent work has encompassed critical information literacy skills, socio-emotional capabilities, creative skills, and digital participation. However, measuring digital skills has proved difficult, suffering problems of incompleteness, over-simplification or conceptual ambiguity. Particularly, "problematic" is asking people if they can use particular tools or platforms, since the skills involved remain unclear (as in the ITU and PISA measures). Additionally, people may use digital media without skills or, conversely, have critical skills which precisely prevent them from using certain media. In surveys, doubts arise regarding social desirability, with individuals over- or under-rating their skills depending on prevailing social norms. This situation poses particular difficulties in judging gender difference evidence, since boys tend to claim better skills than girls, as revealed when self-report data are compared with direct observation (Hargittai & Shaffer, 2006).

The DiSTO project analyzes the digital skills for achieving tangible beneficial outcomes in societies that depend on digital technologies (Van Deursen, Helsper & Eynon, 2014; Van Deursen, Helsper, & Eynon, 2016; Van Deursen & Helsper, 2017). It emphasizes transferrable skills that are independent of platforms and applications, thus measuring skills adaptable to rapidly changing digital environments. The measures have been refined through cognitive interviews, performance tests, and internationally comparative scale validation with adult and youth populations (Livingstone, 2016; Van Deursen, Helsper & Eynon, 2016). Additionally, they are assessed using a 5-point Likert scale that focuses on truth claims (Spitzberg, 2006)—" Not at all true of me," to "Very true of me"—which invites a neutral and relatively objective response from participants, especially compared with scales that use evaluative or comparative terms (such as "poor" or "good" or "expert") or dichotomous responses that ask respondents if they have a skill or not (Van Deursen, Helsper & Eynon, 2016).

To further reduce social desirability biases, each question can be answered by selecting the option, "I don't know what you mean by that" and, if prompted, the interviewer guides the respondent to ask themselves if these are skills they could demonstrate now, without help. It is encouraging that, when performance testing was undertaken following survey administration in the GKO Montenegro study, most children (between 82% and 97%, depending on the item) could demonstrate the skill they claimed in the survey, with few age or, importantly, gender differences (Logar et al., 2016). The approach described here has been developed for inclusion in population surveys but if greater accuracy in skills assessment is required, direct performance tests may be preferred.

Table 1 presents the items developed in discussion between the DiSTO and GKO projects, with items phrased for the benefit of child respondents. The measure includes 24 items in the full version and 10 in the shorter, grouped according to the categories of operational, informational, social, creative, and skills. This grouping and the suggested choice of core items for the short version of the scale, are based on factor analyses conducted by the DiSTO project.

We are aware that other approaches exist, albeit focused on adults not children. Although the populations addressed are different, it is notable that prominent international approaches for measuring digital literacy focus on similar areas and dimensions, raising the possibility of common concepts and measurement. UNESCO's MIL framework strives for a holistic approach to media and information literacies to enable knowledge societies better to formulate policies, design professional standards and training programs, and empower the active participation of citizens (UNESCO, 2013).

In Table 2 we compared the GKO approach with the three current population-focused approaches for measuring MIL to obtain a common ground: MIL (UNESCO,

2013), and two frameworks promoted by the European Commission—DigComp (Vuorikari et al., 2016, see also Carretero, et al. 2017) and European Association for Viewers' Interests (EAVI) (European Commission, 2011). The comparison is inexact insofar as the GKO column documents the actual items used while the others summarize main topics, with many items behind them as part of lengthy questionnaires. The classifications also vary; for example, the EAVI distinguishes technical, cognitive, communicative, and participatory skills (European Commission, 2011). The DigComp model, which is primarily concerned with labor market skills, identifies safety as an additional, cross-cutting competence, while the GKO model perceives safety as dependent on all five skill areas and so not an independent skill, although a measure of safety can be constructed by combining particular items. Most striking, however, is the level of agreement across the different approaches regarding the areas of digital skills that should be measured. Since GKO is designed for children as young as nine years old, we must attend to both the comprehensibility of the item and the overall length of the questionnaire (which has many objectives beyond skill measurement), single questions must stand in for an area of skills; hence the scale development and testing procedures were crucial.

Children's Digital Skills: Cross-national Findings

By late 2019, the GKO survey had been conducted with 15,000 children using the internet in 11 countries across Europe, Africa, Southeast Asia, and Latin America (Livingstone, Kardefelt Winther, & Hussein, 2019). For the most part, countries selected the core items plus some optional items from Table 1 (see www.globalkidsonline.net/survey for the full questionnaire). Here we reported data for Chile (Cabello, et al., 2017), Bulgaria (Kanchev et al., 2017), Montenegro (Logar et al., 2016), and South Africa (Phyfer et al, 2016) as presented in Table 2. For more detail, we referred the readers to the national reports, which include the crucial finding that digital skills are higher for older people than younger people with age as the main factor for differentiating among child internet users in each country.

Table 1. *Global Kids Online measures for digital skills*

Preamble: *Some people are good at doing things on the internet; other people find it a bit harder. I am going to ask you some questions about what you know how to do online. If you don't know what something is, don't worry, just say you don't know. If you don't know or don't want to answer any of the questions, just say so.*	
Scale: *Think about how you use the internet. How true are these things for you? Choose one answer: Not true for me; A bit true for me; Fairly true for me; Very true for me; I don't know what you mean by that.*	
Operational skills	**1. I know how to save a photo that I find online** **2. I know how to change my privacy settings** (e.g., on a social networking site) 3. I know how to use a programming language (e.g., Python, C+ etc. *[add local examples]* 4. I know how to open downloaded files 5. I know how to use shortcut keys (e.g., CTRL-C for copy, CTRL-S for save) 6. I know how to open a new tab in a browser
Information skills	**7. I find it easy to check if the information I find online is true** **8. I find it easy to choose the best keywords for online searches** 9. I find it easy to find a website I have visited before 10. I find it easy to decide if a website can be trusted 11. Sometimes I end up on websites without knowing how I got there
Social skills	**12. I know which information I should and shouldn't share online** **13. I know how to remove people from my contact lists** 14. I know when I should and shouldn't share information online 15. I know how to behave according to the situation online 16. I know how to change who I share content with (e.g., friends, friends of friends, everyone)
Creative skills	**17. I know how to post online video or music that I have created myself** 18. I know how to edit or make basic changes to online content that others have created 19. I know which different types of licenses apply to online content 20. I know how to create something new from video or music that I found online **21. I know how to design a website**
Mobile skills	**22. I know how to install apps on a mobile device (e.g., phone or tablet)** **23. I know how to keep track of the costs of mobile app use** 24. I know how to make an in-app purchase

Note: *Adapted from Van Deursen et al. (2014), for use with children and/or parents. Bold items are proposed as core, others are optional.*

Table 2. *Comparison of approaches to media and information literacy and digital skills*

Competence area	GKO	MIL	DigComp	EAVI
Operational skills		Access		Access
	Save a photo	Store and retrieve	Manage data	Organize
	Use a programming language		Use programming languages	
	Open downloaded files		Manage data	
	Use shortcut keys			
	Open new tabs			
			Solve technical problems	Critical awareness of technical issues
	Change privacy settings		Personal data and privacy; Solve problems	
Information skills		Understand	Information and data literacy	
		Articulate information needs	Articulate information needs	
	Check if information is true	Analyze, compare, and apply	Evaluate data and content	Compare and contrast
	Choose best keywords for search	Search	Browse, search and filter data and content	Search
	Find a website visited before		Manage data and content	
	Decide which information to trust	Assess and evaluate	Evaluate data and content	Evaluate
	[Avoid] unexpected visits to websites		Identify personal competence gaps	

Competence area	GKO	MIL	DigComp	EAVI
Social skills		Communicate	Communicate and collaborate	Maintain contact
	Manage who to share with		Share; Personal data and privacy	
	Know when to share/ not share		Netiquette	Participate in groups
	Remove contacts		Solve problems	Manage contacts
			Collaborate	Collaborate
	Know to behave appropriately	Engage in citizenship	Netiquette	Engage in citizenship
	Know which information to share/ not share	Appropriate identity presentation	Share; Netiquette	
Creative skills	Post video or music that the user has created her/himself	Create in an ethical manner	Create content; share information	Create
	Edit online content that others have created		Re-elaborate content	
	Create something new from video or music found online		Re-elaborate content	
	Design a website		Content creation	
	Understand content licenses		Copyright and licenses	Understand media regulation
		Synthesize		Synthesize
		Monitor		
Mobile skills	Install apps		Identify needs; Solve problems	
	Track app costs			
	Make in-app purchase			

Competence area	GKO	MIL	DigComp	EAVI
In addition: **Safety**	Items above on operational, information, social, creative and mobile skills are concerned with safety		Protect devices	
			Protect personal data and privacy	
			Protect health and well-being	
			Protect the environment	

Children indicated moderate to high levels of digital skill across the five categories but importantly levels vary by type. Social skills (which include a strong safety dimension) rank top in all countries, while creative skills are generally the lowest. This might be because online social activities are critical to children's regular lives. Children develop social skills at an early age. Information skills, of which children in most GKO countries scored slightly lower, requires a broader understanding of the world (to know which information is true) in addition to understanding the practical usage of technology (which keywords to use for online searches), and so may develop later. Gender differences were not pronounced and they were unfavorable to boys. In Montenegro, boys indicated higher levels of competence in almost all skills but the differences are small, except in creating and posting their own music or video. In contrast, girls in Bulgaria indicated slightly higher levels of competence of most skills, but the gender differences are again small. In Chile, girls also performed better in most skill areas, apart from mobile skills. In South Africa, the gender differences were also small and often mixed.

Country differences were difficult to interpret without thorough contextualization, but it is thought-provoking to find that South African children score highly in skills important for online safety—ability to change their privacy settings on social networking sites and removal of people from their contact lists. Skills linked to privacy and sharing personal information were somewhat lower in Chile, suggesting for e-safety training. Notably, 45–60%, of children are confident they can check if information they find online is true, although informational skills were generally lower in South Africa, and this skill could be improved everywhere. The ability to track costs of mobile use was lowest in Chile and South Africa, possibly because mobile use was prominent in both countries it was often via a pre-paid plan, limiting online activities.

Table 3. *Global Kids Online findings for digital skills of children, by gender and country*

Percentage who said "fairly" or "very true" of me (that "I know how to…," numbered by items shown in Table 1)		**Bulgaria**			**Chile**			**Montenegro**			**South Africa**		
		All (%)	Girls (%)	Boys (%)	All (%)	Girls (%)	Boys (%)	All (%)	Girls (%)	Boys (%)	All (%)	Girls (%)	Boys (%)
Operational skills	Save a photo (1)	86	89	84	67	72	61	79	78	80	81	83	78
	Change privacy (2)	73	74	72	51	55	48	66	64	67	73	74	71
Information skills	Check information (7)	52	52	53	57	59	56	60	56	62	45	47	44
	Choose keywords (8)	76	80	77	67	69	66	84	83	84	47	44	50
Social skills	Know what to share (12)	82	84	80	67	68	67	86	85	86	73	74	72
	Remove contacts (13)	83	84	82	74	80	69	80	80	80	84	83	84
Creative skills	Create + post content (17)	80	72	71	36	37	36	48	42	54	41	37	45
	Design a website (21)	44	45	43	n/a	n/a	n/a	34	32	36	24	n/a	n/a
Mobile skills	Install apps (22)	77	77	77	84	81	86	80	78	81	60	54	66
	Track costs (23)	67	66	67	33	30	35	64	62	67	40	34	46
Bases (of internet users aged 9–17 years old)		*N = 1000*			*N = 1000*			*N = 1002*			*N = 643*		

Implications for Research and Practice

Digital skills are for children to participate fairly in digital environments and enjoy the numerous opportunities of the internet. We urge that children be recognized as active citizens who deserve provision of educational and other resources that can enable them to develop the full range of required skills. This is particularly important for younger children as they become internet users, often with fewer skills and lesser provision at school. While vulnerable children and marginalized groups also need support, our findings do not suggest that gender poses a particular problem to digital skills. Indeed, it appears that, once girls and boys have gained access, their

digital skills are fairly similar. This finding may be because Internet access in lower income countries is concentrated among more educated parents who have more gender-equal attitudes. However, attention to gender inequalities with respect to access and outcomes should remain prioritized (Banaji, et al, 2918).

GKO data reveal the parts of each country where Internet access is lower and digital skills are weaker. This could be useful for piloting MIL cities (UNESCO (2019). For example, in Montenegro, 15 percent of the children living in the poorest northern region do not use internet compared with 6 percent in the central and 7 percent in the southern regions. Therefore, working on MIL Cities with the local authorities in the central and southern regions would be easier, while cooperation on the same initiative in the north would decrease poverty.

The multidimensionality of our digital skills measure suggests that even when children develop the required operational skills for functional internet use, ensuring they have the critical, informational, and creative skills for uses that produces tangible outcomes of value in their daily lives remains challenging (Helsper, 2017). Thus, structured support and guidance from their families and schools is vital. Crucially, now that children are exposed to a constant flow of information from multiple sources, it is critical that children's ability to distinguish high quality information from low quality information is strengthened. The result showing that creative skills are least developed is a concern since it is children's right to express themselves and participate in the digital age, beyond receiving information provided by others, and these are skills children are less likely to develop independently. Finding ways to support children's creative skills and activities—especially using the mobile technologies that are often the main means of access for children in the global South—is a priority for policy and practice.

The approach and findings presented in this chapter are already stimulating initial interventions in policy and practice. For example, in Montenegro, research found that children are using the internet from a younger age, especially via smartphones, but that they lack strong digital skills and, making the children feel unsafe and unsupported as they go online. In response to the research, UNICEF and Montenegro's Ministry of Education developed an educational role-play game, *NetFriends* (*NetPrijatelji*), to build resilience against online violence. Available as a free smartphone app, the game has been widely promoted by celebrities, and currently, a PC version is being developed for the primary school curriculum, with teaching resources to strengthen teachers', parents' and children's digital skills. As another example, GKO in Argentina worked closely with their government to collect new data on children's digital skills; findings and insights from GKO played a role in drafting the government's first policy document and discussions are underway to include digital skills education in the school curriculum. In South Africa, data collected on inequalities in and barriers to access are informing the government's future research agenda on information and

communication technologies and children. In Chile, UNESCO and the Ministry of Education have supported the research from the start, and are now exploring how to use the findings to advance children's education.

While GKO offers a comprehensive battery of questions, it is unlikely to cover all possible skills that children need. Thus, GKO will collaborate with relevant actors periodically to review and update the questionnaire to encompass new skills as they become relevant to children's well-being and future prospects. Future research should also examine how digital skills can translate—through government policy, educational curricula, and parental knowledge—into positive and measurable outcomes for education, health, participation, and other crucial dimensions of children's well-being.

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Translations of the Media and Information Literacy Concept: Tracing Policy Terms in the Latin American Countries

Beatrice Bonami and Alexandre Le Voci Sayad

Abstract

This chapter addresses the linguistic uses of the media and information literacy (MIL) concept. The chapter explores how the MIL concept is translated into local languages in the Hispanic linguistic area, namely, Portuguese and Spanish in the Latin American Countries. We begin by investigating how the MIL concept has developed over the last 70 years through United Nations' recommendations. After presenting some visualizations of its chronological development, we identify the main countries by applying the concepts to Facebook and Twitter as social networking platforms, interrogating how the platforms translate the expression into Portuguese and Spanish. We apply systematic review and social network data mining. This paper hopes to provide clarity on how the MIL concept has gradually developed over the past 70 years and how it is locally translated and applied; the linguistic variations of the MIL concept is a case for further research.

Keywords: media and information literacy (MIL); conceptual history; translation; Latin American Countries; intercultural communication.

The United Nations (UN), since its foundation in 1945, brings its mission and purpose within humanity under the line, "since the war begins in the minds of men, is the mind of man we shall construct the funding and advocate for the peace" (UNESCO, 2013, p. 44). Media and Information Literacy (MIL) is a subtle conflict, or as the organization acknowledges, "a battle of the mind" (2013, p. 44). People should be empowered if the comprehension, misunderstandings, and unawareness of media and information providers originate in the mind; MIL can be employed to execute this task. The word "literate" refers to the basic ability to write over any surface with a pen, brush, or pencil and to understand the information represented by the contextual means of communication.

The first meaning of the word "literate" was related to an industrial time when books and newspapers were physical means of knowledge transmission. With the invention of the press, the mass education phenomenon, and recently the Internet, the concept of "literacy" has been rethought and expanded beyond its original interpretation; it now refers to connective skills and competencies. In the Information Age, literacy refers to the ability to interact and communicate with Information and Communication Technologies (ICT) as well as to engage the digital environment as a knowledge transmission interface, not only to absorb information, but also to create and share content.

Now, literacy relates to a critical comprehension associated to media and information formats, as well as to the cognitive process and needed initiatives in the knowledge society of the 21st century. However, the term still faces an exclusion, which was once literary but is now digital. While access is a priori demand for participation, literacy is also required for social and citizen protagonism.

"Literacy is the ability to identify, understand, interpret, create, communicate, and compute, using printed and written materials associated with varying context. Literacy involves a continuum of learning in enabling individuals to achieve his or her goals, develop his or her knowledge and potential to participate fully in community and wider society" (UNESCO, 2013, p. 45).

Countries may translate the term in different ways, and the differences may stem from the connected contemporary age in countries with gaps between the economic, political, and cultural realities. UNESCO acknowledges that it is impossible to ascertain the impact of emerging technologies on every individual's future, as well as the construction and communication between knowledge societies. Therefore, a global movement is advocating for the themes of media, information, and technology to be regarded as new ways of thinking rather than as tools, promoting meaningful learning and entertainment associated to the political power of every individual. A new phenomenon demands new skills; thus, MIL is a citizen-development process.

According to UNESCO (2013, p. 14), the MIL concept embeds knowledges, skills, and initiatives that empower the citizen to:

- Understand the roles and functions of media and other information providers in democratic societies as well as the conditions under which those functions can be fulfilled;
- Recognize, locate, access, and articulate a need for relevant information;
- Critically evaluate information and the content of media as well as other information providers, including those on the Internet in terms of authority, credibility, and current purpose;
- Extract and organize information and media content;
- Synthesize or operate on the ideas abstracted from content;
- Ethically and responsibly communicate created knowledge to an audience or readership in an appropriate form and medium;
- Apply ICT skills to process information and produce user-generated content; and
- Engage with media and other information providers, including those on the Internet, for self-expression, freedom of expression, intercultural dialog, and democratic participation.

The semantical construction of "literacy" is popular among several studies considering the education of it through a freedom and civic perspectives rather than as a submissive process. Several authors [Jones-Kavalier and Flanningan (2008), Warchauer (2003), Williams (1980) and Hoggart (1957)] have contributed to these findings. The correspondence between the senses of "literacy" and "empowerment" becomes vivid when regarded in this context, and the word literacy itself assumes a broader sense in society. The coined MIL concept by UNESCO in 2008 results from developments since 1948, based on several Declarations, Protocols, Recommendations, and other types of actions like Curriculums or Policy Indicators. The concept refers directly to the individual civil and human rights in a world constantly changing by globalization and the hyperconnected digital environment.
As early as in 2008, Carlsson and colleagues (2008, p. 24) noticed that "the media and information literacy comes to the fore as a crucial element in the construction effort of a media and information formed and sustainable society." A group of experts supported by UNESCO has merged media and information literacies into a single concept, foreseeing their connection to the freedom of expression that features as a human right. The construction of the term dates to the Human Rights Universal Declaration of 1948 where the MIL concept acknowledges the main role of media and information, finding itself as a complex concept at the core of freedom of expression and access to information. Since 2015, efforts toward creating sustainable societies have been dovetailed with and supported by many other international policies and strategic guidelines, such as the UN sustainability development goals, especially with "good health and well-being" (#3), "quality education" (#4), "gender

equality" (#5), "industry, innovation and infrastructure" (#9), "sustainable cities and communities" (#11), and "responsible consumption and production" (#12). In this rapidly developing sphere of policy discourse, it is important to pinpoint the development of the MIL discourse, not only to see its specific characteristics, but also to make connections with other sectoral and cross-sectoral policies.

Regarding the historic path that the MIL concept has taken within the UN, particularly UNESCO, "what are and how works" the public policies in Latin America and the Caribbean region (following UNESCO and GAPMIL demarcation of territories) represent the main goal of this chapter. The research is focused on the demand of national policies but does not overlook the local challenges as well as the information and media flow of the cities that require consideration in MIL Cities.

Research Objective

In this chapter, we aim to examine the concept of MIL in two respects: First, we aim to trace the historical development of the term over the past 70 years in international policy documents released in the Hispanic language area, interrogating how these documents emphasize different aspects of MIL and use varying vocabulary. Hence, we gather documents and declarations launched by UNESCO over the years, which were crucial to build the MIL concept genealogy (see also Bonami, 2016). In these documents, we aim to identify the specific thematic emphases to determine how the concept, now established as MIL, has developed over time; we do not engage in any deeper contextual analysis of the policy structures and processes.

Second, we aim to consider the local translations of the international policy term, MIL, by tracing the uses of vocabulary on social media platforms at a certain point in 2017 when the concept of "MIL" had gained reasonable ground in public discourse. By examining practical applications of the term, we aim to identify the diversity of the linguistic use and interrogate whether some aspects of the term are more prevalent than others.

In this chapter, we use MIL as the overarching term to refer to the object of inquiry. The term MIL can be found in current policy documents, a global consensus exists on its meaning, based on the framework outlined by UNESCO (2013, 2021).

Development of the MIL Policy Concept

We gathered the most relevant MIL policy documents released in Portuguese,(thus, relevant for the Latin American countries) published in different countries by UNESCO and the UN. The policy documents are also available in English and thereby have a wider international impact. The collection methodology was performed by a document cartography procedure to trace quoted resolutions or agendas beginning in the year 2016 in the document "MIL Week Global Report" released by UNESCO. Table 1 illustrates the genealogy of the MIL concept through approximately 70 years of UNESCO/UN recommendations in Latin American countries.

Table 1. *The genealogy of the media and information literacy concept through 70 years*

Index:

Human Rights
Media
Education
Information
Digital
MIL

Year	Document Title	Highlights
1948	Universal Declaration of Human Rights Released by: UN Country: France	• Articles 1st, 18th, 19th, 26th
1974	Recommendation about Education for Comprehension, Cooperation, and International Peace and Education of Human Rights and Fundamental Freedom Released by: UNESCO Country: France	• Promotes human rights education • Global dimension of education • Learning × information × communication = an indivisible whole • Critical understanding of historical and contemporary factors
1982	The Grünwald Declaration on Media Education Released by: UNESCO Country: Germany	• Instead of refuting the undoubted power of the media, accepting its impact and penetrability • Fosters the promotion of media and education as well as teacher training programs in this area • Promotes the study of cultural influence on media resources

Year	Document Title	Highlights
1989	The 25th Session Report of UNESCO's General Conference Released by: UNESCO Country: France	• Plans for the eradication of illiteracy, the reduction of social inequality, and the cessation of current wars • Promotes the human and cultural dimension of education • Ensures free flow of information • Demands infrastructure for technology
1990	The Jomtiën Declaration on Literacy Basic Needs Released by: UNESCO Country: Thailand	• Promotes gender equity in education • Calls for the eradication of illiteracy as the main goal for the 1990s • Promotes education for all genders and age groups
	The Toulouse Colloquium on New Directions on Media Education Released by: UNESCO Country: France	• Expresses concern about the development of digital technologies in education as well as the emergence of the knowledge society • Quotes the phrase "media literacy" and advocates its use • Defines 4 elements for media-literacy development in any country
	The Geneve Conference about Education for All: renewed policies and strategies for the 1990s decade Released by: UN Country: Switzerland	• Advocates for education as social promotion and political means of expression • Draws up Recommendation 77 with concrete measures to eradicate illiteracy by the year 2000 • Advocates for gender equity and special attention to the situation of access to education for women and girls • Determines that funding education is the responsibility of the Member State, except in extreme cases, when the UN can be accounted on behalf of the funding situation by a member state
1991	The Windhoek Declaration on Independent and Pluralistic Press Freedom Promotion in African Countries Released by: UNESCO Country: Namibia	• Promotes expression and press freedom in African countries • Determines the eviction release for media professionals in African countries
	The Paris Conference on Achieved Goals in the 1974 Recommendation's Application Released by: UNESCO Country: France	• Highlights the results and challenges encountered in implementing the 1974 Recommendation • Promotes international education principles • Addresses the leading role of NGOs in promoting human rights education

Year	Document Title	Highlights
1994	The 2000+ Project on Education in Science and Technology for All Released by: UNESCO Country: United States	• Launches the term "scientific and technological literacy," defines it, and determines its process of application • Warns that its application is based on national and local reality (contextualization)
1996	The Sanaa Declaration on the Independent and Pluralistic Press Promotion in Arab State Released by: UNESCO Country: Iemen	• Advocates for freedom of expression, pluralism, and media independence in the Arab countries • Condemns media oppression as a violation of human rights • Warns against gender disparity in knowledge production
1999	The Viena Recommendation on Education for Media and Digital Age Released by: UNESCO Country: Austria	• Defines media education • Defends media education as the right to free speech and the right to free flow of information • Media education as a catalyst for digital literacy • Makes recommendations to UNESCO and considers the need for a clearinghouse
2000	Millennium Declaration Released by: UNESCO Country: United States	• Identifies the existence of a digital divide • Its main objective is to promote peace, disarmament, and security • Proclaims the goals for the new millennium • Advocates for a knowledge-based global economy • Promotes ICTs to combat poverty and illiteracy • Promotes women and girls' empowerment
2002	The Seville Recommendation Released by: UNESCO Country: Spain	• Determines five areas of media education policy development • Advocates for media-operating education

Year	Document Title	Highlights
2003	The Prague Declaration "Toward an Information Literate Society"	• Quotes and defines the term "information literacy" as a flexible concept related to media and digital literacies • Advocates that computer-literate citizens are democratic pillars
	Released by: UNESCO	
	Country: Czech Republic	
	The Information Society World Summit First Phase (WSIS)–Geneve Declaration of Principles	• Launches the Digital Solidarity Agenda • Advocates to transform digital divide into digital opportunity
	Released by: UNESCO	
	Country: Switzerland	
	Latin American and Caribbean (LAC) International Forum on Information Society	• United Nations ICT Task Force • LAC Information Society Development
	Released by: UNESCO	
	Country: Brazil	
2004	WSIS in Marrakesh	• Defines the convergence of digital and analog technologies as the center of the Information Society
	Released by: UNESCO	
	Country: Morocco	
2005	The Alexandria Declaration on Information Literacy and Lifelong Learning	• Defines information convergence as the beacon of the information society
	Released by: UNESCO	
	Country: Egypt	
	WSIS Second Phase–the Tunis Commitment	• Promotes technical cooperation and technological empowerment for human development • Promotes ICT training programs for the population • Demands investment in technological and urban infrastructure • Launches the Digital Opportunity Index
	Released by: UNESCO	
	Country: Tunis	
	UNESCO World Report on Knowledge Societies	• Discusses the Knowledge Society in the Information Age, establishing its historical construction since 1960 and highlighting the main attributes of knowledge awareness and production
	Released by: UNESCO	
	Country: France	
2006	The Toledo Declaration on Information Literacy	• Discusses Libraries as Capacitation and Transdisciplinary Spaces for Information Literacy
	Released by: UNESCO	
	Country: Spain	

Year	Document Title	Highlights
2007	Paris Agenda on Media Education Released by: UNESCO Country: France	• Establishes 12 recommendations about media education according the statement on Grünwald Declaration in 1982
2008	The Media and Information Literacy (MIL) Curriculum for Teachers Released by: UNESCO Country: France	• Quotes and defines the expression "Media and Information Literacy" • Addresses recommendations to transdisciplinary teacher education • Promotes citizen empowerment through MIL
2009	The Lima Declaration on Educators Capacitation in Information Literacy Released by: UNESCO Country: Peru	• Promotes educators' capacitation in information literacy with specific focus in LAC countries
2010	Bangkok Summit on MIL Indicators and Guidelines Released by: UNESCO Country: Thailand	• Creates and promotes MIL indicators • Defines core competencies: access, assessment/ understanding, and use of information and communication • Advocates the contextualization of MIL according to local realities • Promotes ability to access, evaluate, and use MIL in various contexts
	The Murcia Declaration Released by: UNESCO Country: Spain	• Discusses the library space sustainability in the Digital Age through the association of Information Literacy associated with Digital Literacy
	The Paramillo Manifest Released by: UNESCO Country: Venezuela	• Promotes the education professional's capacitation in information literacy in Mercosul countries
2011	The Maceió Declaration on Information Literacy Released by: UNESCO Country: Brazil	• Discusses the dichotomy between information literacy × information competence • Notes insufficient information resources in Brazil
	First International Forum on MIL Released by: UNESCO Country: France	• Advocates for MIL as a human right • Discusses MIL × technological convergence • Promotes action research and empiricism in MIL
	The IFLA Recommendation on MIL Released by: UNESCO Country: Mexico	• Proposes MIL incorporation in formal education curriculum as a state public policy

Year	Document Title	Highlights
2012	The Havana Declaration on 15 Actions to Promote Information Literacy Released by: UNESCO Country: Cuba	• Advocates for information literacy as a cross-cutting and fundamental formation in all contexts • Proposes sharing experiences and results of research as well as applications of information literacy
	The Moscow Declaration on MIL for Knowledge Societies Released by: UNESCO Country: Russia	• Discusses MIL beyond ICT • Proposes the development and implementation of MIL standards and intervention • Introduces the concept of intercultural dialog and argues about it being the key to promoting MIL successfully
2013	The Global Alliance Partnership in MIL (GAPMIL) Action Plan Released by: UNESCO Country: Nigeria	• Launches the Global Partnership Action Plan in MIL (GAPMIL) • The plan identifies the actors involved in the promotion of MIL and promotes unification to centralize efforts in this area • Promotes debate between different perspectives of MIL
	MIL Political and Strategies Guidelines Released by: UNESCO Country: France	• Highlights the need for MIL policies to live in the digital world • Proposes a conceptual model of MIL and six elements for its political development • Introduces the ecology of MIL (translated as an ecology of different skills) for thinking in related skills and fostering the concept of transliteracy
	The Doha Declaration on MIL in Arabic Countries Released by: UNESCO Country: Qatar	• Notes the need to treat MIL at the government level, mediating political, armed, and religious conflicts in the Middle East • Focuses on women and girls in unequal situations who have no access to education and highlights the need to bring MIL to them
2014	The Paris Declaration on MIL in the Information Age Released by: UNESCO Country: France	• Discusses MIL in association with intercultural dialog • Advocates for MIL as 21st Century Citizen Skills • Establishes transliteracy as the MIL concept's natural development

Year	Document Title	Highlights
2016	Global Assessment on MIL: cross-country skills Released by: UNESCO Country: Brazil	• Intends to guide UNESCO Member States to assess citizens' maturity and competencies with regard to MIL, particularly by teachers in service and training
	MIL Week Global Report Released by: UNESCO Country: Brazil	• Advocates for MIL not being a matter of isolated technology but a cultural matter • Promotes MIL as an umbrella concept and accommodates the regional specificities of each stakeholder involved • Acknowledges that laws have already been created in Brazil, Argentina, the Bahamas, Mexico, and Jamaica • Suggests mapping the laws, policies, and regulations of the legal sphere in each LAC country; subsequently expresses the will to create policy guidelines, legal enforcement resources, and MIL platforms for discussions
2018	Global MIL Week Report Released by: UNESCO Country: Latvia	• Promotes MIL cities as a pragmatic endeavor to dialog with public policies in different geographies

Table 1 identifies six topics that emphasize different dimensions of the concept that is established today as "media and information literacy" or MIL. The six concepts are human rights, media, information literacy/competence/skills, education, digital literacy/skills, and MIL. In the documents from 1948 to 1974, the human rights and education aspects initiated discussions on the relevance of MIL among populations. MIL was first seen as an educational effort to promote general human rights, equality, and justice. Gradually, the importance of media, particularly in the role of the mass media, gained importance, and the term used more frequently was "media education." The discussion centered on "media" intensified by inserting the aspects of information flow and digital communication, which posed new requirements for people's competence in dealing with media. The concept "MIL" was coined in 2008 as part of missions envisioned for teachers' education. The recent development of MIL has enabled the inclusion of all previous dimensions—human rights, information flow, educational efforts, and digital connectivity—within one umbrella term.

At a more detailed level, when considering the development of the concept of MIL over the last 70 years, we highlight the main documents that may have contributed on this theoretical path (each contributed with their ideas, frameworks, or recommendations):

- The 1974 Recommendation that promoted human rights education in a global and critical dimension;
- The Grünwald Declaration (1982) that promoted teacher education in media education;

- The Jomtiën Declaration (1990) was influential in promoting the eradication of illiteracy;
- The Toulouse Declaration (1990) introduced and defended media literacy instead of media education and set guidelines for its application in countries;
- The 2000+ Project Declaration (1994) emphasized the importance of scientific and technological literacies;
- The Vienna Recommendation (1999) established a relationship between media education and new digital arrangements, pointing out the need for a clearinghouse on this topic;
- The Seville Recommendation (2002) launched five areas of media education policy development;
- The Prague Declaration (2003) cited information literacies in association with the media and digital ecology;
- The World Summits of the Information Society in its two phases (2003 and 2005) established the challenges of the information society and the importance of transforming the digital divide into digital opportunity;
- The Alexandria Declaration (2005) regarded information literacies as the beacon of the information society;
- The Paris Agenda (2007) established 12 recommendations for media education and discussed the need for interdisciplinarity with information literacies;
- The Curriculum for Teacher Education in Media and Information Literacies (2008) mentioned the term media and information literacies and directed its recommendations to educators;
- The Bangkok Meeting for the Creation of Indicators in MIL (2010) defined the concept of MIL and its different applications in areas of knowledge;
- The International Forum of Fez on MIL (2011) addressed MIL as a human right; in the same year, the IFLA Recommendation proposed the incorporation of MIL into the formal curriculum;
- The Moscow Declaration (2012) expanded the spectrum of MIL beyond ICT and proposed intercultural dialog as the main agent of MIL;
- GAPMIL, launched in 2013, was introduced as an attempt to unify the MIL initiatives so that they could be in a dialog with each other;
- The Political and Strategic Guidelines in MIL (2013) presented the ecology of MIL to introduce the concept of transliteracy;
- The First European Forum on MIL (2014) (the starting point of this research) affirmed MIL as the skills of the democratic and empowered citizen of the 21st century and established its concrete association with intercultural dialog and transliteracy;

- The 2016 Global MIL Week Report, in São Paulo, defended MIL, not as a matter of isolated technology, but as a matter of culture. The event mapped the existence of laws in Brazil, Argentina, the Bahamas, Mexico, and Jamaica and recommended the creation of political guidelines, resources for legal implementation, and the creation of discussion platforms on MIL;
- The 2018 Global MIL Week Report, in Riga, introduced the principle of MIL cities.

This summary of the progression in policy documents conceptual development highlights different parts of the concept as it is articulated today. Media and information literacies are indicated by these documents and, presumably, built in this process. New digital arrangements constitute an apparent extension of the real world, which is why digital literacies are associated with MIL in this scenario.

Cartographies of the MIL Concept

How is the general term, MIL, translated into the Hispanic language area? Spanish and Portuguese are the most frequently used languages in Latin America. When referring to MIL, different terms are used in the Spanish (ES) and Portuguese (PT) languages: *literacia midiática e informacional* (PT), *alfabetización mediática y informacional* (ES), *competencia mediática y informacional* (ES), *alfabetização midiática e informacional* (PT), *educomunicação* (PT), *educomunicación* (ES), *mídia educação* (PT), and *letramento midiático e informacional* (PT). The central terms used to denote MIL are formed from some English approaches of "literacy" (*alfabetización/alfabetização, letramento, literacia*), "competence" (*competencia*), "communication" (*comunicación*/*comunicação*), and "education" (*educação*). These terms refer to different things, thereby constructing the phenomenon of MIL in different ways: while some are constructions of the sets of skills that individuals need to possess (literacies, competences), others are conceptualizations of processes that are related to the formation of these readiness forms (education, communication).
To trace the uses of these terms in different parts of the world, we performed a geographical cartography on each term. The methodology was a data mining procedure on Facebook using hashtags corresponding to the concepts in Spanish and Portuguese. The cartography was conducted with the Netvizz software and crossed with data extracted from Keyhole (for Twitter data collection) to understand where the conceptions are being discussed in the network and the world. The visualizations were performed in Tableau and Gephi using quantitative indicators: over 150 citations on live (red), over 100 citations on live (orange), and over 50 citations on live

(blue). The cartographies are illustrated in Figures 1–9. Figure 1 shows the use of the MIL term in the English language; Figures 2–4 show terms in Spanish and Figures 5–9 in Portuguese.

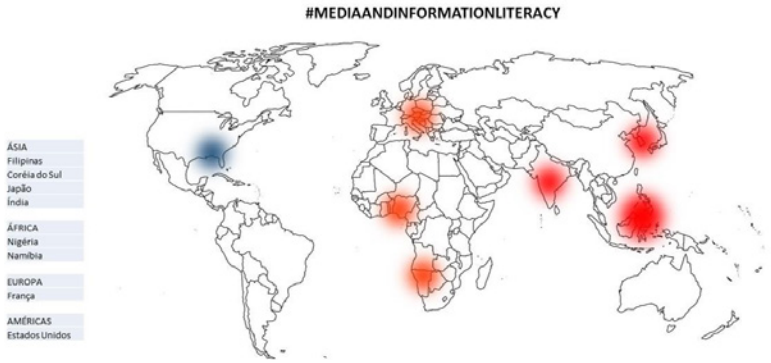

Figure 1. *Geographical cartography of the term "media and information literacy" (English)*

Figure 2. *Geographical cartography of the term "alfabetización mediática" (Spanish)*

Figure 3. *Geographical cartography of the term "alfabetización informacional" (Spanish)*

Figure 4. *Geographical cartography of the term "educomunicación" (Spanish)*

Figure 5.Geographical *cartography of the term "literacias de mídia e informação" (Portuguese)*

Figure 6. *Geographical cartography of the term "alfabetização midiática" (Portuguese)*

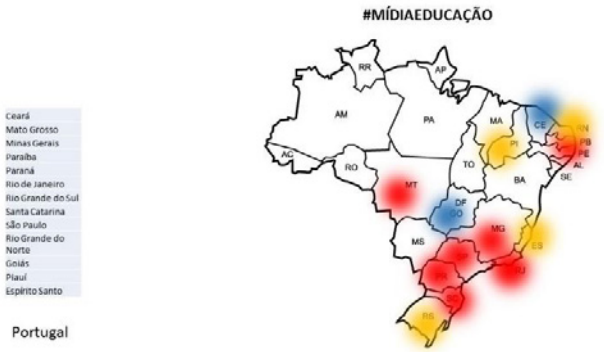

Figure 7. *Geographical cartography of the term "mídia educação" (Portuguese)*

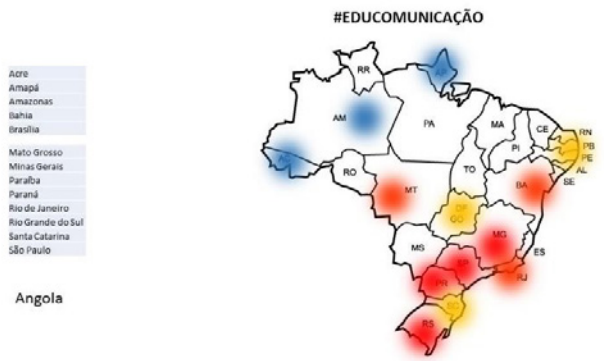

Figure 8. *Geographical cartography of the term "educomunicação" (Portuguese)*

Figure 9. *Geographical cartography of the term "letramento informacional" (Portuguese)*

In the visualizations in Figures 1–9, we observe that each term has its main areas of action. In Brazil, the areas of action vary across the states, indicating and establishing MIL as an umbrella concept under which all these terms and translations can fit. The previous conclusions can be extended to the praxis and public policies field; once MIL can assume these various approaches, it seems appropriate to amplify the research to involve as many stakeholders as possible globally.

The original concept of MIL shown in Figure 1 expresses higher participation in regional scenarios, such as North America, Central Europe, African Western Coast, and South-East Asia. While the Spanish translation *alfabetización mediática* has a higher prevalence in Ibero-América, *alfabetización informacional* and *educomunicación* have a higher presence in South America. The Portuguese translations follow a similar path: *öiteracias de mídia e informação* is more prevalent in Portugal, Brazil, Mozambique, and Angola, while *educomunicação* is used more in the 27 Brazilian states.

To some extent, the adoption of the term is dependent on the languages spoken in a specific area. However, the translation aspect introduces a new dimension to the debate on the application of MIL in different countries. One relevant application is exhibited with MIL cities, the concept that was initially proposed within the Global MIL Week, promoted by UNESCO in 2018, in Latvia and Lithuania (UNESCO, 2018). Developing MIL cities requires an understanding of the vocabulary adopted at the municipal level within the geographical area that is being studied. For MIL cities to become effective in public policies at the municipal level—even at national policy levels—we need to add the linguistic dimension to the place-placed approach promoted by the MIL city policy framework.

The MIL city policy framework is in addition to a global effort that, since the 1990s, has sought to decentralize teaching and learning processes among other social

actors including libraries, museums, and traditional broadcast or digital media. In the context of lifelong learning, the skills contained in MIL are the responsibility of the city—or of the various public policies involved in them (Aspin and Chapman, 2001). Compulsory education should be available to all; proponents of education for a socially inclusive and democratic society also claim that lifelong learning is a public good (Grass, 1995). However, it is not suggested that education, like other "public goods," such as health and welfare services, requires no further financial investment from individuals and other sources; all similar community services should be supported financially and in numerous other ways. However, these services are vital and indispensable to the nature, quality, and operation of the democratic society in which we, as citizens, all live and partake in.

Concepts and practices such as "educating cities" and "smart cities" share foundations and principles with the MIL cities. The first principle, according to the International Organization of Educating Cities (OIEC.org), began as a movement in 1990 (based on the International Congress of Educating Cities, held in Barcelona) when a group of cities represented by their local governments agreed to work together on projects and activities to improve inhabitants' quality of life, based on the inhabitants' active participation in the use and evolution of the city itself and in accordance with the approved letter from Educating Cities.

The construction of critical thinking in line with the needs of time, in addition to the need for the local integration of public policies, invariably ceased to be sufficient under formal education. Historically, Greek democratic foundations, human rights, and citizenship have supported critical thinking as a foundation of contemporary schooling, when it proposes secular and universal education. Therefore, MIL application and capacity building among member states can be promoted by the MIL city's endeavor, which finds its way to dialog with local public policies.

Discussion

Discussions on the terminological dimension of MIL are important. The depth and complexity of the field seem to legitimize the terminological discussion, which presents itself as a transdisciplinary dialog across disciplinary areas and policy sectors of communication, education, and information. As proposed above in the context of MIL cities, this dialog is constructive when aimed at strengthening the principles of the term and reinforces ties with other interdisciplinary areas. Thus, its discussion is important in emphasizing the network of interactions between these diverse stakeholders.

This chapter presented the challenges surrounding perspectives of information and communication technologies in the field of education. This scenario was built through different authors who addressed the relevance of this context regarding the development of new skills and competences for the 21st century citizen. However, this theoretical framework awakens the terminological discussion, which governs a polyphonic symphony between different theorists dedicated to studying and understanding this new framework of attitudes toward the apparent technological revolution.

Discussions do not end here with the Final Considerations, and it is prudent to admit that there remains aspects to understand in this emerging context. Studying or understanding the connected contemporary age seems to be relevant, especially when dealing with "learning processes" or "skills development." However, this paper does not incorporate investigations about teaching methods and models as it chooses to observe the different concepts that emancipate the learner's empowerment, such as information, media, and digital literacies.

Hence, the document collection started with the 2014 Paris Declaration, derived from the First European Media and Information Literacy Forum, an event that gathered participants with the aim of promoting discussions on the importance of education that incorporates MIL. Since then, 40 documents have been reached, summarizing the general objective of this research: to observe how the term of media and information literacies developed between 1948 and 2016, through Official Declarations by UNESCO. Reiterating the specific objectives and the data collected, Table 2 highlights the main findings to establish geographical distributions (as presented in Figure 1).

While constituting a first installment of investigations, this chapter raises new questions and motivations for continued study in this epistemological perimeter. However, the study has its share of flaws, such as regarding the concept of MIL and its lack of a Latin American contextualization in its application. Nevertheless, it recognizes the power of transdisciplinary epistemic discussion, identifying other conjectures pertinent to the theme. In this context, it is important to indicate that while this dissertation analyzed UNESCO international recommendations, Brazil is already exploring practicability in this context, led by the area of "educommunication."

Conclusion

The MIL concept's translation to Portuguese and Spanish languages offers an analysis about its panorama in Latin American Countries, and in other Portuguese or Spanish speaking geographies. To conclude, we highlight an excessive technicist (structure and instrument provision) approach that can lead projects and initiatives (in formal, informal, or nonformal education) to engage with technical questions and not always encourage the promotion of empowerment discussions involved in the Media, Information, and Digital Literacy debate. It may set a comfort zone which can hinder projects from moving beyond the technical aspects and discourage the launch of new proposals because of extended bureaucracy. However, it reveals a foundation over which MIL prospects can be discussed and implemented; thus, the multi-stakeholder network can mobilize to change the ongoing scenario in Brazil.

About the translation variety under the MIL conceptual umbrella (or Concept Note released by UNESCO in 2013b), it is urgent that different initiatives and stakeholders stay aligned and connected by an alliance to ensure that experiences can be exchanged in the LAC landscape. MIL is still a new knowledge field gathering regional conceptions of the MIL proposals, projects, and stakeholders. This requires exercising the MIL alliance to improve the application and understanding of media, information, and digital opportunities in LAC countries.

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Digital Falsehoods and their Analog Consequences: The "Fake News" Strategy and its Mitigation

Lisa Jane de Gara

Governments worldwide struggle with "fake news" and disinformation. While "fake news" is not an accurate term, it is critical in describing the intentionally disruptive propaganda or disinformation using a news media format. "Fake news" may be executed by malevolent state-level or grassroots actors to disrupt elections and civic life. Current discourses often misidentify "fake news" as simply wrong information, rather than evaluate political motivations for its spread and identify the groups vulnerable to its influence. As more cities strive to adopt an "MIL cities" mandate, the means to tackle misinformation must be included to ensure efficacy. This paper evaluates the dangers of neutral conceptions of "fake news" to MIL, and why addressing discontent rather than disinformation is a better approach for reducing the harms of "fake news."

Keywords: disinformation; misinformation; propaganda; "fake news".

The American Dialect Society named "Fake News," which is a preferred phrase of the US president Donald Trump, its 2017 word of the year. The term is seemingly unavoidable in public discourse—governments, educators, and civil society organizations have turned their attention toward this grim digital specter. Too often, "fake news" is considered as an unintentional omission or accidental corruption of genuine facts: reporting an accident that did not occur because of a misunderstanding or reporting a theoretical prediction as an inevitability. UNESCO officially discourages the use of the term "fake news," stating in its 2018 publication Journalism, 'Fake News' & Disinformation: Handbook for Journalism Education and Training:

Accordingly, the current handbook… 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.

This perspective is naturally significant and meaningful: calling disinformation "fake news" could be considered as an infantilization of dangerous weapons (disinformation, misinformation), which use news media in strategic, narrative ways to deliberately reinforce beliefs among its audience. Yet, the prominence of the term in public discourse suggests that however inaccurate the term is, it must be confronted to reframe public discourse. It is insufficient to say "we do not describe content as fake news" without first addressing the efficacy in the how, why, and what of this weaponized media strategy. Supporting the inverse, in pursuit of an effective MIL strategy, including MIL Cities, "fake news" must be understood as a political tool weaponized for disruption rather than simply ascribed as incorrect information. In examining specific examples of "fake news" used in the UK, Russia, and the USA, this paper explores the influence and political precision of "fake news."

In this theoretical chapter, my research questions are as follows. First, does a neutral conception of "fake news" as simply wrong information—rather than deliberately inaccurate, frequently weaponized misinformation—inadvertently hinder the ability to fight it? What differentiates simple falsehood from "fake news?" Second, how can the MIL cities project (UNESCO, 2019) ensure proactive management and confrontation of weaponized disinformation for the benefit of MIL goals?

ICT Access and the Rise of Fake News

Despite the inaccuracy of the term, the rise of intentionally false media campaigns, i.e., "fake news" has resulted from a critical development juncture worldwide. The past decade observed a considerable increase in digital access (to ICT devices and the Internet) without corresponding increase in digital literacy. Most devices and services are supported through private industry and business, which grow exponentially without a corresponding rapid investment in media and information literacy (MIL) education. As *the Global Framework for Media and Information Literacy Cities* (UNESCO, 2019) notes, "the integration of media and information literacy (MIL) into formal and lifelong learning education systems has not progressed as rapidly as it should."

This education gap can be illustrated through simple misunderstandings of technology itself. A 2015 global study found that in Nigeria, 9% of Facebook users claim that they do not use the Internet; in Indonesia, 11% of Facebook users claim not to use the Internet (Mirani, 2016). The perception of "Facebook" as an entirely different entity from "the Internet" suggests that many users, particularly in developing countries, passively consume information without the necessary tools for critical evaluation.

Similarly, it is reasonable to assume that MIL-limited users have misunderstandings beyond the website/internet associations. Users who trust Facebook but do not understand its functionality may also misunderstand the relationship between trusted platforms and untrustworthy publishers. Many users may still believe in the "newspaper model" of content: if you trust a newspaper enough to purchase it, you also trust that the contents within are accurate. Additionally, in many developing countries, state-sponsored media predominates, creating an uncritical media consumption lens deliberately. Audiences are implicitly encouraged to consume news and news-adjacent media unquestionably for political purposes. Thus, intentional misinformation, shrouded in the visual culture and social pretense of "news," can conveniently propagate society.

Without understanding that websites like Facebook are open platforms (allowing anyone to publish without need for credentials), many users may assume that all contents on trusted websites are truthful. The most dangerous cohort of users are those with sufficient MIL skills to go online but without the necessary critical capacity to evaluate the information they encounter there. However, beyond digital literacy concerns, there needs to be honest assessments of why and how untruths and lies are widely propagated online. Examining "fake news" as a political tool of would-be disruptors and extremist agitators allows MIL specialists to better investigate its spread and how it can be tackled. It is an inaccurate description in the academic sense but an on-the-ground descriptor of a weapon used on citizens' minds.

The Politics of Fake News

Unfortunately, the current structure of MIL education, endorsed by the UNESCO-MIL framework, tends to neglect the influence of deliberate disruption. UNESCO's educational book, *Journalism, 'Fake News' & Disinformation,* still structures the basis of its MIL education on an assumption of credible, fact-based reporting, which should be contemplated in a thoughtful way: "Journalists should report on, and signal, lies expressed by various actors; conversely they should never accept claims as facts, nor present them without providing the accompanying qualifications that inform the audience about the actual situation" (UNESCO, 2018).

This book cites an example of a little girl believed to be trapped in the 2017 Mexico City earthquake whose plight received significant attention on Twitter; she was later proven to be unreal, but this was "not perhaps a case of deliberate fakery." Inaccurate reports during a crisis typifies "fake news" but is arguably not the most influential. Sagely, the UNESCO books notes that "authentic news does not constitute the full "truth" (which is something only approximated in human interactions with each other and with reality over time)" (UNESCO, 2018). All of this is accurate but fundamentally unhelpful in detuning powerful falsehoods that form belief sets, like the now-notorious QAnon in the USA, belief in child abduction rings in rural India, or the notion that Muslim minorities were setting temples ablaze in Myanmar. These examples of "fake news" are not based in news but rather are expressions and perpetuations of existing belief patterns—built on preconceived biases and supported by invented "news," not based on "news."

Politically, "fake news" is a type of propaganda: telling false anecdotes to affirm an engineered grand narrative; it is not random. The narratives crafted by purveyors of "fake news," when used most effectively, prey on anxieties, fears, and existing prejudices. Additionally, they use the structure of news media to maximize their perpetuation of lies. For instance, in 2015, the Kremlin produced a story of Ukrainian soldiers crucifying children in the streets (false and hysterical yet provided "evidence" to an anxious Russian public about the barbarism of their neighbor.) The news employed credible formats to stoke fears and justify annexation (Khaldarova & Pantti, 2016). More importantly, it was "news" because it used easily digestible formats on modern digital devices, which would have been rendered as effectively in an evocative propaganda poster or illustrated leaflet in earlier years. As the communications scholar Marshall McLuhan noted—*the medium is the message*. If people crave "news" and fear "others," then supporting the demonization of enemies is done most effectively through familiar media tools: "fake news."

In India, a public service announcement about child safety featured a skit about kidnapping. The skit was slightly edited to remove government marketing, making the video appear to be genuine hidden camera footage; it spread widely over WhatsApp,

resulting in over 20 lynching of ethnic minority men (Elliot, 2018). Viewers watched the doctored video, assumed or were led to believe it depicted genuine kidnapping, and undertook vigilante justice. Most victims of the violence spoke minority languages in their regions; they were already the target of social stigma, which became affirmed by purported "evidence." In the United States, a notorious "fake news" story concerned an alleged child sex-trafficking ring, hidden in the basement of a pizza restaurant frequented by politicians (Politifact, 2016). While the allegations against the restaurant were wholly disproven in 2017, the story only grew afterwards, attracting a wider audience under the new banner of QAnon or #QAnon.

Accusations of crimes against women or children, particularly sexual crimes, are common in "fake news" narratives, specifically chosen to be as disturbing and incendiary as possible. Like other Internet content designed to "bait" a user into clicking, they are shocking and usually demand that users promptly alert their social networks of probable danger. Beyond children and women, other "fake news" narratives prey on common concerns: immigration and the emergence of visible demographic difference, secularization, and desecration of national symbols. The idea of an objective truth, acquired through evidence, fact, and reason is largely irrelevant to the producers and consumers of "fake news." The more facts presented, the more people tend to dig in their heels: the studies, data, photographs, interviews—fabrications of wicked actors trying to attack them. Belief in fake narratives is rooted not in a world of fact but a basis of prejudice; confronting prejudice with fake narratives often fails to resonate with its audiences.

It is also worth noting that the "fake news" strategy uses the visual culture of trusted news media to intentionally create confusion for its audience. How can one story presented as a news article be true and another be false if they appear so similar? This undermines fact-checking completed whereby well-meaning people attempt to disrupt misinformation campaigns. Refuting one YouTube video with another YouTube video is unlikely to persuade the confused audience about the incredibility of the former. Instead, it perpetuates a new incorrect belief—either that "no YouTube video can be trusted" or "both sides, having used the same medium, must possess some level of truth." This false equivalence in content is a substantial hazard to efforts supporting MIL.

Fake News in Practice

Far-right political leaders broadly buoyed by anxieties about all the above have used "fake news" stories on their social media platforms. Former United Kingdom Independence Party leader, Nigel Farage, claimed on Twitter that pro-refugee

activists were belittling rape victims, including a doctored photograph reading "My legs are open for refugees!" Farage claimed this was a cruel and an unsentimental reference to the 2015 New Year's Eve attacks in Cologne, Germany (the event and its coverage/lack of coverage was the subject of extensive critique by antimigrant political groups).

In fact, the real image read: "my *door* is open for refugees," a common pro-refugee slogan (Kretzel, 2018). The photo editing being poorly completed, with the font barely matching the original, was largely irrelevant to its intended audience. Unlike genuine reporting, which begins with facts and carves a narrative to explain them, "fake news" begins with a belief and manipulates facts to suit the narrative.

In Farage's case, the narrative was simple and brutal: refugees are rapists, and those who support their acceptance are promoting rape; they are so confident in their promotion of rape that they will obliquely refer to it on a sandwich board. Queasy and nonsensical, the false story is not designed to persuade nonbelievers; it is to affirm the fears of those already convinced.

Governments Cannot Fight Stories with Facts

As the term "fake news" has become increasingly prominent in MIL circles (many people have discouraged its use over fears that it is inaccurate), many advocates have noted an urgent need for strategic mitigation against "fake news." One of the commonly suggested modes of fake news management is through fact-checking—ensuring that members of the public have access to neutral resources, where they can confirm or deny information they have encountered through other sources. This is a feasible idea; it presumes that "fake news" information received by the public is incorrect and therefore easily corrected by presenting accurate counter-facts. Unfortunately, this has not proven successful as it fails to confront the aforementioned root of disinformation, which is belief rather than fact.

In the United States, Snopes.com has fought against disinformation since 1994. Having begun with simple urban legends, the website has expanded operations to include corrections against scientific disinformation (affirming, for instance, that NASA is not "dosing Americans with lithium from the sky," a long-time conspiracy theory) (LaCapria, 2018). More recently, the website has included political information, using congressional records, interview archives, and other verifiable sources to verify claims made by politicians.

Snopes became the subject of a "fake news" scandal (perhaps because of its pre-eminence in fact-checking) when misinformation distributor Paul Horner registered domain names similar to Snopes (Snopes.com.co) to deliberately mislead readers

attempting to fact-check (Funke, 2018). Beyond web spoofing, politicians have dismissed Snopes as fraudulent or politically motivated to smear their names—paid by their enemies or foreign entities (Emery, 2018). The case of Snopes illustrates the flaws of the fact-checking approach, which demands that audiences hold the website to the highest standard of trust, assuming that this site will always tell them the whole truth, an approach that UNESCO's models of MIL discourage. Furthermore, notorious fact-checking websites are typically dismissed by fringe agents as "government corruption" or "lies," invalidating their usefulness among the most susceptible readers.

These sites require the audience to have sufficient technology literacy to avoid being lured into reading false fact checkers. A study on German seniors (Friemel, 2016) and young refugees, immigrants, and people living in poverty in the UK (Eynon and Geniets, 2016) found among reluctant or occasional internet users shared traits of lack of intellectual curiosity, discomfort in addressing or confronting material contradictions to their experiences, and unwillingness to acquire additional MIL skills to improve their internet capacity. Unfortunately, both demographics identified are prime victims of "fake news." They are vulnerable to disinformation because of their social status and lack of MIL skills.

"Don't confuse me with the facts"

Among the notions against which specialists and experts must guard themselves is the universal persuasiveness of fact. To academic and academically-adjacent professionals, with well-studied understandings of p-value and peer review, fact is a sacred entity. Yet, many people have never been provided the tools to interrogate the truth of a source—to affirm that X is true because of the demonstrated realities of Y and Z, the multi-variate regression at Q, and the meta-analysis at R.

Suspicion of data is profound among the public. Without adequate data literacy—itself informed by high-level numeracy, scientific literacy, and general reverence for the academic process—statistics are nothing more than rude reminders of the elite's self-satisfaction in their own educational attainment. For example, despite the nation's high level of education, only one in five Americans has great trust in the institution of science, almost a third less than those who have great trust in the military (Funke, 2018).

Some experts presume that the harsh light of truth will correct falsehoods, which is not necessarily the case. In the aforementioned US "fake news case," the restaurant with the alleged basement child trafficking ring *did not have a basemen*t. Yet 46% of right-wing voters surveyed maintained the belief that, yes, their left-wing rivals were

pedophiles trafficking children in imaginary pizza restaurant basements (Rampell, 2016). Despite four years of fact-checking and investigation to disprove this harmful and baseless claim, in 2020, 4% *more* of right-wing voters in the US, an even 50%, agreed with the statement, "top Democrats are involved in elite child sex-trafficking rings" (Beer, 2020). Using fact-based investigation and analysis for a long time did not refute (and may have partially validated) politically-motivated false belief. Thus, we observe the strategic imposition of "fake news" as an extremely effective mode of propaganda: once supported, refutation is extremely difficult.

When a belief is sufficiently deep-rooted, exposure to facts contrary to the belief may reinforce the original belief rather than refute it. Instead, of reconsidering an idea, the believers have additional institutions to distrust. Hence, even when revealed facts demonstrate that narratives could not have possibly happened, the power of the fear-based narrative is so profound that it cannot be shaken. The manipulative core of most "fake news" propagated is: *my gut feeling is correct, my fears are valid and legitimate, and my voice is being silenced in favor of more politically palatable narratives*. Thus, the MIL city must be aware of the politics surrounding "fake news," particularly in support of SDG 16: "*Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels*" (UNESCO, 2019). A society whose false beliefs pits one group or demographic against another through persistent exposure to ICT and digital media risks damaging existing institutions. At its worst, this can deepen prejudice, electoral manipulation, social disruption, and violence. Confronting why some groups are more impacted by "fake news" than others must be a part of the MIL strategy, to ensure an inclusive and effective implementation.

The Fake News Strategy

The relationship of high ICT access/low digital literacy is being broadly exploited by agents (government and nongovernment alike) who wish to disrupt democracy, erode institutions, and ultimately create social disharmony.

While propaganda has arguably existed for centuries, "fake news" relies on 20th and 21st century systems and structures, namely mass literacy, mass media, and access to infinitely replicable digital media assets (i.e., memes, videos, or posts). Fake news presupposes a lack of critical perspective from a sufficient size of its audience for misinformation to circulate widely. This combination of strong ICT assets and significant deficit of ICT literacy is perhaps a result of an imbalance in development. Private sector actors have supported getting digital devices and Internet into the hands of billions of people in a few years while educational entities have struggled to

accelerate their curricula accordingly. Mass ICT access greatly benefits communities, but the lack of associated social and educational support on a comparable scale has perpetuated numerous structures required to create beliefs of "fake news." Whether it is conspiracy theorists promoting apocalyptic scenarios to promote their financial self-interest, quack doctors selling snake-oil remedies, or foreign governments attempting to manipulate political strife, the playbook is the same:

1. Identify disaffected groups.

First, the bad actor identifies the disaffected group, which vary widely depending on the context. The disaffected could be ethnic or language minorities who feel devalued by the dominant group, or they could be the dominant group who are concerned about the emergence of minorities. Factors of age, gender, religion, economic status can be exploited.

In the 2016 American presidential elections, Kremlin's efforts to disrupt democracy targeted dozens of distinct sub-groups throughout the United States: African-Americans (disaffected by racism and police brutality), Muslims (disaffected by a climate of broad Islamophobia and xenophobia), Christian conservatives (disaffected by a perceived loss of their values in American society, and secularization), further left-wing Americans and socialists (disaffected by their mistrust of the two-party election system and loss of their preferred candidate, Bernie Sanders), and gun rights advocates (disaffected by increasing discourse about school shootings and gun control), among others (Fathom Fakebook, 2018). In 2020, under COVID-19 public health lockdowns regarded as disruptive to the way of life, more groups became potential targets for "fake news": business owners and employees whose livelihoods were acutely at risk, religious groups whose activities were temporarily restricted, or those in seriously impacted areas who felt the government was treating them unfairly.

By micro-targeting unhappy demographic groups with content that support their distinct point of view, disruptors can be far more effective than their mainstream counterparts. These disruptors are not bound by conventional political confinements to please the majority or the journalistic imperative to represent multiple points of view.

2. Find their anxieties—usually the thing that is making them feel disaffected.

Once the "target" is confirmed, the bad actor identifies what makes the group an ideal target, which varies depending on the audience but is usually easy to note. Whether they fear for their wealth, safety, ethnic purity, religious heritage, or health, the disruptor identifies their most serious concerns.

As has been noted in many countries riddled with "fake news," the subject of mass anxiety is usually well-understood but forbidden to discuss. Minority ethnic or religious groups, and the fear that they might "overtake" the majority, are a common subject. In Germany, supporters of the far-right Pegida party claim that their country risks being "Islamicized" by refugees, and conventional politicians are too timid or too politically correct to react (BBC News, 2015).

Other common anxieties are fears of mass control by shady foreign entities, often evoking anti-Semitic canards through references to Israel; the billionaire philanthropist George Soros; and a "One World Government" headed by hidden elites. (Coleman, 2018). The anxieties are tailored to their audience, but usually coalesced around themes of losing control, losing power, or having no genuine political capital whatsoever—only the illusion of power. While focused on power, these are not necessarily always political anxieties. The growing antivaccine movement in Western nations emphasizes fears about a lack of parental sovereignty and authority over children. COVID-19 has calcified and cemented these anxieties; ordinary concerns about an emergent vaccine can easily be manipulated into a strident antivaccination threat. As COVID-19 vaccination spread across the globe in late 2020 and early 2021, the "fake news" diverged into a handful of subjects: pharmaceutical companies attempting to alter human DNA, the notion that COVID-19 variants are caused by the vaccines, or that COVID-19 vaccines will make women sterile as part of a mass depopulation effort. As previously noted, the anxieties common in "fake news" have recurred in the COVID-19 campaigns (women and children; powerful and secret people).

Hence, regardless of the subject, anxious audiences already believe themselves to be under threat, out-matched, and outgunned by the nebulous agents of power. Consequently, they are receptive to media that speaks sincerely to those anxieties—even supporting it when it is flawed or poorly sourced. An audience willing to embrace media that shares their pre-existing worldview fundamental to effective "fake news" disruption.

3. Affirm those anxieties as genuine threats, using corrupted truths or outright lies.

The *news* elements of "fake news" are essential. Using half-truths, or stories that appear plausible under current conditions, allow disruptors to weaponize the unceasing media diet of the 21st century. The consequences can be tragic, if not fatal. In Myanmar, where Facebook served as a conduit for anti-Rohingya groups to disseminate content that sparked genocide in 2017 (Oppenheim, 2017), long-standing anti-Muslim sentiments were common among the Burmese, Buddhist majority population. Through Facebook, anti-Rohingya militants shared violent images—mutilated bodies, corpses in the streets—claiming that the Rohingya were terrorists who had committed the heinous crimes pictured. Some images were genuine, taken out of context, and associated with false claims. Others were wholly false, either edited, staged, or taken from fictional media. Yet, the visceral quality made the pictures persuasive. The coalition of civilian and military groups affirmed, through their pictures, what many in the country already feared—that minority groups posed a fundamental threat to the safety of their nation. No evidence existed to suggest that the images were of Rohingya attacks, that they were recent photographs, or that they had even been captured in Myanmar. However, in a social context already muddied with fear, no firm evidence was needed for persuasion. The photographs spread like wildfire over Facebook; the news was fake, and the fear and hate were real.

4. Remind them that anyone who attempts to correct the lies and falsehoods is, fundamentally, their enemy.

The last step in "fake news" disruption is to remind the audience that only the news they agree with should be trusted. Casting fact-based reporting as "biased" or based on lies, while claiming that the fake material is the only trustworthy source, deepens the divide between the anxious audience and the rest of the media. Government attempts to correct lies? *Just more evidence of their efforts to obfuscate unpleasant truths*. Investigative reporting, with photographs, video, or eyewitness report? *Elaborate cover-ups, created to sway true believers with increasingly complex webs of lies.* A profound struggle of "fake news": the more a light of truth is shone upon it, the more its supporters can affirm their existing belief sets.
If we were not so close to the real truth, says the conspiracy theorist and "fake news" believer, *they would not expend such effort trying to prove us wrong.* Every input is a re-affirmation.

5. Repeat, repeat, repeat.

The final note of efficacy for the "fake news" strategy is repetition: ensuring that even skeptical people see the misinformation many times across many platforms. When accurate information or recommendations are often changing, disinformation remains comfortingly consistent.

Consider recent disputes about COVID-19 vaccines: first, AstraZeneca was safe; then, it was associated with blood clots; afterward, some countries deemed it unsafe before returning to use it. All of these decisions were made in the context of emergent scientific information but transmitted to the public only via headline. The confusion becomes evident: "AstraZenca Safe!" on Monday and "AstraZeneca Unsafe!" on Thursday begins to appear as "the experts cannot be certain of anything." By contrast, the agents of misinformation and "fake news" would have supported a belief-based (rather than fact-based) message from the beginning—which, as a dogma, does not change as information does. The ability to provide a stalwart, unchanging, unyielding opinion is a comfort to anxious people in difficult times, even (and perhaps especially) if untrue. Herein is the challenge of refuting falsehood: lies do not ever need to change. Once they take root, their efficacy remains the same.

Therefore, what should be done? Can supporters of the truth disrupt disinformation? The answer is "yes," but the methods are highly variable.

MIL Cities as an Antidote

Fortunately, an MIL city has the capacity to be a site of meaningful discourse and refutation of politically-motivated false beliefs—if executed thoughtfully. The MIL city is intended by design to be "aspirational" (UNESCO, 2019); the city emphasizes outreach to groups that may be marginalized by conventional municipal or government outreach. This focus will come handy in the fight against weaponized "fake news."

In a well-executed MIL city framework, the groups most vulnerable to this manipulation should be pre-emptively identified and reached out to—in whatever context they prefer. Depending on local preference and context, outreach should occur through conventional internet platforms (Facebook, Twitter), more unconventional internet platforms (Reddit, 4chan), or in-person outreaches (at schools, colleges, workplaces, and places of worship). Ethnic and religious minority communities should be accommodated as well as majority populations whose intercultural resentments can fuel the influence of "fake news."

What could outreach look like in an MIL city? It may mean presenting upcoming legislation in an easy-to-understand format for an average person, allowing feedback through public officials. Beyond just listening, the MIL city should have the tools to integrate public perspectives—even if it is contradictory to a master plan or frustrating to manage. The public should be invited to provide consultation and suggestion, but beyond this, they will need to receive evidence that their feedback has an impact. Thus, citizen's suggestions must form the basis of the municipal outcomes, whether in legislation, planning, programming, or spending.

An MIL city can dampen discontent by supporting a transparent system, which hinges on open dialog, engaging citizens on multiple platforms (online and in-person) and providing open evidence of how citizens impact their city. The basis of support of "fake news" is not incorrect facts; it is the belief that one's potential is held back by shady and unstoppable forces. In revealing both the structure of the city and the power of the individual, ordinary citizens within it, an MIL city can simultaneously bolster MIL goals and social cohesion. A tangible, participatory MIL city will enable the defusing of some of the worst accusations of the "fake news" by shifting from an inscrutable, technocratic, distant, and intellectualized government. How can the government be controlled by distant entities when you, an ordinary person, help set its course? How can your neighbor of a different ethnicity be a threat when you break bread while discussing the library or a community radio station?

Theoretically, this process can be illustrated thus:

Sample MIL Cities Anti-Fake News Strategy

1. Municipal governments must identify disaffected groups, using whatever tools are available: school rolls, census data, religious groups, and information from healthcare providers and law enforcement.
2. On virtual platforms, municipal governments should conduct specific outreach—information sessions about topics related to major sources of disinformation (like ethnic tensions, COVID-19 vaccines, or other controversial subjects) as well as positive, unrelated subjects of significance to those groups (football, culture, etc.) The former sessions are to dispel myths, but the latter are to foster a positive relationship between disaffected groups and municipal governments. This will strengthen trust and hinder them from falling victim to "fake news."
3. Beyond the virtual targeting, the disaffected people must be provided with opportunities to connect across communities. This can include free social or cultural events in major public places, such as town squares or plazas. Ideally, these events will have a positive message with a secondary intention toward dispelling misinformation. For example, a holiday festival can have

> an intercultural understanding activity, or a sports event can promote the circulation of information in both majority and minority languages. In cities where communities are highly segregated, governments should consciously plan events to include multiple groups. Intercultural contact in positive, low-risk situations is a strong means of disrupting "fake news" narratives—replacing negative messages with positive experiences.

Importantly, this process will not be smooth. Some of the engagements will be fiercely contested, even disruptive; MIL cities should consider plans for deliberate, controlled conflicts in the context of building strong MIL institutions. Like an intentional forest fire set to prevent a wildfire, bringing up controversial "fake" beliefs in a controlled environment, with compassion, will allow cities to support their citizenry in participating in government. The goal is not to fact-check or convince the "fake news" believers that they are wrong or have been misled; it is to reduce the sense of disaffection that fueled the appeal of the false beliefs.

Conclusion: An Alternative to Alternative Facts

Aristotle noted over two millennia ago that successful argumentation is not simply a matter of stating facts better, but about appealing sufficiently to the ethics and the emotions of an audience. ("Aristotle, Rhetoric J. H. Freese, Ed.") Disinformation sticks not because of the reasoned quality of its arguments, but because of its powerful appeal to emotion—usually, fear. Hence, governments and civil society organizations cannot presume that promoting truth—and revealing what makes a lie a lie—will be sufficient to hinder the spread of fake news. Exploring the foundations that make "fake news" effective is as salient (if not more so!) as correcting untruths. Governments and civil society organizations might be better advised to cast a more comprehensive narrative.

Most significant is the change of focus; organizations should go to where audiences can be found and importantly, where audiences are actively receiving "fake news." If the people are getting their news from Facebook, the governments should contribute to their citizens' feeds, circulating information in the same punchy, alluring formats as their disinformation foes. Videos should be a part of every government's media production set, as well as readily shareable "memes." Active staff should circulate through the internet, as they do through parks and at town halls, ensuring that they have heard the concerns of the public—and noting attempts at disinformation spreading before it becomes epidemic.

The scourge of "fake news" will likely increase as the world becomes more connected. How it is battled and managed will ultimately define the relationship between the Internet and the truth… Hopefully, for the better.

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Words Are Stones: Countering Hate Speech Among Young Generations in Europe

Michele Filippo Fontefrancesco

Abstract

While the Media and Information Literacy (MIL) City's framework highlights the objectives of global social inclusion using digital tools and resources, the phenomenon of online hate speech poses a grave threat. To provide policymakers, professionals, and educators with fresh insight into this phenomenon; this chapter presents the results of the research conducted within the European project "Words are Stones." Through a campaign of focus groups conducted in eight European countries (Bulgaria, Czech Republic, Greece, Hungary, Lithuania, Italy, Romania, and Spain) in 2018; the research highlighted the low level of digital awareness and scarce digital empathy that characterize the use of digital media among young adults. These elements create fertile ground for hate speech. To build functional MIL cities, this chapter advocates for new initiatives that promote full and mature MIL among so-called digital natives, to help: 1) understand the deep interconnection and interaction between online and offline spaces in everyday life, 2) raise awareness on the phenomenon of hate speech, and 3) explain the contributions that MIL stakeholders, such as families, schools, and NGOs, can have in preventing and alleviating hate speech.

Keywords: hate speech; policy; policy revision; focus groups interview; digital inclusion; digital natives, young adults.

The recent UNESCO's *Media and Information Literacy Cities* campaign has reconditioned the long-lasting debate on media and information literacy, hereafter MIL, and added a grassroot perspective initiated from the level of state intervention to cities, and communities action (UNESCO, 2019). The campaign suggests a multi-stakeholder approach that involves public institutions (schools and libraries), enterprises, NGOs, and the civil society to raise citizens' awareness about MIL and promote positive initiatives of reform. The possibility for the present and future generations to functionally access new media technologies poses a threat, however, it provides the opportunity to use these tools and resources to empower citizens, and nurture innovation, integration, and collaboration on a national and international level. Hence, all the actors are committed to promoting positive use of the digital media and fostering a language of social inclusion and practice of cultural dialog. Thus, the rising phenomenon of online hate speech is a key challenge to tackle.

Hate speech, referred to as HS henceforth, is consistent all across Europe (Waldron, 2010), being among commonly reported hate crimes (Hall, 2014) and main topics in public debate due to its diffusion and the difficulties in its regulation (Banks, 2010). Cases of HS include the public use of names and phrases that promote denigratory stereotypes and incite discrimination and violence against specific people and particular groups, such as ethnic and religious minorities. HS also involves the public display of symbols, such as fascist iconography, aimed at promoting discrimination, violent behavior, and hate. The Internet has proven, over time, to be a fertile ground for the spread of this kind of offensive, intersubjective communication particularly through the use of the social media. Accordingly, online HS has affected virtual and physical public spaces. While the European mediascape is pluralized with cases that involve single individuals: mostly young people (Warner & Hirschberg, 2012), posts and comments as well as insults, attacks, and threats are more common. Insofar as major social media, such as Facebook and Twitter, have enforced strict policies including the removal of such materials or banning their authors. Despite these actions, online HS is still common and remains perilous toward achieving the MIL cities' objectives.

To challenge the rise of hate speech in Europe, the consortium led by the Istituto Europeo per lo Sviluppo Socioeconomico, hereafter ISES, (https://www.associazioneises.org/en) launched "Words are Stones" (https://www.wordsarestones.eu), WAS, henceforth. This project was funded in 2017 by the European Union's Rights, Equality and Citizenship Program 2014–2020 and ran its course until 2019. The project analyzed HS in eight European countries, designing and offering peer-to-peer educational programs and digital tools in order to sensitize the European population, particularly teenagers and young adults, to recognize and respond to HS through grassroots initiatives.

This chapter investigates the main cultural factors that prompt online HS based on the first phase of the WAS research (Autumn 2017 to Spring 2018) in order to understand the strategies that stakeholders of any MIL city should embrace to counter the phenomenon. The research particularly investigated:

- The level of digital awareness linked with everyday use of digital media;
- The aims of HS in connection with the victim and hater's community.

This chapter analyzes the main findings of the WAS research collected during the focus groups organized in the eight countries involving young users and other stakeholders directly interested in the spread of HS. Data have been qualitatively analyzed, with particular focus on rhetoric and storytelling in understanding the virtual space and HS among users and professionals.
The research confirms the diffusion of HS throughout Europe but also indicates an alarming relationship between the new generation and their use and perception of information technology. This chapter expressly indicates the overall superficial digital awareness of the users; it begins by introducing HS. The chapter moves on to present the WAS research providing more details concerning the methodology and field activities. The data are presented and discussed subsequently. This chapter concludes with recommendations aimed at software and policy changes as well as new campaigns to help reinforce MIL among young users.

Hate Speech and Media and Information Literacy

HS is any hateful message directed against people based on the social labels attached to them. It is often connected to stereotypes of race, religion, gender, or sexual orientation but can also have other motivations (Daniels, 2008). While the term "hate speech" refers to practices that may occur in a physical and digital environment, this word (Williams, 1983) is becoming common in reference to materials published through the use of a computer system or electronic communications (Warner & Hirschberg, 2012). The phenomenon is consistent across Europe and well-founded among the most common hate crimes. The OSCE Office for Democratic Institutions and Human Rights' Hate Crime Data (http://hatecrime.osce.org) highlights the incessant rise in reported cases of hate crimes across Europe over the past decades. Victims of these attacks are: women; religious and ethnic minorities (particularly Muslims); LGBTQ+ people; and, since 2015, asylum seekers as well as those acting on their behalf.
Digital media allows offensive, intersubjective communication to spread with worrying haste. Although hateful messages may only be diffused online, they can

affect virtual and physical spaces in every sphere of daily life: at school, in the family and social circles, in public space, at work, and in times of crisis and peace. The phenomenon is at the center of unprecedented political debates that are developing locally and internationally, which sees politicians of almost all political factions demanding solutions and instruments to help minimize or control this destructive phenomenon and misuse of the Internet (Banks, 2010). Yet, the media consistently reports cases of HS and its tragic consequences, mostly among teenagers (Anis et al., 2017). What seems to be overlooked is the broader ways in which media and information tools are accessed, used, and understood by most people who are the anthological foundations (Weber & Bookstein, 2011) upon which HS is based.

The rise in HS suggests that most people who use digital tools are completely unaware of the consequence of their actions in the digital space, as though the web was *immaterial* rather than intangible; HS raises ethical and technical questions directly linked with MIL (UNESCO, 2015). The global framework of MIL cities draws our attention to the necessary development of effective strategies to raise awareness among digital users about the effective implications of their virtual actions and organize activities able to support media literacy to promote diversity and tolerance.

Words Are Stones: The Project

Against this backdrop, WAS was launched in 2017. The research was funded by the European Union and aimed at combating online racism and discrimination by equipping young social media strategists/managers, bloggers, and activists (young people in general) with the necessary competencies to recognize and challenge the spread of HS. WAS was led by ISES and involved public and private partners: Amalipe Center for Interethnic Dialogue and Tolerance (BG), Budapest Centre (HU), CEPS (ES), CPIP (RO), Demetra (LT), Family and Childcare Centre (GR), Komunikujeme (CZ), Newton (IT), and Politechnica University of Timisoara (RO) from eight European countries (Bulgaria, Czech Republic, Greece, Hungary, Lithuania, Italy, Romania, and Spain). The partners were chosen based on their involvement in the field of education and experience in promoting social inclusion and innovation.

This research built upon other European projects implemented recently to educate the population and provide them with necessary tools to combat online HS. The research aimed at raising the general level of MIL in the younger generation to challenge instances of online HS and equip users of information technology—focusing on young people—with the competencies necessary to recognize and act against such human rights violations. For successful completion, the project envisaged the organization of a train-the-trainers course for young social media strategists/

managers, bloggers, online activists, and YouTubers in England as well as each participating country. The research externalized a "Youth media campaign" with on/offline local activities in the eight countries, and the establishment of a European competition for the "Words are Stones: Hate Speech Award": a European celebration enabling young people to report on and vote for the best cases of HS management and the best conduct of internet users toward a more inclusive Internet. Table 1 summarizes the specific objectives and activities of the research.

Table 1. *The steps, beneficiaries, and priorities identified and acted upon by the project.*

ACTION	BENEFICIARY	PRIORITY MATCHING
Improved knowledge of relations between offline-online hate speech thanks to young social media strategists/managers, bloggers, online activists, Youtubers well trained on defending human rights online and how to manage "trolls," "haters," hate posts/discussions…	Young social media strategists/managers, bloggers, online activists, and Youtubers, aged 18–30.	Strengthening the capacities of online media experts in the EU to recognize and fight hate speech and speech that spurs violence and crime out of hatred.
Owning to the focus groups organized for the course and the activities of the campaign, awareness about (online) hate speech increased	Young social media strategists/managers, bloggers, online activists, Youtubers aged 18–30; young people aged 14–25; and the general population	The detection and perception of the problem as well as an active role in the project will allow young people to activate relational strategies and enable them protect themselves from the problem.
Young people will contribute to make the internet a safer space for their peers due to their direct involvement in the campaign.	Young people aged 14–25	
Trained social media strategists/managers, bloggers, online activists, and Youtubers will become trainers in national editions of the course to initiate a process of cascade training to mobilize and engage a wider number of actors in the field and young people.	Young social media strategists/managers, bloggers, online activists, and Youtubers, aged 18–30	Strengthening the capacities of online media experts in the EU to recognize and fight hate speech and any speech that spurs violence and crime out of hatred.

WAS sought to empower young people through multifaceted educational strategies that develop their ability to instigate good relationships and respect for diversity while being aware of their own behavior and its impact on others. Participants interacted directly with other young people during the research, which strengthened their ability to think critically and exercise judgment, particularly in internet and social media contexts. This open interaction provided them with instruments to distinguish facts from opinions, recognize propaganda, and identify and question hateful content online by understanding some of its assumptions, biases, and prejudices while encouraging confrontational arguments to help enhance MIL.

Study Design

To accomplish the goals and understand the level of digital awareness as well as the motivations behind HS, WAS intended its first step to investigate the perceptions of the digital space among young people, their use of digital tools, and understanding of HS.

While open debate concerning digital nativeness (Helsper & Eynon, 2010) tends to convey an idea of full understanding, awareness, and use of the web by the younger generation, WAS's research intended to check this assumption and investigate the differences and similarities between the eight countries involved. The research particularly desired to collect qualitative data concerning experiences in digital space by assessing the possible forms of interactions different stakeholders had when dealing with HS events.

Hence all the partners were asked to conduct at least five focus groups involving professionals in mass media and communication, activists in the field of the third sector (preferably human rights activists) and young adults between 16 and 26 years of age who are the final users of the social media and main target of the project. WAS requested an even distribution among all three categories; all the participants also had to be under 35 years old. Selecting participants was based on their interest in the topic and lack of direct relationships with other participants in the focus group.

Newton designed the format, activities, and materials used for all the focus groups. Each section was facilitated by a professional selected by the local partners and had to last 180 minutes (being the time allocated in precise activities) in accordance with Table 2.

All the results of the focus groups have been recorded, translated, and transcribed. The findings have been qualitatively analyzed to highlight the perception and use of the digital space, the emerging understanding of HS, and the measures taken to combat it.

Table 2. *The table shows the activities of each focus group.*

ACTIVITY	MODALITY	DURATION
1. Welcome & Who is in the room	Speech & Roundtable	5 min
2. Introduction: the «why» of the focus group	Speech & Questions	5 min
3. What hate speech is, Origin and characteristics.	Speech & Questions	35 min
4. How does «digital» change the scenario?	Speech & Questions	35 min
5. Storyboarding session; What happened to the victim? Put yourself in the perpetrator's shoes: are they aware of the consequences of their actions?	Working session in groups and debriefing in plenary	70 min
6. Brainstorming session: initiatives to close the gap. How to prevent and react to hate speech?	Discussion with post-its	25 min
7. Expectations for the project	Discussion with post-its	5 min

Overall, the partners ran 41 focus group panels involving 367 people between February and April 2018. The composition of the social sample investigated by the focus groups followed the general requirements, with minor divergences. As Table 3 shows, the proportion of participants in the third sample, (that of final users), was higher than expected. This divergence has been accepted by the leading partner because its effects on the qualitative analysis of emergent trends are not negative; it allowed for better focus on the final users' experience, who are the actual target of the project.

Table 3. *The table presents the total number of participants in the different workshops.*

	IT	BG	E	RO	LT	GR	CZ	H
ACTIVISTS	13	12	2	15	15	12	15	19
PROFESSIONALS	14	11	13	19	15	11	15	19
USERS	13	12	7	50	15	20	15	15
TOT	40	35	22	84	45	43	45	53

Analysis

The research highlighted a level of MIL among young generation starkly different from the reassuring idea popularized by the concept of digital nativeness. The panels suggested young digital users and professionals use web resources and social media limitedly. Table 4 indicates only a few social media sites are normally used and known: Facebook, Twitter, and Instagram. Information is gathered from the Internet through specific websites or social media. These digital tools are also used to interface with small and selected groups of individuals as well as identity groups who share the same affects or experiences.

Table 4. *The table provides a summary of the emergent trends concerning HS, the mediascape, and possible strategies to be implemented in each country involved in the project.*

COUNTRY	SOCIAL MEDIASCAPE. MAIN SOCIAL MEDIA IDENTIFIED	EMERGING PERCEPTION OF HS.		COUNTERING HS. MAIN ACTIONS IDENTIFIED
		CAUSES	TARGET	
IT	Facebook, Twitter, Instagram, WhatsApp.	Cultural bias.	Minority groups; Gender; Ethnicity; Diversity.	Specific training courses (civic education) in school curricula; Public awareness campaigns about HS and its effects; Implementation of proactive steps to denounce HS.
BG	Facebook, Twitter, Instagram, WhatsApp, Viber, Messenger, WhatsApp.	Insecurity.	Gender Ethnicity	Specific training courses (civic education) in school curricula; Public awareness campaigns about HS and its effects; Implementation of proactive steps to denounce HS; Implementation of proactive steps to protect one's privacy.
E	Facebook, Instagram, Twitter, LinkedIn, WhatsApp.	Cultural bias; Fear; Boredom.	Diversity.	Specific training courses (civic education) in school curricula; Public awareness campaigns about HS and its effects; Implementation of proactive steps to denounce HS; Implementation of proactive steps to protect one's privacy; Legal reforms to enforce stricter penalties for HS.

COUNTRY	SOCIAL MEDIASCAPE. MAIN SOCIAL MEDIA IDENTIFIED	EMERGING PERCEPTION OF HS.		COUNTERING HS. MAIN ACTIONS IDENTIFIED
		CAUSES	TARGET	
RO	Facebook, Instagram, Twitter.	Perverse irony; Search for individual's acceptance; Sense of prowess.	Diversity; Unprotected groups.	Specific training courses (civic education) in school curricula; Public awareness campaigns about HS and its effects; Legal reforms to enforce stricter penalties for HS.
LT	Facebook, Instagram, YouTube, Snapchat.	Cultural bias.	Diversity.	Specific training courses (civic education) in school curricula; Public awareness campaigns about HS and its effects; Implementation of proactive steps to denounce HS; Implementation of proactive steps to protect one's privacy.
GR	Facebook, YouTube, Instagram, Twitter.	Search for superiority; Envy.	Diversity; Subjects who are envied.	Specific training courses (civic education) in school curricula; Legal reforms to force social media to control and limit HS.
CZ	Facebook, Instagram, Tinder, Snapchat, Google+, YouTube.	Cultural bias.	Minority groups.	Specific training courses (civic education) in school curricula; Public awareness campaigns about HS and its effects; Legal reforms to enforce stricter penalties for HS; On- and offline censorship; Software implementation to block HS.
H	Facebook, YouTube, Instagram, Snapchat, Tinder, Twitter.	Racism; Cultural bias.	Minority groups.	Specific training courses (civic education) in school curricula; Public awareness campaigns about HS and its effects; Legal reforms that foster stricter penalties for HS; On- and offline censorship; Software implementation to block HS.

The informants' digital experience comprises a closed environment made of a plurality of bounded communities. This plurality exposes the users to new contacts and can connect them with people who live very far away. To some extent, the digital landscape is only an extension of the physical world and facilitates contact with

people seen and known by the user on a daily basis, via messaging tools such as WhatsApp and Messenger. However, the informants suggest that a perceived greater simplicity existed in approaching other people or expressing their thoughts online rather than offline. Thus, the user lives in a space that extends from the offline world into digital space. This virtual dimension is as well part of the world inhabited by the user and a distinct space of socialization where the cultural filters and mediations that underpin personal interactions are weakened and reduced. The articulation of this human geography is not fully understood by the informants as they are not fully aware of the consequences that ensue. Hence, rather than being an echo chamber, digital space is an accelerator of feelings and affects that can escalate far beyond expected limits in an offline situation and have direct repercussions upon the physical space.

The informants were aware of the concept of HS and could offer examples of it from the news or their private lives. In all the examples, they indicated the strong link between what happens online and its offline consequences, however, they consider them as separate entities. This emerges clearly when the topic of HS is challenged.

Research notes that HS plays a key social role in reinforcing a sense of belonging to a precise community which shares the same rhetoric (Carrithers, 2005); HS is not just an expression of the individual's feelings or cultural bias, rather it works on a group level as a bonding practice among peers. In fact, the victims of HS are mostly subjects outside or on the margin of the groups within which HS is generated. An attack toward an outsider, outcast, or someone on the fringe of society is instrumental in strengthening group identity through common practices and language by developing collective identity in contraposition to a common target. This dynamic is common, psychological, and cultural, pre-existing the development of the web. However, the research suggests that this insider/outsider mechanism emerges in such a vivid way through the internet and social media for three main reasons:

- the perception of unreality that binds to the digital experience ("*What happens on the Internet is not real and does not touch the real world*," using the words of an informant);
- the loosened inhibitions in intersubjective behaviors and perceived online anonymity ("*It's easier for me to say certain things on the Internet, rather than in person*");
- the permeation of digital instruments in everyday life ("*I just look at the phone and find my friends and continue the discussion*.")

Thus, it is not surprising that informants link the diffusion of HS with the characteristics of social media and digital space and the ways of using them. Consequently, three main strategies have been suggested to limit this phenomenon while influencing

both the development of the digital medium, its use, and the users, as fig. 4 points out. These three-pronged approach encompasses:

- software changes aimed at automatically censuring HS and limiting the access of hate speakers to social tools;
- policy revision designed to enforce stricter controls against HS and introduce more severe penalties;
- a change in education intended to raise the level of MIL among young generations and users at large, starting from informing them about the interconnectedness of the digital and physical spaces and their human implications and enlightening them about HS and the threats it poses to individuals and social stability.

Conclusion

The research conducted in eight European countries investigated the use of new media by young users and their understanding of HS. It points out HS is rooted in a particular vision and use of digital resources based on limited MIL. Thus, MIL development appears to be fundamental in the fight against HS, and a main field of action for the MIL Cities.

While policy revision can provide the first tools to raise awareness and discourage harmful acts, and software changes can be aimed at developing new algorithms that limit the creation of online echo chambers, public attention and efforts should concentrate on the significance of education. In fact, developing MIL further enlightens users of the complete impact of their actions online, as well as aid them develop complete digital empathy (Terry & Cain, 2016), which seems to be missing presently. This is central for accomplishing the MIL cities' goals.

Conclusively, the research conducted opens new studies on the emerging human geographies that links physical to virtual spaces. Likewise, the research advocates educators, activists, and media professionals to develop new educational projects to strengthen MIL. The research particularly suggests that for this project to achieve efficacy against HS, it should:

- Identify the fictitious division between online and offline worlds; showing the interconnection and interaction between the two spaces in everyday life.
- Clarify the category of HS and its online phenomenology, detailing the places and ways in which it emerges, because the overall perception is limited.
- Explain the actual contributions that actors, such as family, state, and NGOs can have in preventing and alleviating HS.

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Digital Citizenship through the Use of Crowdsourced Data: Mapping Sexual Violence in Public Spaces

ElsaMarie D'Silva

Abstract

This chapter examines how crowdsourced data of women's experiences of sexual violence in public spaces can aid the search for local solutions by engaging communities and institutional service providers, such as the police. The data provide a basis for creating a space for dialog based on insights gained from understanding the patterns and trends that are location-based, and they are great tools for enhancing digital citizenship. The chapter further illustrates the potential willingness of communities and local authorities to participate in solutions and describes the importance of storytelling and digital citizenship in this context. The chapter highlights the work done by non-profit Red Dot Foundation, in India together with partners in Kenya and Nepal. The chapter concludes by asserting that crowdmapping is a multifaceted tool, which makes women aware of potentially dangerous locales. Crowdmapping empowers women to report incidents that help keep others safe, and provide a source of data to advise on best practices for avoiding street harassment and assault in public spaces. This chapter supports the Global Framework for Media and Information Literacy Cities (MIL cities) by demonstrating how the Safecity website and mobile application tools support the creative dissemination of knowledge, media literacy, and empowerment of women and girls to enhance place-based community safety.

Keywords: gender equality; safety; public space; harassment; groping; crowdsourced data; digital citizenship.

Gender-based violence is a global pandemic. UN Women estimates that 1 in 3 women around the world experience some form of sexual violence at least once in their lifetime. Yet, 80 percent of women and girls choose not to talk about it for several reasons including socio-cultural restrictions, fear of dealing with the police, and the lengthy judicial process for justice. In patriarchal societies like India, these statistics peak higher than the global average, thereby, affecting the quality of life of women and girls, limiting their choices, restricting their movements, and imposing rules and regulations that their male counterparts do not necessarily have to deal with.

A 2013 survey of 2000 women and 1000 men in New Delhi by the International Center for Research on Women (ICRW) found that 95% of women and girls living in the city feel unsafe from sexual violations in public spaces (Gaynair 2013). In December, 2012, a horrific gang rape took place in a bus in Delhi, the capital city of India. This incident was extremely brutal, resulting in the death of the young victim and leading to a huge and unprecedented public outcry. Another young woman also brutally gang-raped in 2013 died. 90% of the 2000 women and girls surveyed by ICRW reported experiencing sexual violations in public spaces —everything from groping, stalking, and sexual assault to comments and catcalls (ibid). Over 60% of the women and girls surveyed divulged experiences of violations in the last 6 months prior to the research and 65% reported being very fearful to go out at night; the findings were echoed by a 2016 survey of 1387 women and men in New Delhi, which found that the fears and perceived threats articulated by women correlated very strongly to actual reports of harassment and abuse (Madan and Nalla 2016).

In December, 2012, I launched Safecity: a platform that enables reporting personal experiences of sexual violence in public spaces in India anonymously. The aim was to encourage women and girls to speak up about such crimes, seek out assistance, and bridge the gap between the official statistics and daily reality. Since its inception, we have collected over 13,500 personal stories of sexual violence in India, Kenya, Nepal, and other countries and engaged over 750,000 citizens to educate and advocate about this issue. We did several pilots in local communities with grassroots partner organizations to test if the crowdsourced data could be used to mobilize communities and engage them to demand accountability from institutional stakeholders like the police, municipal authorities, and others.

This paper explains our methodology while engaging communities, and finding innovative solutions, thus, reclaiming their agency to become active citizens of a democracy.

Collaborative mapping and community engagement became new trends in the development discourse that allow local communities to become part of the power structure and influence what is mapped as well as what/who is on the map. The involvement of geographic information systems as tools for collaborative mapping allows new ways of economic and societal development. The mapping of uncharted

areas allows local communities to improve their economic situation in the region and literally put the communities on the map (Panek and Netek, 2019).
Most importantly, in each section below, it will be shown that the Safecity tool supports UNESCO's Global Framework for Media and Information Literacy Cities and the United Nations Sustainable Development Goals in many aspects of the tool's design. This includes supporting efforts to make cities inclusive, safe, and resilient; achieve empowerment for women and girls; and provide access to justice.

Use of Crowdsourced Data

Ushahidi was first developed in Kenya to map reports of violence after the elections of 2008. Its name translates to "testimony" from Swahili, and its mission is to help people voice out and those who serve them to listen and respond better. This was so effective that many organizations started using its platform to map all kinds of issues. In 2010, HarassMap Egypt started crowdmapping sexual violence on the streets of Cairo and other cities in Egypt.
I first heard of HarassMap Egypt in December 2012 while attending a program by the Swedish Institute for Indian leaders on Corporate Social Responsibility and Sustainability in business. At the time, I was exploring themes for a personal project that would help women achieve their potential. I found the concept of crowdmapping interesting, but did not consider it important to immediately replicate in India. However, within few days of returning from the program, a young woman named Jyoti Singh was brutally gang-raped on a bus in Delhi; She eventually died of injuries. This incident shocked everyone in India and around the world. It lifted the lid on the conversations around sexual violence and, for the first time, women and girls shared their stories openly. As I observed all these events, I was reminded of my own experiences of sexual violence in public spaces - being groped on a train in Mumbai as a thirteen-year-old, witnessing men masturbating on public buses, and being physically accosted during Holi[4] and other Indian celebrations severally.
I realized that though most women had stories to share, they definitely did not make official complaints; this resulted in data gap. Through further observations, I was shocked to find that there were very few statistics that could adequately highlight the problem of sexual violence in public spaces in India. This motivated me to launch Safecity together with a few friends. Our goal was to encourage women and girls

4 Holi is an Indian festival to celebrate the beginning of spring. It is celebrated with water and color which is thrown at people.

break the silence around such crimes by reporting anonymously. Visualizing this data as location-based trends would enable us to find dominant trends and patterns. This new data set would help identify factors that cause a location to become the comfort zone of perpetrators and help us identify strategies for resolution.
Additionally, with digital literacy through women and girls' use of the Safecity tool, their participation has identified unsafe areas in their communities, which helped make cities safer while giving them individual and collective voices about community safety.

Engaging Communities

One of our first pilots was in a small suburb in Mumbai where we partnered with an organization that wanted to mobilize communities around an issue. We convinced them to take up public safety and then we conducted several hundred interviews with residents in a small block of ten streets. There were different kinds of crimes that were taking place, but the dominant one was "chain snatching" or petty robbery. Armed with this data, we invited the residents to brainstorm solutions. The residents decided to equip themselves with knowledge on their legal rights, how to make a "right to information" application, and self-defense techniques.
The next step was to test it out in a completely different community. So, we partnered with a local gender resource center in Delhi being overseen by Plan International India for over three months. We organized multiple trainings, awareness workshops, and an extensive mapping exercise in an urban village of Lal Kuan. Respective stakeholders such as local police, the municipal corporation, school authorities, grassroots NGOs, community collectives etc., were engaged to improve the living conditions of the community and reduce the cases of sexual harassment during the space of three months. The community as a whole, especially women, became aware of sexual rights and laws and started to report these issues via Safecity and to local authorities.
The final data set showed that there were four hot spots, one of them was near a tea stall where men would loiter while having tea and intimidate women and girls who pass by. These "male only" spaces with constant male gaze were quite intimidating to women and girls. In a culture where it is difficult to challenge a male figure for inappropriate behavior, many women and girls preferred taking longer routes or avoiding these hot spots while a few girls even dropped out of school (It was definitely easier to adjust one's daily routine.)
We brainstormed ideas in the community and decided to host an art workshop with the Fearless Collective. The women and girls painted "staring eyes" on the walls

along with subtle messages that loosely translated in English to "Look with your heart and not with your eyes," "we won't be intimidated by your gaze," "we will break our silence," etc. This activity was hugely liberating for them, especially since many of the women were illiterate who for the first time expressed their deepest feelings. The wall mural was very effective in conveying the message; the loitering and staring actually reduced.

Resulting from this, multiple public toilets were re-opened, nonfunctional street lights were repaired, and the entire community was encouraged to come together to fight this issue. This is an example of supporting MIL principles by improving technological penetration and increasing integration in places "where some information is not conveyed by media nor exists in digital format."

Subsequently, organizations implored us to use our platform in Kenya and Nepal to crowdsource data from their communities and use it to effectively engage various authorities ranging from religious leaders to transportation authorities.

Engaging Authorities

For a long time, quantifying sexual violence has been nearly impossible especially in places where resources to conduct expensive surveys or lengthy studies are unavailable. But more recently, the unique power of crowdsourcing—the sharing of information by a large group of people via mobile phones, apps, and social media—has emerged as an effective way that allows people share their experiences and helps researchers collect data drawing attention to this long-simmering problem plaguing women and girls.

Through crowdsourced data, we have been able to engage various authorities on preventive measures of sexual violence.

When presented with the crowdsourced data by the numerous neighborhoods we have worked in, the police accept the data with very little resistance, change their beat patrol timings, and increase vigilance based on the patterns of crime. The police chief in Bandra got his counterparts in the municipal corporation to fix the street lighting and also endorsed the whistle protocol which boosted the confidence of the community. Finally, the elected representative of the area who was not involved came up with a budget for women's safety and was willing to provide funds for CCTV cameras. These would be deterrent to the robbers who were targeting vulnerable women of their jewelry. These developments were hugely encouraging from my first attempt of using crowdsourcing, thereby encouraging my believe in the potency of crowdsourced data.

In Kenya, our partner Jane Anyango, Executive Director of Polycom Development project, was able to connect with religious leaders to look at the data from a hot spot near a mosque (The One, 2015). Afterwards, the Imam started preaching in his sermons and advocating with young men about sexual violence. This was extremely effective in bringing about change in the community.

In Nepal, our partner, Samjhana Phuyal, was able to use the crowdmapped stories to convince transportation authorities to provide them with "women only" bus licenses as the data proved that the mini buses in Kathmandu were overcrowded and women were being groped.

Currently, in India, we formally send dashboards of city level data to the police in Mumbai, Delhi, and Goa while we have the Bangalore and Pune police accessing our website for trends and patterns.

We also presented our data to the railway authorities in Mumbai on our observations from the crowdsourced data set and a series of audits we conducted at key railway stations (Singh, 2018). Our findings showed that most women commuters were vulnerable to sexual harassment but there was little confidence in the formal reporting system including the helplines. Most women were also ignorant about their rights and the formal redressal process of making a complaint.

In this digital age, we can use maps to our advantage - to know the lay of the land, familiarize ourselves with routes and alternate routes, as well as locate important places like police stations, hospitals, subway and train stations, and bus stops. Visually plotting maps with information on safety is another way to remain updated on local happenings. For example, the locals always know which area of a city is unsafe even during the day and what areas are to be avoided at night. Locals in New Zealand, one of the safest countries in the world, do not walk on the streets past 10 pm. We were able to support another goal of the MIL Cities project while using these tools and working with authorities successfully: by building bridges between citizens' use of data and local government authorities' actions to support mutual safety goals.

Storytelling and Digital Citizenship

Storytelling is important in unveiling this issue of sexual violence. Most women and girls do not understand that the entire spectrum of abuse ranges from nonverbal forms of staring and leering to verbal abuse like cat calling, commenting, and sexual invites to physical forms of groping, touching, exposing one's genitals, and masturbating to sexual assault and rape. Women and girls remain constantly vulnerable to nonverbal and verbal forms of abuse, but they trivialize it accepting

it as part of daily routine. This trivialization is harmful because in the long run, the perpetrator remains unchallenged, bystanders fail to intervene, and the victims tend to accept this abuse. The victims unconsciously limit their behavior, making themselves invisible by dressing in oversized clothing, making their physical appearances smaller, or changing their routines, limiting their presence in public spaces to only daylight hours, taking more expensive means of transportation and more. Over time, this impacts their ability to live a quality and meaningful life as they might not have access to the same opportunities as their male counterparts.

Women and girls are generally unaware of what constitutes sexual violence. In an awareness workshop on sexual violence we held at a university in Mumbai, my co-facilitator and I asked the 40 young female law students for a show of hands if they had **never** experienced any form of sexual violence and many of them raised their hands. Once we went over the definitions and forms of sexual violence, we asked for a show of hands again and not a single hand up went up.

It is through storytelling that we can build solidarity through resonance; it is important to facilitate forms of storytelling that support digital citizenship. A digital citizen implies a person who has the knowledge and skills to effectively use digital technologies to communicate with others, participate in society, and create and consume digital content (Digital Technologies Hub, Education Services Australia). Digital citizenship is about confident and positive engagement with digital technologies. Providing a mapping tool for women and girls enables them to use their skills in society and use their digital stories in ways that help their community.

It is estimated that women in Delhi are willing to spend an additional INR 18,800 ($290) to follow a safer route compared to their male counterparts (Borker 2017) while another study estimates that some New York women could be paying as much as $1,200 extra every year to move safely around the city (Lampen 2018). Lack of safety in public spaces could be a reason for the declining number of women in the labor force in India (Dhillon 2018). Hence, allowing these women to create the safe route through mapping is an important part of empowering them to change their own experiences as it also significantly influences public space activity, includes both old and young citizens, and impacts transportation safety in new ways, which are all goals of MIL Cities.

Conclusion

Oscar Newman, in his book *Design Guidelines for Creating Defensible Space* explains that "Defensible space therefore is a socio-physical phenomenon. Both society and physical elements are parts of a successful defensible space."

The theory argues that an area is safer when people feel a sense of ownership and responsibility for that piece of a community. Newman asserts that "the criminal is isolated because his turf is removed": when each space in an area is owned and cared for by a responsible party. If an intruder can sense a watchful community, they will feel less secure committing a crime. The idea here is that crime and delinquency can be controlled and mitigated through environmental design.

Sexual violence is a global pandemic that needs immediate redress. In the context of the space in which it takes place, sexual violence carries corollary implications for individuals and communities. When women lose access to public spaces because of sexual violence in public transport or poor lighting, they lose opportunities and civic rights.

By understanding that gender-based violence in public spaces does not happen in isolation but as many factors contributing to it, we can foster a holistic solution that has more women willing to be outside the home late at night. Sexual violence constitutes challenges that requires primary attention and resolution to increase the supportive potential of any environment to drive other development.

Thus, Safecity has armed us with crowdsourced data that helps us "measure" sexual violence and provides the most powerful way for everyday citizens to localize, visualize, and aggregate data in a way that authorities cannot ignore. For crowdsourcing to succeed in this battle against sexual violence, everyone—citizens, civil society, and government—must play their part, which without doubt, will eradicate this pandemic.

Lastly, the five laws of MIL are actively supported through the Safecity's tool design and practices: It provides a method for critical civic engagement, supplies ability to access and create knowledge (location of incidents), makes the truth of sexual assault transparent, fosters knowledge and understanding about community hotspots, and incorporates the experiences of community residents, especially those who never spoke up about their incidence of sexual assault in the past.

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Reading the Word and the World: Empowering Mozambican Health Teachers through Video Production

Agnaldo Arroio and Clara Cacilda Mauaie

Abstract

The aim of this chapter is to present an experience related to a professional teacher development program conducted in the Republic of Mozambique with in-service teachers from the Ministry of Health. An educational program for professional development was designed to support the improvement of teachers' skills in the use of different media in classrooms. The program was established in 15 health training institutes across the country. Data was collected from the analysis of pre- and post-questionnaires, interviews, and the materials produced (videos) during the educational program. The results showed that an important achievement of this educational program was the production of digital video as teaching material for health education. Moreover, the introduction of media literacy helped them to develop a critical vision in which teachers recognized the importance of representing the context in instructional materials, as well as promoting basic health care for the Mozambican population who are not literate in Portuguese, so that the videos produced can disseminate basic health information to improve the lives of these people who speak other languages.

Keywords: health education; Africa; teacher training; video production; empowerment.

Academic literature on media and information literacy and related education typically indicates that teacher training institutions were based on older technologies, such as books and writing activities. However, new digital technologies have offered great potential for exploration since the end of the 20th century. New digital technologies are widely regarded as beneficial for improving education (Tornero & Varis, 2010).

"*Today's advancement in information technologies and the diffusion of new digital media and learning environments can stipulate the growing importance of media literacy, which is now recognized almost universally as one of the key competencies in the educational system* (Tornero & Varis, 2010, p. 5)."

Considering that context-based learning has an apparent, important contribution to student understanding because students can learn more meaningfully when engaged in context. Knowledge is stored in various discourses and linguistic contexts, and it acquires meaning and significance only in these contexts. Thus, when the use of media resources (video here) is articulated into the classroom, the goal is to enable students connect to social issues with science and technology through the audiovisual context (Arroio, 2010).

A major concern in these circumstances is to maximize this situation and use information and communications technologies (ICTs) to improve access and quality of education in different contexts. UNESCO's definition of media literacy enables such articulation in Education and Communication.

"*Media literacy is the ability to access, analyze, and evaluate the power of images, sounds and messages that we encounter every day and play an important role in contemporary culture. It includes the individual's ability to communicate using media in a competent manner* (Tornero & Varis, 2010, p.5)."

According to Moreno (2005), in a model of learning from multimodal design, which was named Cognitive-Affective Theory of Learning with Media, the receptor is a stimulated sensory agent with verbal and nonverbal instructions. Part of this information is selected for the working memory where multiple representations are organized, integrated, and recycled, i.e., where mental models are formulated.

However, the long-term memory (where the new knowledge is introduced and stimulates motivation and metacognition in the viewer) is classified into two parts: the semantic (structured record of facts) and episodic (emotional context of the event). In this sense, diversified instruction modes are used to stimulate sensory memory in more than one pathway (auditory and visual).

Thus, the use of video in health education, in the context under study, may be relevant to enable students to recognize its context, history, social reality, ethnicity, and language, fostering an affective and emotional relationship. By exploring the visual and auditory channels, the message can be better assimilated by the students, the teacher can improve his or her teaching practice, and the educational process becomes more efficient.

However, the crucial question concerns teachers' skills and competences in the use of such resources in the classroom. The question is about how to integrate ICT in the practice of teachers who have not been trained for this situation, many of whom are still undergoing initial training and have not experienced curricula that integrate ICT in education while many others have not had access to in-service training on the subject.

Bingimlas (2009) highlighted several advantages of the use of ICTs and several barriers to the successful integration of these resources into the teaching and learning process. The review noted that "While new technologies can help teachers to improve their pedagogical practice, they can also help students in their learning" (p. 236). Cited by Bingimlas (2009), Grabe and Grabe (2007) state that ICT can play a relevant role in students' skills, motivation, and knowledge, ICT can be used to present information and help students to perform their learning tasks.

Introducing media literacy can favor the integration of ICT in health education as well as enable the development of a critical view of these teachers (Torres & Mercado, 2006). The development of the autonomy of teachers in service is necessary to enable them produce their own teaching materials according to their local demands. These teachers must be competent in teaching their students to deal with daily situations. As the teachers will become health professionals, they need to have autonomy to make life-saving decisions considering the local situation. It is insufficient to train a teacher to be a consumer of teaching materials; it is crucial that these teachers can produce their own materials based on different media and that they can make decisions.

According to UNESCO's Global Framework for Media and Information Literacy Cities (2019), "the integration of media and information literacy (MIL) into formal and lifelong learning education systems has not progressed as rapidly as it should" especially for low-income countries, such as Mozambique. The need to introduce media and information literacy is urgent, and a good approach would be to articulate this theme with education. In this sense and considering the MIL cities, an important objective must be the empowerment of citizens, giving them some competences to communicate health information to communities marginalized because of their illiteracy in Portuguese. This objective can be achieved by bringing the health training center closer to the communities, initially guaranteeing the right to information, and then enabling access to basic health care for this marginalized population.

As proposed in the MIL cities framework, this introduction of MIL in the training of in-service teachers at the health training center can strengthen the public health system in a more inclusive way. Teachers and students can develop public health communication projects using accessible equipment, for example, by producing videos in local languages to ensure that information about the right to vaccination reaches people who do not have access to information.

Even for people who do not have an internet connection or access to television, when they attend community centers for health care, a television is often available, which can be used to broadcast health information in a video format while patients await care.

Mozambican Context

According to data from the United Nations, Mozambique's Human Development Index is the tenth lowest in the world among 189 nations, averaging 0.437. The country is located in southeastern Africa and is bordered by Tanzania (north), Malawi (northwest), Zambia and Zimbabwe (west), South Africa and eSwatini (south-west), and the Indian Ocean (east). After more than four centuries under Portuguese rule, the Republic of Mozambique became independent from Portugal in 1975 and suffered a civil war for 16 years. The war killed thousands of Mozambicans and destroyed the existing infrastructures from the colonial period.

Since 1992 after a pacification process, the former Portuguese colony has been rebuilt. Faced with such a situation, the country needed to rebuild the human resources beyond infrastructure, one of the great needs in this process. For example, in the context of health care, the country had 1,106 doctors with a college degree in the last five years. In 2010, 22% of the medical doctors of the National Health System were expatriates, mostly Cubans and North Koreans, who were mostly specialists living outside the country's capital, Maputo.

The country's population is estimated to be approximately 24 million, and approximately 66% of health professionals working in Mozambique are holders of basic and intermediate level diplomas (equivalent to elementary and high school education). Consequently, this context presents a significant difficulty in considering the qualification of and quality of health care provided by these professionals. Thus, ensuring that the health professionals can meet the demands and multiple problems experienced on a daily basis calls for urgency.

Under this circumstance, the National Human Resources Development Plan 2008–2015 (PNDRH) aimed to improve the capacities of the health training institutions (IdF–Instituição de Formação–in Portuguese language) of the Ministry of Health (MISAU). The Ministry of Health has a network of 17 IdFs located in the 11 provinces around the country. Based on a situational research, the urgency to improve the training of health teachers of these institutions was highlighted in the National Human Resources Development Plan for Health (PNDRH) 2008–2015 (Ministry of Health, 2008).

Owing to circumstantial and organizational issues during the country's reconstruction process, all decisions were centralized. Consequently, the production of didactic materials used by teachers working in the most diverse training institutions was elaborated, produced, and distributed by the Ministry of Health. Additionally, in the context of the reconstruction of the nation as established in the peace agreement, the Portuguese language was instituted as an important strategy for national union for all the ethnic groups constituting Mozambique.

During this period, several international cooperation' agencies and organizations contributed to the elaboration of curricula, teaching proposals, didactic materials, and programs of initial and long life training of health professionals; these were largely elaborated abroad and translated into the Portuguese language. Notably, over the last two decades, training institutions have received many materials, such as computers, equipment for practical classes, books, handouts, among others. However, the difficulties surrounding the enhancement of the quality of trained professionals persist.

Therefore, improving the training of managers and teachers who work in these institutions became crucial to the necessary changes. The Training Department of the National Directorate of Human Resources of the Ministry of Health of the Republic of Mozambique (MISAU), supported by the Japan International Cooperation Agency in collaboration with the Faculty of Education of the University of São Paulo - Brazil (FE-USP), developed the "Project to strengthen the health teacher's technical and pedagogical skills" (PROFORSA I).

The project was executed from 2012 to 2015 through different actions. One of the actions refers to the program of improving the in-service health teachers' training with emphasis on teaching methodologies. This program was developed in each of the 15 IdFs (from 2013 to 2015, today the MISAU network has 17 IdFs) in all the 11 provinces across the country, with the aim of reaching most of the health in-service teachers (on full- and part-time jobs).

As mentioned earlier, Mozambique depends on international aid. Many countries, international agencies, and nongovernmental organizations develop activities and projects in Mozambique. On average, the projects last between 4 and 5 years, but they sustainability. When a project ends and the partner leaves the country, new partners present new proposals and practically start afresh while abandoning the previous project. Many curricula are developed, such as support materials for implementation, which are produced or are in the process of being translated into Portuguese. It is common to find materials based on texts and few images; when images are used, they are from contexts different from that of Mozambique, being produced by non-Mozambicans. Unfortunately, even in materials containing some images, Mozambicans do not connect with these images because using images is unusual to them.

Therefore, an educational professional training program for teachers in health centers was planned, which could create opportunities for developing teachers' autonomy to create their own educational materials. With computer digitalization, a camera, and a video editor, teachers can produce videos, for example, that portray daily situations to contextualize the contents in a more meaningful way for the students. The video can also demonstrate important health techniques for students to learn better and improve learning outcomes, reducing student failures and dropouts.

From the perspective of introducing media literacy, basic concepts of audiovisual language, notions of screenplay writing, image capture, and video editing were introduced, articulating them with classroom situations or teaching labs to demonstrate the use of health equipment and procedures related to health education content. The topics were articulated considering the perspective of teacher empowerment to master language and knowledge and for a more appropriate contextual use.

Teachers with a critical view could portray in the materials produced the situations of inequality they experience, better preparing students who will work in such contexts to understand daily life in such context. These contexts are different from those of imported materials that do not portray the Mozambican context.

The program also contained topics such as helping to disseminate knowledge and good practices to local communities regarding hygiene habits for cholera prevention, malnutrition prevention, the use of mosquito nets against the vector of malaria transmission, and the use of condoms for HIV prevention and other sexually transmitted infections, among other topics.

Moreover, the program respected cultural, ethnic, and linguistic aspects of preservation as well as appreciated the identities of different ethnic groups. The importance of the development of teachers' autonomy was emphasized. Although the Portuguese language is the official language of national unity, many communities and many students had difficulty using the language, and many of them communicated in their local languages. More than 40 languages were used, which were closely linked with different ethnic, cultural, and social practices.

The Experience

Between years 2013 to 2015, under the PROFORSA-I project, an educational training program was conducted in 14 of the 15 health training institutions (IdFs), reaching 11 provinces. The training could not be conducted in one province during 2013 to 2015 because of armed conflicts in the central region of the country, limiting travel through restrictions of the international cooperation security protocol of the

Japanese Embassy in Mozambique. Within the scope of the project, the in-service teachers training program was organized for one week in each center (IdFs).

Initially the in-service teachers were volunteers. The teachers were sensitized about the importance of developing their autonomy as well as the relevance and impact of locally producing educational materials based on different media, which could improve the teaching–learning process at IdFs. The sensitization was expected to reduce the students' failures and dropouts and also improving the quality of health students' education. It was also expected to recognize the culture, language, and identity of the communities from different provinces.

Examples of educational materials prepared in different media were presented to expand the participants' repertoire. As reported by the teachers, they did not produce the materials; they always received the materials from the partners to be used. The programs were aimed at training teachers to only apply the materials.

In the current educational program, teachers were supported in preparing comic stories and photonovelas, first on paper with an emphasis on storyboard planning and later using computers (Mauaie et al., 2014). The need to incorporate health content into the narratives created for the videos was considered. To perform these activities, free licensed software (MKGibi), text editor, and digital camera were used.

Teachers were encouraged to invite students to participate in the health practice and procedure demonstrations in classrooms, laboratories of demonstrative practices (humanistic laboratories), or multidisciplinary laboratories, situations with the community, etc. Teachers chose health contents or demonstrations of health procedures that they would like to address in the videos, as this would be authored by the teacher. Authorship is crucial in developing teachers' autonomy because it makes the teacher feel responsible and recognized as references by students.

As teachers were to choose themes and content, some videos were presented to expand the participants' repertoire; this step was important to ensure that the participants were involved.

Most teachers clearly did not understand that they would produce the materials. For example, immediately after showing the videos, they requested copies; their justification was that they did not have access and that they could use the copies their classroom practices. Most teachers did not foresee the possibility of authoring educational materials. Unfortunately, their self-esteem was so low, in view of their previous experiences of always receiving the curricula and materials prepared by others; they were used to the consumer's perspective of not envisioning the possibility of being material producers.

Thus, the introduction of media literacy could expand possibilities beyond consumers, now critically, and producers of educational videos.

During the implementation of this educational professional training program for teachers, it was deemed necessary to further study the process, program, and

results obtained. For data collection, questionnaires were applied at the beginning of the training (expectations) and at the end (evaluation). Interviews were also conducted with in-service teachers; their authored productions and field notes during the process were analyzed. The data were analyzed according to content analysis (Bardin, 2011). The qualitative approach was chosen because of the nature of the project developed. The use of interviews also enhanced the understanding of the training context, since their expectations, perspectives, concepts and practices could be determined during the educational training program (Bogdan and Bliken, 1997). Considering the numerous productions made, some videos produced by in-service teachers were selected during the program conducted at the IdFs between years 2013 and 2015. This chapter provides a corresponding discussion.

Outcomes

This chapter presents the results obtained in Niassa province, which was selected for being one of the most distant provinces from the country's capital, Maputo. The presence of the state in the province is little, especially for the unassisted populations. Unfortunately, in the neighboring province, Cabo Delgado, violent conflicts increased because of the insurgency caused by ISIS. The province of Niassa has the lowest population density and the worst indicators of malnutrition.

Figure 01 shows the title of the video produced at the health training center in Lichinga, capital of Niassa, in February 2014. This province is located in the north of Mozambique on the border with Tanzania (north) and Malawi (west). In addition, as in the other northern provinces, the most distant provinces from the capital are have less economic development, reflecting in serious malnutrition among the population (especially children) as well as a lack of access to information for those who live in rural areas with low levels of education. Health information does not circulate adequately; moreover, the literacy level in Portuguese is low, which further increases the exclusion of this population. For example, they make little demand for vaccines because they do not understand the importance.

Given this context, a group of six health in-service teachers chose to address the issue of vaccination as students had learning difficulty on the subject, and no adequate teaching materials were available. Some videos and their respective screenplays were first presented as examples to problematize audiovisual production with simple equipment (digital camera, pen-drive, and laptop with the Windows movie-maker program). Teachers began the elaboration of the screenplay; they also researched manuals and books about vaccination in the center's library. (This practice was highlighted as an important change in their teaching practices.)

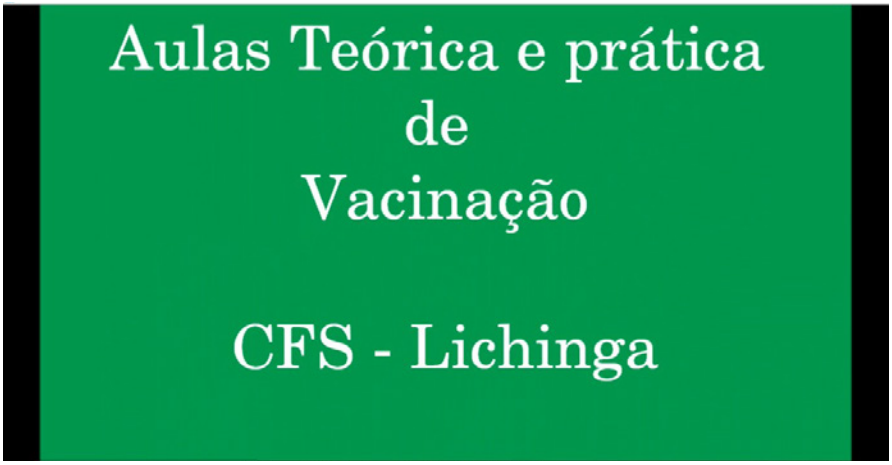

Figure 1: *Video frame (Theoretical and practical classes of vaccination–Health Training Centre–Lichinga) (Video title) produced in the CFS - Lichinga.*

Source: Agnaldo Arroio

Unfortunately, when they attended prior training programs, they typically used the same materials in the so-called "*replicas*" approach, that is, they asked students to copy the contents presented in the materials used for teacher training. It is rare to prepare classes tailored to class needs. When questioned, a teacher reported "*If there is content that a nurse needs to know, we have to give the replicas to have a good professional*," showing that there were no lesson designs for classes. Another teacher said, "*if the student does not learn it is because he does not study or sacrifice himself*." Teachers blamed students who failed.

After deciding the content to be covered in the video, the teachers were allowed to have some audiovisual experiences to express themselves because they never produced videos. In this sense, practical activities for capturing, editing, and displaying video images were developed to promote this experience, as well as listening to one another, which is really important in this case (Larrosa, 2002). From the initial experiences of capturing images, the possibilities of locating the recordings were explored. The teachers researched the necessary materials that were available for producing the intended video; thus, the teachers reworked the screenplay for the video.

Figure 2: *Video frame with the identification of the institution in the CFS–Lichinga (Republic of Mozambique–Niassa Province–Health Provincial Direction–Health Training Centre).*

Source: Agnaldo Arroio

The teachers knew that the videos produced by the health institutions would be organized by the Ministry of Health. Figure 02 displays the identification of the institution (CFS - Lichinga). Because the subject of the video would be vaccination, the teachers showed the institution extensively. This decision was important because it was a new perspective of work to the teachers. Thus, they needed to listen professionally, which is unique for each participant, to connect the past and the present through reflection on the practice (Larrosa, 2002). This situation was emphasized in the video about the relationship of belonging to the group and institution. An important concern for the teachers was what would be "shown" in the video and how the people (of the central administration) of MISAU would receive it. The teachers started becoming aware of the possibility of controlling the narratives of the video; a teacher reported, "*now this video will show what I would like it to show*."

At the moment of the scene in Figure 03 showing students arriving at the institution, it was possible to discuss the hierarchical relationships present in the center between students and teachers.

In addition to the procedural issues of formality in the educational environment, there was a strong social marking between them. For example, when the teacher walks around the institution and passes in front of the students, they stop talking

immediately and look down. If they are seated, they stand quickly; the situation resembles continence for superiors in military institutions. Thus, to create the video, some students were invited to participate. This experience can bring students and teachers together during the activity because of how the students felt when approaching the teachers and acting together in a collaborative activity such as this. In a way, this experience was very positive as it promoted situations of symmetry, which are vital in an educational environment, as the students are being prepared to work in the health sector. Developing empathy is highly relevant; thus, in addition to conceptual content, procedural and attitudinal content were considered. In other words, preparing people with a humanistic approach is fundamental because they will act in contexts of high social inequality. This type of superiority experience is easily reproduced in the relationship between the patient and the health professional, which can cause several problems. The introduction of media literacy had an important contribution to promoting situations of equality in collaborative, such as the promotion of empathy. It is important to disseminate this type of good practice to teachers across health training institutions. As teachers needed to put themselves in the others' shoes when preparing the lines in the screenplay, the attitudinal contents of interpersonal relationships in group activities could be highlighted in organizing the recording set and in the direction of the video recordings.

Figure 3: *Video frame showing the arrival of students at the institution.*

Source: *Agnaldo Arroio*

However, cultural changes take time. Social markers persist during collaborative activities involving teachers and students (Hargreaves, 1998). As shown in Figure

04, the students' behavior was observed when the teacher entered the room: they stood up and waited for the teacher to start the interaction:
Teacher: Good morning students!

Students (respond in unison): "Good morning, sir!"
Students remain standing.
The students will remain standing until the teacher asks them to sit. It is possible to observe closely that students did not look directly to the teacher; they generally looked down, except two students placed in front of the laptop that to be used in the vaccination theory class.

Figure 4: *Video frame showing a teacher's arrival to the classroom in the CFS - Lichinga.*

Source: *Agnaldo Arroio*

The meaning of the interaction between students and teachers from a dialogical perspective was problematized during classes to value the communicative processes in the classroom. The teachers agreed with the importance of the dialog and elaborated two questions that would be asked by the students during the class to interrogate important aspects about the subject covered in the video. The teachers chose these questions based on their teaching experiences: the difficulties presented by the students. However, two students who positioned themselves at the front and who asked the questions, as seen in Figure 04, were not students but two characterized teachers (that is, teachers acting as students). The relationships between them are very asymmetrical: the superiority of one to the other, and this was naturally reproduced in the video.

The issue persisted despite problematizing it. Thus, it would be inappropriate to exclude them from the screenplay. Before screening the general audience, a session was held only for teachers, and some questions were asked about situations represented in the video to allow teachers to reflect on pedagogical issues seeking to denaturalize such situations and behaviors; although such situations did not seem strange, a more critical reading could be started by analyzing the video together.

When teachers were asked about the decision not to allow students to speak but to select two teachers to act as students, the justified the choice by stating the need to ensure that there would be no errors during the recordings because the errors would remain in the videos. They had not mastered the audiovisual language, did not realize that it would be possible to record as many times as necessary, and were unaware that there the videos would still be edited. The teachers were still being introduced to the subject and needed time to process the new knowledge.

In addition, their justification demonstrated the perception that everything recorded would stay in the video, as if there was no possibility of changes in the material, such as a live recording. Thus, the introduction of media literacy is crucial to enable a less naive reading of the media, promoting a more critical view (Arroio, 2017).

According to the situation "visualized" in the video scenes, it was possible to problematize the pedagogical issues arising from this type of practice as well as the conception of education seeking to denaturalize such practices. However, as the situations analyzed were experienced by the teachers, the strangeness was intense, which might have enabled a more meaningful reflection that triggered change.

Figure 5: *Video frame showing students in a practical class of vaccination at the demonstrations laboratory, CFS–Lichinga (vaccination setor).*

Source: *Agnaldo Arroio*

As shown in Figure 05, a clear difference is observed between the participating characters and observing students during a demonstration of vaccinating children. One of the students had an assertive posture, with the head facing forward and the arms folded backward, unlike the others who had a more contained posture with the arms forward or to the side and with their eyes kept away from facing the teacher.
In the practical class, a teacher demonstrated the procedure for preparing and applying the vaccine on a child's dummy, as well as the approach to patients. In this case, a mother (student in civilian clothes) is wrapped in a "*capulana*" fabric, with prints typical of the northern region. When the video was shown in another region of the country, participants recognized the patterns of "*capulana*" fabric, and the music, rhythms, and beats were typical of the predominant ethnicity in the region, constituting elements of identification as shown in Figure 06.
This point was essential to engage the participants who were proud to hear their local music as a soundtrack, dress in "*capulana*," and feature in the video as actors.

Figure 6: *Video frame of vaccine administering demonstration in the practical class.*

Source: *Agnaldo Arroio*

To develop needle-handling skills, vaccine students are used to reading the description of the procedure from a book containing text without images; in the demonstration, the watched the teacher perform a demonstration during practical laboratory classes. Unfortunately, students were assessed without practical evidence, causing less learning and poor assessment results. Even in a demonstration class, the practical occurred only once, and students did not practice but were theoretically evaluated on the application of the vaccine.

After the discussion, in-service teachers realized the possibilities of using video as a teaching tool to support students' learning about practical procedures. They understood the possibilities of using video to demonstrate the correct ways of performing the procedures, and they could even attend as many times as necessary to learn and improve the equipment handling skills. Instead of merely watching a demonstration of practice by the teacher, students could watch the videos as many times as they deemed necessary. They could also use the video to promote good practices for the general illiterate community who could not read informative texts. Thus, the community could understand the basic health information presented in the videos. It is vital to empower the inclusion of the illiterate community members for better health care and reduction in inequalities in basic health care in Mozambique.

Another relevant aspect was the introduction to media literacy, considering that the teacher had no prior training on the subject, making his conceptions naive. To the participants, everything that appeared in the video was true, as if it were a real-life record. Hence, when they started to realize that they could decide what would be reported in the video, they became less naive in reading the media.

For example, during the video recordings, errors were made by the in-service teacher when demonstrating the application of the vaccine to repeat the procedure; perhaps he was too conscious of the recording. Each time the teacher wanted to open a new syringe, the work was interrupted because he was not convinced that he could simply demonstrate by acting and that it unnecessary to perform the actual procedure. Some insisted on the need to record the complete procedure as it happened without interruptions, despite the conception that everything that was recorded would appear in the video as if it were a record of reality.

At the end of the video, as shown in Figure 07, the in-service teachers chose a location in front of a "*machamba*" (plantation) showing the corn field and the "*maçarocas*" (corn cobs). Although there is no association between "*maçarocas*" (corn cobs) with the vaccination theme, the group considered it imperative to include it in the video. The group was proud of their "*machamba*" (plantation) that was cultivated by students as extracurricular activity on weekends as well as for food enrichment, given the malnutrition situation of the population in this region.

The most impressive experience occurred during the video presentation for the school community. During the video presentation at the final scene when the "*machamba*" appeared on the screen, positive reactions were provoked among the general audience, indicating an element of immediate identification with the audience of the training center.

In this sense, it was crucial to know how to listen to the participants to understand the reasons for including such elements in the video (Ferrés & Piscitelli, 2012).

An essential point to be considered is related to the sustainability of these practices based on media because of production costs. It is imperative for Mozambique to

produce low-cost educational materials that are more appropriate to their needs and demands (Mauaie, Ito and Arroio, 2014).

Figure 7: *Video frame showing the end of the vaccination class, CFS - Lichinga.*

Source: *Agnaldo Arroio*

The final credits in the video were vital for recognizing the work done, naming everyone involved in the process. Positive reactions were observed among the audience at the time of showing the credits, including the names of the teachers, students, and employees of the center who participated in this collaborative activity.

Considerations

During this activity, videos were presented, and the teachers started analyzing the message, content, and intention of the video. They began to discuss what could have been done differently, reflecting on the search for evidence-based solutions, as in a cycle started by interpretation, analysis, explanation, and evaluation. It was important for them to be interested in the audiovisual language so that they could plan and create their own videos (Thoman and Jolls, 2005).

The results showed that many institutions already had basic equipment such as computers; however, their practices remained the same and they did not realize the need for training human resources. Perhaps the lack of appreciation of the teacher and human resources as well as an overvaluation of equipment reinforced this distraction.

An in-service teacher noted, "*I had never had this type of training since I graduated as a nurse, I need pedagogical training*." Some in-service teachers had already attended other trainings, but noted that they were technical trainings for instruction in the use of materials already created by partners and referred to this type of training. Unfortunately, that kind of training reinforced the "replica" practice, as mentioned above. As they received the information in a transmissible perspective, they merely reproduced it by transmitting it to students inadequately. This practice could not be reflected on. However, as observed, reflection is an important step toward the development of critical vision.

Another opinion reported by the teachers was "*Now, I can work out my materials for each class. If I do not have any material of a theme I can produce*." The teacher's enthusiasm was noticeable in the perception that after the educational program, they could produce their materials according to their needs. As this is a process, it is expected to take time.

Through a South African study on teachers' empowerment, Mokhele (2013) noted as presented here some examples of how a professional development program can begin to reshape a teachers' identity. It was also observed that the teachers were not confident about changing practices. For example, by the statement "*We need monitoring after training, to help us when we have difficulties, a monitoring process*," in-service teachers showed interest in continuing the production of educational materials afterward but still felt insecure.

It is necessary to recognize the amount of new information the teachers will encounter in the process of change, which takes time. Hence, when using the equipment with new possibilities, it is natural for the teacher to feel insecure and demand technical support. For example, a teacher remarked, "*This is not complicated, with a basic computer we can do many beautiful things, but we need help from the ministry, because if we have problems or difficulties who will help us?*"

As the country has a high level of diversity, the problems are also highly different in the territory. Thus, each institution should be able to prepare its materials according to its own needs and consideration of local problems and contexts. Centralizing the production of materials makes local context unfeasible; moreover, as practices are centered on mere transmission, teachers reproduce the information received without adapting them. They ask no questions and perform no reflection on the practices and local problems. Consequently, they prepare students for a different reality from that encountered daily.

As observed from the experience report, the teachers experienced a motivating learning environment in the production of the video and developed their communication and collaboration skills. As the teachers created the video narrative with the inclusion of local elements, they developed creative skills as they adapted to their everyday contexts by choosing the "what" and "how" of the video. Through discussion sessions in which the teachers referred to the books consulted to produce

the video screenplay, they researched the conceptual contents that would be presented in the video, making decisions by critical thinking based on evidence and knowledge (Kivunja, 2015).

In general, previous educational programs focused on training using books or manuals already prepared by foreign organizations. Hence, the teachers noted that "they had never participated in this type of training" in which they were the protagonists of their actions, made decisions, and defined what needed to be produced. The results showed that the impact on the educational and professional processes was perceived. In preparing the videos, teachers needed to review the content and procedural content by conducting research through books, manuals, and curricular guidelines on the topics. Change was observed because the teachers initially received the presentation slides but later started planning and preparing the necessary materials by themselves in consideration of the local context. Thus, the reconciliation of pedagogical training with the provision of equipment is essential (Buckingham, 2007).

According to Borko (2004), intensive professional development programs can help teachers to improve their practices and increase their knowledge. In addition to researching to prepare for classes, which was not the routine, the teachers reproduced the materials received. In this sense, participation in training enabled the acquisition of knowledge about education and the media. As stated by Schmidt (2013), training and experience can promote interest in media-literacy education.

As stated by Schlichting et al. (2007), tailored media-based materials are effective for communicating with the general public that has a low level of health literacy. Videos with a high level of identification elements can be used to publicize and promote health care, especially for the part of the population excluded because of illiteracy in Portuguese. The information was produced on advertising posters and posted on the walls of health centers, but many people could not read it. Thus, video production, even in local languages, would allow the display of basic information for the illiterate population.

In-service teachers can become agents of change in health education when provided with knowledge of education, health, media, video production experiences, equipment, and support. As highlighted by UNESCO's proposal for MIL cities (2019), the public health system can be more inclusive for communities and interact with other sectors of society, such as educational and health care institutions.

According to Wilson (2012), it is crucial to promote a network of teachers who are implementing MIL initiatives to enable the implementation of such practices in the curriculum as suggested in the curriculum proposal for MIL teachers (Wilson *et al*, 2011). In this case, in-service teachers are beginners, since they were introduced to MIL; mutual support can strengthen the creation of a community of practice in MIL in the context of health education.

Conclusion

The impact of the professional development educational program and the introduction of media literacy for in-service teachers at the Ministry of Health's health training center were investigated. With the expansion of their knowledge and repertoire of experiences for new practices of using video in health education, teachers were able to value their cultures, languages, and local contexts, depending on their professional development for decision-making autonomy.

The use of the media in a competent way clearly brought students and teachers together in collaborative activities, aroused students' interest in classes, and motivated them in the health training process. In the professional development of teachers, their local contexts and demands should be prioritized; they should become less dependent on foreign organizations and should be able to choose and decide what and how wing practices and classes will be held. The teacher should analyze, research, and plan classes according to the students' needs from a more critical perspective unlike reproducing received slides and reinforcing the "*replicas*."

It was possible to start a more critical reading about the media, especially the video, decreasing the perception of video as record of reality. Teachers also realized that they could choose the narratives as well as the "what" and "how" of the video.

The Republic of Mozambique has more than 40 languages in use, although Portuguese is the official language. This implies that the development and local production of educational material, according to their real demands and considering the different languages and cultures, can have a great impact on promoting basic health for all citizens. Notably, the teachers realized the potential of communication on basic health care for the illiterate population through video.

Summarizing the practice of empowerment in a context of inequality seems to be fundamental to free teachers from the vices of centralized decisions, making changes slow and bureaucratic. The introduction to media literacy can contribute to teacher autonomy by developing materials supported by simple equipment such as a personal computer and digital camera. This would enable the sustainability of the practices through a change process by eliminating the need for reallocating major financial resources for such changes. Teachers now start their journeys as content producers and not just naive consumers; they can access, analyze, and choose what they need and decide for themselves what would be best for the situations they face every day.

As said by Freire and Macedo (1987), the student and teacher have the right to "*read the word and the world*." An articulation of MIL with education can enable an understanding of written text or images in the video. This foster students' emancipation and teachers' empowerment to analyze and evaluate the information (especially their representations of the world) portrayed and broadcast by the media.

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Self-Development on Campus: A Case Study on MIL Development in Teacher Education in Colombia

Tomás Durán-Becerra and Gerardo Machuca-Tellez

Abstract

To address the human capital and education challenges of today's societies, Colombia needs to train citizens capable of generating changes in a globalized society where information and media are key. A research project aimed at providing MIL training to teachers was proposed by the *Corporación Unificada Nacional de Educación Superior* (Unified National Corporation of Higher Education) - CUN, a representative educational actor that provides access to tertiary education at a national level (both online and face-to-face). The objective of the project was to improve actions regarding the Sustainable Development Goals (SDGs) and strengthen knowledge networks among actors involved in training processes in different regions of the country that have been affected by years of violence. This article reports a case study on a first-time experience launched in 2017. The experience aimed to establish—through the application of a mixed approach online survey—the potential and limitations of MIL on the different university campuses and respond to the training needs of teachers through the design of an MIL teacher training course. The results showed that MIL has numerous possibilities in the regions in terms of individuals' self-development and teacher qualification. Although the surveyed teachers were unaware aware of this, their answers demonstrated skills related to MIL. This indicates that increasing MIL teacher training at the university level can result in better organizational culture and better teaching practices among the CUN community. Currently, these first analysis outcomes are being applied in the Bogotá campus to create an MIL training course and formulate an MIL institutional policy.

Keywords: human development; teacher training; citizenship.

The consolidation of lifelong learning highlights the need to design strategies for generating cohesion, coherence, and relevance between educational purposes and particular territorial needs. Thus, reflecting on the different dimensions associated with the teaching–learning processes begins by understanding that education is the primary vehicle for understanding and transforming society (Durán Becerra, 2017). Since the 1960s, technological revolution has fostered the accelerated incorporation of several mediations for teaching–learning processes, which unfold in the broadening of agents involved in the construction of social networks (Salvat & Serrano, 2011). Such is the case of media and information strengthening, which expand their dissemination channels, become protagonists in the construction of citizenship (Gavara de Cara & Pérez Tornero, 2012).

This scenario suppresses classical learning theories as the insertion of new technologies alters spatio-temporal relationships between the agents involved. Currently, "the construction and storage of information - knowledge and, overall, learning - play an essential role, as well as its analysis and application" (Durán Becerra, 2017, p. 140). This is regarding the development of the requirements of an information society that guides us necessarily to think about new literacies, which suppose the input for the inclusion, relevance, and reformulation of training processes that foster autonomy by developing critical thinking in face of media and information panorama (Gavara de Cara & Pérez Tornero, 2012).

In this context, media and information literacy (MIL) is of interest to the academic community and, in general, to all society. Several MIL frameworks (Giraldo et al., 2014; Durán-Becerra & Tejedor Calvo, 2015) recognize the multiple literacies needed in a hyperconnected context (Frau-Meigs, 2012; Durán Becerra & Lau, 2020). The range of this framework is given by the fact that MIL is not accepted worldwide as a "universal concept" for describing literacy on media, information, and use of technology (Woody & Forest, 2007); MIL can even be regarded as a set of components in an ecosystemic interaction (Grizzle & Wilson, 2011), where the different linked conceptualizations are related to the study of literacy in the field of information and media.

Developing MIL competences among citizens is regarded by UNESCO as relevant and necessary to interact in and with cities that are evolving from e-services to actual data-driven decision-making processes and technologies (smart cities) (Provost & Fawcett, 2013). UNESCO defines MIL as "the essential competences (knowledge, skills and attitude) that allow citizens to effectively engage with media and other information providers while developing critical thinking and lifelong learning skills to socialize and become active citizens" (UNESCO, 2011, pp. 185–186). Following this train of thought, MIL emerges as the possibility of strengthening intercultural dialogs and building media and information literate cities (MIL cities). A phenomenon also encouraged by hyperconnectivity that leads to broadening relationships

between global agents is an opening to socio-cultural codes that converge in an accelerated manner often without due critical treatment.
Hence, this study investigated strategies for placing these new literacies and their derived competences to best favor their incorporation within the institutional educational cultures, often anchored to traditional practices without innovative educational processes or with inadequate discourse translations, which consequently create technological and technical asymmetries and boundaries. The intentions of institutional policies regarding MIL are favored by the implementation of these competences as well as their breakdown and didactic transposition in training processes in higher education institutions, aligned with SDG 4 ["Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UNESCO, 2015)].

Possibilities of MIL for Colombia

ICT has had several unfoldings that have been slowly incorporated into higher education, particularly by teachers into their teaching–learning practices. One unfolding is the phenomenon of hyperconnectivity and its development in a "new space–time dimension" (Salvat & Serrano, 2011, p. 54), which is often absent in the discussion regarding higher education. Following this logic, the approach of MIL policies in Latin America, specifically in Colombia, clearly demonstrates a broad framework of possibilities, given the progress and expansion in the last 20 years of connectivity and governmental services related to digital inclusion and literacy (Durán Becerra, 2016, p. 388).
Colombia is located above the regional average of the Networked Readiness Index NRI (2016), being in the fifth position behind Chile, Costa Rica, Uruguay, and Panama. This assessment conducted by the World Economic Forum (Baller, Dutta, & Lanvin, 2016) shows that the country has a wide competitive opportunity regarding access to technologies and digital contents. The competitive opportunity places the country in a wide global digital space. However, the assessment is based on sub-indicators that describe the use of educational technology, an aspect where the country has a low implementation of these resources in basic and secondary education, mainly because the decentralization processes of the 1980s failed to overcome the technical and technological asymmetries in the different regions of the country. Thus, teacher training, particularly in higher education, exhibited a slow growth in the incorporation of deeper reflections on ICT into the curricula as well as an absence of approaching MIL themes.

However, experts from the Autonomous University of Barcelona (Peréz-Tornero et al., 2016, pp. 90–96) demonstrate the rather imperfect incorporation of ICT into Colombian education, indicating the importance of MIL for an adequate incorporation into the teaching–learning processes. The national educational system foresees the entry of methodologies mediated by ICT and an increasingly stronger presence of technologies that drive online consumption didactics (Durán Becerra, 2017). According to the UNESCO Institute for Statistics (UNESCO-UIS, 2012, p. 34), Colombia has initiatives for fostering ICT in education at various levels, indicating the amount of work required for articulating other sectors of society, such as the industry as well as regulatory and control agencies, which partly undermines its effectiveness.

MIL in Higher Education: The CUN Case

Colombia is currently in a peace-building process after years of armed conflict that hampered the access, permanence, and relevance of higher education in various regions of the country, violating the fundamental right to education. This process, in a human rights-based approach, facilitates the consolidation of the democratic exercise of citizens in participating in the construction of territories and governance networks. It implies opening spaces for all territorial agents to participate critically from the various means available:

> "The rights to freedom of expression and press, and access to information - and, of course, its effective use - are indispensable requisites to achieve the personal autonomy of the human being. They contribute to the individual having a thorough understanding of the world that allows and facilitates a conscious and effective performance. Knowing the environment correctly, encourages appropriate actions." (Gavara de Cara & Pérez Tornero, 2012, p.15)

Colombia shows advances that indicate a certain understanding of these factors, evidenced in "a marked tendency toward the observation of new pedagogies and toward the implementation of hybrid pedagogical methods, at least at first, that rely heavily on ICT" (Durán Becerra, 2017, p 155). In this process, institutions of higher education, particularly CUN University, have been protagonists, mainly backed by their extensive experience in the field of teaching using ICT. Given the technical and technological asymmetries in accessing the wide universe of media tools in the different territories of the country, it was suggested that the teacher becomes a central agent, a maker of changes, to strengthen the formation of citizens that

impact their localities. At CUN, this role could then be assigned to more than 500 teachers across the country.

Hence, this research, set as exploratory with a descriptive reach, is the basis for consolidating a proposal for teacher training. The future results seek the formulation of an institutional policy on MIL training as a mechanism to strengthen the institution's educational processes.

Within the specific objectives of this initiative, the following were proposed: 1. Identify the level of MIL competences in collaborating teachers; 2. Design an MIL training course for collaborating teachers; 3. Articulate MIL initiatives from the frameworks proposed by UNESCO. The development occurred through a robust document review that enabled the generation of a broad discussion framework, contrasted with the results of a diagnostic study conducted in 2017 (online survey), and with the generation of participatory activities based on focus groups with teachers from the institution, with a view to consolidating an MIL training course for teachers. Finally, UNESCO's MIL-Clicks initiative (UNESCO, n.d) was articulated as a strategy for raising awareness of the educational community regarding the issue; this included the elaboration of short videos and digital pieces. These actions constitute a first approach in the country for building an MIL policy at an educational institution.

Encouraged by the wide range of opportunities in Colombia to address MIL within higher education, a series of reflections on the knowledge and teaching practices on MIL was established as a key strategy for achieving a multiplier effect in the development of empowerment and critical thinking among citizens (Grizzle & Wilson, 2011, p. 17). This implied training trainers' actions based on the diagnosed training needs.

An initial task raised within this initiative was the detection of the level of MIL competences appropriation within the teaching staff of CUN University. Thus, an instrument was designed that considered the MIL skills and capabilities map integrated by Durán Becerra (2016, pp. 146–148; [Durán Becerra & Lau, 2020]). This diagnosis indicated that the use of MIL competences was at a basic level, based on intuitive usage by the surveyed subjects, which showed a daily relationship with information, media, and digital environments.

Based on these findings, a preliminary draft was developed for an MIL teacher training course, originally aligned with the 2015 Incheon Declaration in the sense of understanding education as a vehicle for a lifetime inclusion and equity in favor of learning (UNESCO, 2015). The course also adopted SDG 4, which promulgates the need to "guarantee an inclusive, equitable and quality education and promote lifelong learning opportunities for all" (UNESCO, 2015, iii). Therefore, we understand that the teacher becomes a multiplier agent and "maker of changes."

Table 1 describes the five initially contemplated MIL competences that were selected for building the MIL course—competences derived from the documentary analysis.

Table 1. *Initial MIL competences for the MIL course (2017)*

Competence	
1	Recognize the importance of Media and Information Literacy for education within a globalized context.
2	For the appropriate and ethical use of resources in training processes, collect, store, and discriminate information by source and supplier, considering the social, economic, and political context in which they are produced.
3	Use virtual training processes to formulate content and information as tools oriented to the training process in higher education.
4	Formulate an adequate use of means and information to formulate learning routes adjusted to the needs of the audiences.
5	Propose and encourage cooperation in training processes using ICTs to construct citizenship and strengthen democratic processes that permeate lifelong education.

Source: *own elaboration*

The development of these skills was programmed for a 40-hour virtual course. In this first instance, the evaluation was set as continuous, co-structured, and participatory. Likewise, a rubric was designed for the tutor who, based on five major criteria, would generate the evaluation of the teacher's process regarding the skills acquired and evidenced in their final training proposal. A dialog with experts was immediately set to allow the identification of missing elements in this first proposal. Three key contributions for future initiatives are highlighted. First, it is necessary to consider the entire map of actors and technological resources available within the institution. This is because of two aspects: those who act in the classroom can have important ideas regarding the subject; even with the results of the instrument, within intuitive practices regarding MIL, there may rather be innovative processes in the absence of systematization processes. Meanwhile, in response to this suggestion, a balance on the technological possibilities of the corporation and its experiences yielded important development initiatives as shown in Table 2.

Table 2. *ICT-based initiatives at CUN*

Initiative	Features
CUN container	Portable spaces that aim to cover regions to provide connectivity to the most isolated regions. They work as content download sites and synchronic meeting scenarios.
Telecampus	It is an initiative based on an education model where creativity meets entrepreneurship to encourage an entertaining and innovative learning in a virtual space; this ensures that through allies, higher education is available to the population that originally lacks the opportunity to access it.
Platform C	Institutionally-created digital content in simple formats and with lower bandwidth consumption.
CUN-Mobile	Mobile application that integrates all the academic and information services of the institution. It includes media space and space for game-based learning.

Source: *own elaboration*

Secondly, the need to incorporate the necessary knowledge to CUN University was noted. This element is part of the understanding of the intrinsic dynamics incorporated at the institution:

> […] constituted by a set of theories, ideas, principles, norms, guidelines, rituals, inertias, habits and practices (ways of doing and thinking, mentalities and behaviors) sedimented over time in the form of traditions, regularities and unquestionable game rules, and shared by its actors, within the bosom of educational institutions. (Frago, 2002, p.59)

Finally, it was noted that five competences were considered a very broad scope for the time allowed (40 hours). Consequently, the development of a single competence that aligns with the capabilities and skills to be developed was agreed upon, incorporating indicators for each of them.

Collaborative Work with Teachers

For teachers and researchers, the redesign of the course involved the discussion of MIL from dimensions that exceeded the pedagogical, through a curricular, didactic, and even institutional dimensions. The groups were allowed to feed, strengthen, and formulate the final product with the validation evidenced in the methodological record of the experience. Four work sessions were developed with teachers from different schools at the university. Table 3 presents the different emerging core elements related to each objective.

Table 3. *Conclusions of the MIL project work sessions*

Session	Objective	Emerging core elements
1	Inclusively, present and discuss MIL competences proposed for the teacher training course.	Various understandings about MIL, particularly associated with the use of technologies. Relevance of the project as a mechanism to break the resistance of teachers to use information and digital media. It is important to elucidate the students' daily practices. The proposed competences are accepted as adequate but need to be organized into clearer didactic processes/procedures.
2	Discuss the possible pedagogical and didactic routes for the competences defined for the MIL teacher training course.	The way they have learned and taught were considered, denoting permanence and ruptures in the use of technologies and mediations. A need to think more about methodologies for mediations, prioritizing various technological possibilities without discarding some that may be relevant even today. It is necessary to compose processes that incorporate a more critical analysis of the information, given its production speed. It is necessary to incorporate the technologies in a conscientious way, that is, understanding what they facilitate. In this sense, MIL will have to rethink the information value, assuming the agent as a *pro-sumer*, as we produce and reproduce information. Study how an MIL course would act on a regional level, considering the different social and technological contexts.
3	Outline and discuss possible mediations, resources, and contents for the development of the proposed competences.	The participants confirmed the importance of consolidating a general competence for the entire course. Owing to the conceptual dimension of some concepts, it is necessary to generate a glossary that aligns the concepts of the educational-pedagogical-didactic area. Noting that the course is aimed at a broad framework of teaching professionals who move in various knowledge areas, a glossary further clarifies the focus of the course. Finally, the need for coherence between the themes set for training as well as its didactic breakdown and evaluation are highlighted. This implies a correct disposition of competence indicators for each of the skills and capabilities available.

Session	Objective	Emerging core elements
4	Discuss the evaluation of MIL competences.	The entrance evaluation process is oriented to a process in which the teacher will develop a didactic unit (syllabus) of the subject he or she masters. This implies indicating a syllabus model. **Regarding capability 1:** Many of the media suggested in the document are likely to be incorporated into the classroom, which opens the possibility of strengthening offline practices. Encourage the use of extracurricular activities: these are valuable spaces for strengthening the teaching–learning process and encouraging participation in an important topic of the teacher's work. **Regarding capability 2**: Highlight the time that the teacher has for developing the course and its evaluative axis (syllabus). The training dynamic is part of a Course-Workshop. It considers two types of teaching profiles: one that is interested in learning and incorporating elements and one that is resistant. The creation of a toolbox is proposed, which allows the trainee to take up resources and learn new ones for the development of the course. **Regarding capability 3:** Work with case studies and adjusted experiences for CUN context training. Work on a participation sequence that starts with a forum and is guided toward the work with a pedagogical case study. The variables "creativity" and "adaptation" in teacher training should be discussed in regard to the particular infrastructure needs. **Regarding capability 4:** Encourage projects that generate groups and roles for co-creation work.

Source: *own elaboration*

These inputs in Table 3 set the basis for the curricular design of the MIL teacher training course, which, following other considerations upraised during the working sessions, was titled "Teachers of innovative changes" as shown in Table 4.

Table 4. *MIL teacher training syllabus proposal*

"TEACHERS OF INNOVATIVE CHANGES"
Units involved: Vice-rectory of Social Capital; Academic and Research Vice-Rectory; National Research Directorate; Research Group *Innovación Pedagógica* (Pedagogical Innovation).
Short teacher training course (40 h): 5 modules, 5 weeks
Expected learning outcome: Recognize the importance of Media and Information Literacy within the training of professionals, from the understanding and application of its information, media, and digital principles in the design of a teaching–learning route.
Training purpose: Design a teaching–learning route that incorporates the information, media, and digital principles proposed by Media and Information Literacy.

Competence	Skill/Capability	Competency indicator
Recognize the importance of Media and Information Literacy in the training of professionals, based on the understanding and application of their information, media, and digital principles in the design of a teaching–learning route.	Collect, store, and discriminate information by source, supplier, and intention, considering the social, economic, political, and legal context in which they are produced, for their appropriate and ethical use in training processes.	1. Consolidate a database discriminated by source, supplier, and intention.
		2. Identify the socio-cultural and technological access characteristics of the targeted populations.
		3. Critically evaluate information, suppliers, and media and cultural intentions.
		4. Include the legal and ethical scope of the use, production, and reproduction of information.
	Create training routes in higher education, based on content and information, resulting from teaching practices.	1. Apply the apprenticeships in a training proposal.
		2. Produce educational content according to space–time needs.
		3. Use learning environments for cooperation and collective construction.
		4. Classify the information according to the training intentions.
	Establish an adequate use of means and information for the formulation of learning routes, adjusted to the needs of the students.	1. Include the legal, political, economic, and cultural framework in the uses of information, media, and content in the proposed training route.
		2. Articulate informational intentions, learning routes, socio-spatial needs, and available mediations.
	Encourage cooperation in training environments by using ICT for the construction of citizenship and the strengthening of democratic processes that permeate lifelong education.	1. Design learning routes that incorporate online–offline time–spaces.
		2. Apply learning routes in the use and ethical production of information.
		3. Articulate the formative route to expanded curricular structures.
		4. Insert reflective, active, and critical mechanisms in the training route.

Source: *own elaboration based on Durán Becerra (2016, pp. 146–148)*

The adopted methodology places the teacher at the center of the process to encourage meaningful learning. The learning is articulated to the virtual training model of the institution, which includes a didactic sequence in five moments (presentation, surfing

(exploration), diving (advanced training), resources and activities, synchronic meeting) articulated with activities and resources, contemplating the participative construction of dialogs between disciplines and mediated by discussion forums.

The evaluation in place focuses on generating a didactic unit that incorporates MIL, encouraging processes of pedagogical innovation, which are understood in the sense of the paradigmatic rupture (Santos, 2008) of knowledge and teaching–learning practices. Thus, the formulation of an MIL policy within the institution behaves as a pedagogical innovation process because it responds to the need for generating changes and transformations in the field of teaching–learning processes. The response is through the generation of changes in the senses and understandings established in the institutional culture regarding the use of ICT, and in general the entire broad framework of mediations in place. The formulation of MIL policy articulates the need to combine different dimensions based on new educational paradigms (Zuluaga et al., 2003) that are alienated to territorial realities as well as the possibilities of incorporating MIL as a mechanism for global citizenship.

The curriculum as a social construct (Goodson, 2014) implies an understanding that the formulation of training strategies in higher education undergoes the necessary action of establishing dialogs with the territory. Posner (2014) indicates that within the curricular design, issues such as the official and operational curriculum are relevant when faced with the hidden, additional, and null curricula. In other words, the incorporation of MIL into the curriculum implies a complex design of curricular strategies to satisfy its actors. Training the teacher in MIL is an input for generating broader understandings on pedagogical and didactic practices and knowledge. The training also aims to generate understanding on the creation of curricula that include the information, media, and digital dimensions to strengthen citizenship, democracy, and governance rather than simply associate them to the incorporation of technologies in the classroom.

The didactic dimension does not escape forethought, given its complexity in delivering the teaching–learning process. The teacher then requires, from a pedagogical and curricular idea regarding the meanings, intentions and belonging of MIL within the territorial context where their practical exercise is developed. To didactically incorporate MIL requires absolute articulation between the macro, meso, and micro dimensions of the institution's curricular management. Hence, the initiative to formulate an institutional MIL policy, which enables constant feedback of the processes in different dimensions, seeks coherent educational innovative processes with a hyperconnected society that empowers citizens.

Conscious of the need for joint actions, an MIL-Clicks proposal was incorporated in alignment with the UNESCO initiative for the critical use of Social Media and Networks. In this regard, it was proposed to address the five principles proposed by UNESCO regarding the subject. The principles are as follows: 1. Right to information;

2. Knowledge that the information is not neutral; 3. Right to understand the information; 4. Right to a lifelong learning, and 5. Knowledge of the information sources of your environment. This was achieved through a campaign to generate multimedia content based on the competences formulated for the CUN MIL 2018 course as well as other elements proposed in the UNESCO-MIL frameworks.

Within the elements for working with the CUN community, a relationship was established with the competence and capabilities designed for the teacher training course and the adjustments required for the understanding and awareness of the entire institution's academic community. In total, textual and graphic scripts were designed for six communicative pieces:

Table 5. *CUN MIL strategy in a summary*

No.	Type of skill	Topic	Intent
1	Generic MIL	What is MIL?	Make the general characteristics of MIL and its importance in the context of the university known.
2	Information	A lot of information: some key for its tracking and organization.	Encourage the proper use of information in databases and information media, based on good practices in the identification, recovery, and storage of the same.
3	Information	My responsibility toward the information I share.	Encourage the proper use of information, from the understanding of the limits and responsibilities in content creation.
4	Digital	ICT: What for?	Contribute to the identification of ICT as tools that support educational relationships in the university.
5	Media	Social Networks: What for?	Identify in social networks, and media in general, information and communication tools with great educational potential.
6	Media	How to build an academic community based on MIL?	Understand the relationship between the media and the construction of citizenship, democracy, and institutional cultures.

Source: *own elaboration*

Conclusion: Incorporated Learning

Currently, the MIL course and the associated initiatives (as the entire MIL-Clicks strategy) are in the formal design phase done by the CUN virtualization area. However, we highlight what we consider that this experience provided as a source of learning, which we consider key in related initiatives in the sense of the construction of knowledge networks:

> The strategy to create a training policy from the MIL perspective within CUN evidenced that topics such as the curricular inclusion of MIL components, the reinforcement of a comprehensive and understanding concept framework, the consolidation of MIL management spaces, the extension of the MIL training offer, and evaluating these initiatives and consolidating observation spaces on MIL (Durán-Becerra & Tejedor Calvo, 2015, pp. 50–51), are important elements to be incorporated, and where the initiative described herein turned out to be a first step to consolidate it[5].
>
> We reaffirm the importance of articulating MIL within the scenarios of teacher training and its unfolding in teaching–learning practices within the social fabric: empowering future citizens; generating capabilities to evaluate the performance of media and information providers; promote more free, independent and pluralistic media and information systems (Grizzle and Wilson, 2011, p. 21).

Some elements emerge accordingly, which are the basis for undertaking actions aimed at consolidating an institutional MIL policy:

- Articulating research and administrative management is key for the gestation, design, implementation, and evaluation of MIL initiatives.
- Developing a map of actors, experiences, and resources is a need that allows us to detect, with respect to the MIL frameworks, the gaps to be addressed strategically, as well as to make visible institutional initiatives that are not yet conscious among their agents.
- The process of strengthening tools for monitoring and evaluating MIL skills among the academic community is an exercise that must be constant, resulting in scales of assessment to better focus on training actions.

5 One of the initiatives planned for the year 2019 was the creation of the Observatory of Pedagogical Innovation, which from its interior aimed to generate tracking, analysis, and knowledge management in various areas of education, including MIL, with the objective of consolidating medium-term a body that consolidates a space for experimentation and incorporation of MIL proposals in the different learning environments of the institution at a national level.

- Promoting knowledge management models that enable dynamically feeding an MIL culture in the institution is a strategy that can be supported by observatories and MIL laboratories, which allow a correct translation between frameworks and actions within the territory.
- A need to make this type of literacy visible within the academic community is the creation of an MIL area/unit for its promotion within the institution, which works in an articulated manner with the various agencies, particularly in regard to curricular management.
- Promoting regional alliances to share good practices around the MIL topic. The endogenous positions contradict what a globalized and hyperconnected society supposes. Sharing knowledge is the basis for constructing citizenship.

Finally, we consider that it is necessary to continue working on promoting spaces that enable an awareness of the social importance acquired by new literacies. This is accompanied by public policies articulated to the initiatives given by private institutions and the territory, which fosters the closing of technological gaps in the access, treatment, and understanding of information.

Consequently, higher education, present in different territories, can generate MIL empowerment processes for teachers. In this regard, curricular coherence is key in the consolidation of territorial changes; MIL must be part of the components of forming citizens, particularly in the construction of governance networks that give a voice to those historically excluded, the latter being the main stakeholders.

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Combating Cyberbullying in Nigeria: A Case for the Media and Information Literacy City

Ayodeji Olonode

Abstract

The value neutrality of Information and Communication Technologies (ICTs) affords users the luxury of determining the gratification to be derived from technological devices usage, whether positive or adverse. The outbreak of menaces such as cyberbullying, which is an adverse externality of technology's value neutrality, has necessitated the development of country-specific laws, established to address cyberbullying. While acknowledging the roles of these antibullying policies and other multidisciplinary control measures, either recommended or already in use, this study investigated the prevalence of cyberbullying in Nigeria and its control measures, through a review of studies that had been conducted in Nigeria. From the review, it was noted that most of the available studies were conducted in educational silos and focused on legal and psychological control models without recourse to the socio and techno-cultural context of cyberbullying as a derivative of information society. This article, within the context of information society, recommends media and information literacy education as a tool for addressing cyberbullying.

Keywords: information and communication technologies (ICT); value neutrality; cyberbullying; online harassment; information society; control models.

Value neutrality remains a technology characteristic that determines the use of a device or technological innovation and the gratification derived from it. That is, it is the end users or consumers that determine how a particular technological innovation will serve them. However, the liberal construct of the Internet has recently birthed issues, such as Internet troll, Internet bot, cyber stalking, and other forms of online harassment, which has begun to call for researchers attention with respect to the nature of social interaction in a computer-mediated context.

Cyberbullying is a new method of bullying using technology such as social websites (MySpace, Facebook, etc.), email, chat rooms, mobile phone texting and cameras, picture messages (including sexting), instant messages, and/or blogs (Notar, Padgett & Roden, 2013; citing Miller & Hufstedler, 2009; Beale & Hall, 2007). According to Lenhart, Ybarra and Price-Feeney (2016), the Internet is built on the ideal of the free flow of information and the ideal of free-flowing discourse. However, a persistent challenge to this ideal has been cyberbullying—an unwanted contact that is used in creating an intimidating, annoying, frightening, or even hostile environment for the victim and uses digital means to reach the target.

Research based on cyberbullying, as Myers and Cowie (2019) reported, essentially indicates effects on the target with potentially harmful long-term impacts on psychological development, self-esteem, and academic behaviors (an unpleasant and disturbing experience in the short term) and a heightened risk of mental health disorder in the long term. Lenhart and colleagues (2016) also stressed that cyberbullying (online harassment and abuse) can affect many aspects of digital lives, especially its tendency to suppress the voices of many citizens. Suppressing the voices of citizens is a violation of the fundamental human rights of individuals, which many countries forbid through constitutional provisions as well as regional treaties and conventions. In addition to these extant laws, countries are beginning to enact new laws and conventions to address cyberbullying and protect the vulnerable Internet users.

Countries such as the United States of America, Britain, Australia, and even Pakistan are notable examples of nations that have taken deliberate steps so far, in checking the bourgeoning trend of cyberbullying and evolving policies to protect the vulnerable and marginalized parties. In a developing country like Nigeria, the remedial campaign against cyberbullying has followed the trending adoption of legal frameworks with the enactment of the Nigerian Cybercrime (Prohibition, Prevention, etc.) Act of 2015, addressing issues of child pornography (Section 23), cybersquatting, (Section 25), cyber stalking (Section 24), racists and xenophobic offenses (Section 26), and cyber terrorism (Section 18) among other acts classified as online criminal acts.

More recently, the Senate of the Federal Republic of Nigeria, on November 5, 2019, introduced the Protection from Internet Falsehoods, Manipulations, and Other

Related Matters Bill, 2019 (codenamed the Hate Speech Bill) to criminalize the use of social media in promoting false or malicious information in the country. However, the Bill has been received with wide denunciation by citizens and advocacy groups like the Amnesty International, based on arguments that it threatens the citizens' freedom of speech.

The suggestiveness of the perceived dissonance between the legal agenda against cyberbullying and the semiotics independence of citizens within the framework of democracy thus necessitates a more holistic approach that appraises and addresses cyberbullying in cultural context and intercultural dialogs. This study attempts to bridge this gap by projecting ethical awareness on the use of social networks and other media through media and information literacy (MIL).

The crux of MIL is the ability of citizens to identify their information needs, the mediums through which information can be accessed or retrieved, and how the accessed information can be used ethically for nation building and development. This becomes even more necessary in an era where user-generated content and citizen journalism are challenging the operations of the traditional media of communication, rather than being a complimentary role player in the mediascape. Mechanisms to minimize and control, as well as intervene in potentially harmful social structures and processes is becoming an increasingly important component of policy and governance in media and information literate cities.

Research Approach

This chapter, therefore, outlines the need for active MIL education that fosters responsible use of technological artifacts, while also highlighting some multimodal strategies and suggestions that could be implemented for addressing cyberbullying and other related negative and harmful behaviors in the cyberspace. I have two research objectives: First, assessing the degree of cyberbullying prevalence in Nigeria. Second, appraising the viability of MIL education in comparison with recommended or extant preventive strategies (control models). Accordingly, my research questions are the following:

1. What is the degree of prevalence of cyberbullying in Nigeria?
2. How viable is MIL education compared with recommended or extant preventive strategies (control models) in Nigeria?

This chapter presents a qualitative study, including a literature review exploring the degree of cyberbullying prevalence in Nigeria and the control measures that are either recommended or in force toward addressing cyberbullying in the country.

Cyberbullying in Nigeria

Recently, several research attempts have shown cyberbullying prevalence across different countries and regions of the world. Studies in Sweden (Slonje and Frisen, 2012), Finland (Salmivalli & Pöyhönen, 2012), America (Hinduja and Patchin, 2014), and a cross-national study in Italy, England, and Spain (Genta, Smith, Ortega, Brighi, Guarini, Thompson, Trippet, Mora-Merchan, and Calmaestra, 2012), provide evidence-based suggestions that cyberbullying is a developing problem across nations. Furthermore, in 2011, reports from a news published in The Telegraph about issues involving Sean Duffy who was tried and jailed for mocking dead teenagers on Facebook and YouTube (Internet troll), and Shane Webber who performed an elaborate online stalking operation against his own girlfriend (Barnett, 2011), are evidences that cyberbullying occurs in societies where antibullying policies exist. In Nigeria, although indicators showing that cyberbullying exist are available based on shared experiences, the availability of data in validating the prevalence, and degree of the act poses a challenge because of scantiness.

Adediran (2020) stated that cyberbullying happens in Nigeria like in other country, but it is difficult to express the situation of cyberbullying in Nigeria with accurate data because most of the cyberbullying cases in Nigeria are unreported in situations where it is practiced outside the confines of a close environment, for instance, a school. Although dearth of decided cases by the courts in Nigeria on cyberbullying exists, Adediran believes cyberbullying occurrence is not in any way negated as on other sources such as empirical research can be relied upon for its prevalence. One of such empirical research, Nwosu, Ementa, and Ejikeme (2018), in a study measuring awareness and incidence of cyberbullying among 140 undergraduate students of Nnamdi Azikwe University (a Nigerian University), reported that 50% of the study population were aware of the cyberbullying incidents within and outside their circle. In another report, Adomi, Eriki, Tiemo, and Akpojofor (2016), in a survey of 80 Library and Information Science students of Delta State University, Abraka (Nigeria), found that 80% of the respondents had either witnessed or had been victimized through cyberbullying from different social media platforms.

Beyond the statistics, Okoiye, Nwoga, and Onah (2015), while assessing the moderating effect of cyberbullying on the psychological well-being of in-school adolescents in Benin, Edo State (Nigeria), found that the consequences of cyberbullying has impact on in-school adolescent's self-esteem, self-concept, and self-efficacy. The study sampled 300 in-school adolescents randomly selected from 15 secondary schools in Benin, Edo State, using four instruments—Cyberbullying Prevalence Questionnaire, Rosenberg's self-esteem scale, Self-concept clarity scale, and General self-efficacy scale.

It was reported that self-esteem correlates significantly with cyberbullying of an in-school adolescent, r (298) = .287, p < .05. Likewise, self-concept correlates significantly with cyberbullying of in-school adolescents, r (298) =.457, p <. 05. Furthermore, self-efficacy correlate significantly with cyberbullying of in-school adolescents, r (298) =.261, p <.05.

Olasanmi, Agbaje, and Adeyemi (2020), in a study investigating bullying and cyber-bullying prevalence among 150 students of the Centre for Distant Learning, Obafemi Awolowo University (Pre-degree campus), Ile-Ife Nigeria, using descriptive statistics, about 56% of the respondents have either been cyberbullied or cyberbullied others.

Recommended or Extant Control Models

Generally across the countries of the world and particularly in Nigeria, cyberbullying is a worrisome phenomenon. With figures gradually increasing in trickles across differing landscapes in Nigeria, researchers and policy makers alike are beginning to take multidisciplinary swings for finding workable strategies that could aid cyberbullying prevention in the country's cyberspace.

Adediran (2020) advocated the implementation and enforcement of the Cybercrimes Act and other laws relating to cyberbullying in Nigeria, noting that cyberbullying has gained normalcy and that many Internet users engage in cyberbullying without an awareness of the criminal connotation of their actions.

Adeniran recommended that the legislature should determine appropriate measures for curbing cyberbullying considering that the gravity of acts of cyberbullying varies, and so both penal and civil measures may be suitable depending on the case. Adeniran submitted that:

> It is expedient than an extensive legislative research on socially acceptable expressions and conducts be carried out for the purpose of enacting laws to curb or criminalize cyberbullying. Law reforms in this area should also make room for public enlightenment on the issue of cyberbullying so that the public will be aware of conducts amounting to cyberbullying and their roles in curbing it. In addition, it is imperative that there is implementation of extant laws in Nigeria that criminalize certain conducts which in some cases are instrumental to cyberbullying (p.16).

This corroborated the recommendations of Nwosu et al. (2018) that the government should ensure the enforcement of laws and edicts on cyberbullying, in addition to the proposition that intervention programs should be designed to nip cyberbullying

in the bud, and a rehabilitation scheme should also be designed for cyberbullying victims, especially those on whom the act has an emotional toll.

Adomi et al. (2016), tending more toward the formal education remedy, reported that their study was intended to help authorities of educational systems to know the cyberbullying status among university students, which would help the authorities to educate the students on the issues involved and plan intervention actions that will assist the students to deal with cyberbullying experience.

Corroborating the education remedy paradigm, Olasanmi et al (2020) reported that preventive approach through the parents–teachers education of students will yield better results than punishment-based approach often adopted for traditional bullying. Other measures recommended include police involvement and removal of computer privileges for students, adopting counseling services for both cyberbullies and victims (psychological remedy)

In the adolescent focused study by Okoiye et al. (2015), the researchers gravitated more toward moral remedy, recommending that adolescents should be oriented on the need of developing good virtues, be disciplined and have positive self-control. They posited that parents should monitor their children's use of Internet by observing their children's discussions and antics, while guiding adolescents appropriately because it will help them exhibit good behavioral conduct in their interpersonal relationship with their peers.

Specifically, the researchers posited that adolescents should be taught moral instructions in schools because it would help them to be of good character and potent the ability to negotiate relationships positively with other people in the society. Ijachi (2019), in a multi-stakeholder based approach, posited that more awareness about cyberbullying needs to be created in schools and workplaces through seminars, conferences, and other organized forum. Ijachi recommended that institutions, such as schools and workplaces, need to operate an open-door policy regarding cyberbullying for appropriate assessments and investigations. The researcher also called the attention of social media and messaging platforms to create and reinforce channels for reporting cyberbullies, while individuals, especially children, should be taught to adhere to online safety protocols.

Gaps Discovered

Cyberbullying is real in Nigeria as in other countries of the world. However, Cyberbullying have received so much attention as a school-based scenario of power imbalance, and this reason partly explains the focus on adolescents and youths across educational institutions. Essentially, the situation of cyberbullying within

educational context might have been probably derived from traditional bullying. However, cyberbullying is a longitudinal phenomenon that cuts across the different strata of the society and following the submission of Myers and Cowie (2019), looking at cyberbullying in educational silos may be unhelpful. Cyberbullying occurs within cultural contexts, both in country-specific terms and globally. Hence, the imperativeness of advancing the study on cyberbullying beyond the similitude of traditional bullying in educational systems.

The legal control model of cyberbullying is increasingly featuring in discourse across countries. Nigeria has an Act of parliament in place since 2015 prohibiting cybercrimes among which cyberbullying is listed, and legal professionals and researchers are emphasizing the need to exercise the provisions of the law to checkmate cyberbullying.

Additionally, the psychological control model is beginning to gain traction in recent discussions, with a teeming population of researchers now advocating for the emotional rehabilitation for victims, while the perpetrators are counseled against the destructive behaviors.

Evidences across the literatures reviewed expose a crucial gap in the antibullying discourse, concerning the widespread disregard of cyberbullying as one of the trails of the world's migration to an information society. The World Summit on Information Society was one of the mechanisms designed to address important problems and opportunities arising within the new global communications landscape orchestrated by the emergence of information and communication technologies (ICT). The summit, predicated on achieving a shared commitment to building a people-centric, inclusive, and development-oriented Information Society where everyone can create and share information, howbeit ethically, outlined some action points that holistically address cyberbullying and related offshoots of the information society beyond isolationistic control models.

Article 56–59 of The Geneva Declaration of Principles and Plan of Action charge the information society to respect peace and uphold the fundamental values of freedom, equality, solidarity, tolerance, shared responsibility, and respect for nature. The section (article 57) acknowledged the importance of ethics for the information society, and called for the use of ICTs and content creation to respect human rights and fundamental freedoms of others, including personal privacy, and the right to freedom of thought, conscience, and religion in conformity with relevant international instruments (article 58).

The section also charged all actors in the information society to take appropriate actions and preventive measures as determined by law, against abusive uses of ICTs, such as illegal and other acts motivated by racism (racial discrimination, xenophobia and related intolerance), hatred, violence, all forms of child abuse (including pedophilia and child pornography) and trafficking in and exploitation

of human beings. Essentially, media and information being the active ingredients of the information society, need be incorporated into preventive strategies or control models of cyberbullying. Hence, the advancement of discourse on MIL.

Discussion

With ideology being the foundation upon which cyberbullying is established, and with the semiotic independence afforded by the Internet and social media within the framework of a new world information order, MIL education on a global scale and as a country-specific measure becomes very necessary.

According to Jolls and Wilson (2016), MIL offers both offensive and defensive tools of discernment and expression in advocating for positive human values and political action, and in recognizing and mitigating harmful media messages and effects. MIL education has long shown how it is one of the most viable intervention strategies in minimizing media's negative consequences and maximizing its positive influence on children's beliefs, attitudes, and behaviors. Over the past three decades, it was found through an extensive meta-analytic review of studies in this area that media-literacy interventions counteract media effects related to risky and antisocial behaviors, including violence and aggression (Jeong, Cho & Hwant, 2012).

While acknowledging the efforts of Administrators and Proprietors on some of the measures to check online abuse, through user-generated controls by which internet users who have suffered abuse or harassment can report offensive posts and profiles (or by which users can delete posts having tendencies of causing harassment), it is imperative to note that more is required of online Administrators and Proprietors in combating this violation of human rights online. With the development of new tools and features, such as analytics and algorithms, provisions have been made for online Administrators to identify those culpable of this online violation based on given parameters. The trick is to find a common ground with the users without violating their right to freedom of speech.

Furthermore, the Cambridge Analytica data sharing scandal, during which a class action suit was filed against Facebook on behalf of approximately 50 million users whose data were utilized without permission (Liao, 2018), provides a lead as to how other issues, such as cyberbullying and online harassment, could be addressed through the imposition of a website administrative or proprietorship liability on the Administrators or Proprietors of websites and other online platforms where harassments ensue. However, the bottleneck associated with this instance is that control is left for a third-party intervention while the directly concerned role players take the back seat.

At country level, a national response is required of governments in addressing cyberbullying. Although the Nigerian government had attempted to address cybercrimes generally, cyberbullying and harassment is either lost or silent in the Nigerian Cybercrime (Prohibition and Prevention) Act of 2015. Besides, Nigeria still ranks among the leading losers to cybercrimes, to the tune of 127 billion Naira as of November 2017 (News Agency of Nigeria, 2017). Kidnapping, which is already a scourge in the Nigerian physical space, is also becoming a problem in the virtual realm as "cyber-kidnapping" of encrypted data poses a clear and present danger to the nation's economic viability (News Agency of Nigeria, 2017).

Instances such as those cited above give credence to the kid's gloves for cyberbullying and other behaviors identified as cybercrimes in the Nigerian cyberspace, especially on the part of the government. Although the effect of cyberbullying is still somewhat at a micro level in the Nigerian cyberspace—perhaps because of dearth of accurate data—it is important to nip the issue in the bud as soon as possible to prevent a translation into a devastating macro-level effect where democratic process is undermined, national unity is threatened, and national security is jeopardized.

Addressing cyberbullying through MIL education casts a demand on both individual and corporate role players. While the responsible and ethical use of the media and information is the expected outcome for MIL education for individuals, the goal for corporate role players would include strategic interventions through policy guidance and implementations.

Some of the strategies discussed below could be given operational shots (further to this study), as part of the intervention programs targeted at addressing the vice of cyberbullying, using Nigeria as a proximate indicator. This, of course, requires the robust participation and inclusion of a good number of local and international role players, and notably UNESCO.

1. Including MIL education as part of the national communication policy deliverables, which principal purpose according to Baofo (1986) is to provide a favorable framework within which communication systems and technologies can be developed and utilized in a coordinated, consistent, and systematic manner for the benefit of society. The expected derivative of this combination will be the society's preparation in dealing effectively and systematically with the complex problems and issues generated by developments in communication technology at the national level.
2. In institutions of higher learning, MIL education should not be left to the Department of Mass Communication and Media Studies alone, because MIL in recent time, is not a subject for professional application, but an issue of national and international relevance. MIL education and critical thinking/writing should therefore be included in the curriculum of every discipline in the higher institution.

3. MIL education should be cascaded down to secondary schools and colleges, in reaching teenagers and preteens, and integrating media literacy into school's curriculum, through the Federal Ministry of Education.
4. Parents are also prime targets for MIL education, as counterpart educators for their children, especially minors. Parents, as counterpart educators, should teach their children appropriate and nonappropriate content that children can be shared online. The parents should also teach their children acceptable and nonacceptable behaviors online. All these are possibilities only when parents are literate with media and information (educational broadcast focusing on MIL could come handy in this instance).
5. Taking a cue from Everett Rogers, MIL should be diffused across the various sections of the society, and importantly to the grassroot. This could be achieved by involving both governmental and nongovernmental authorities, like state governments, local governments, local council development areas, community councils, age group, and natural group associations, etc.
6. Support organizations should be established for the purposes of workshops, conferences, training, and re-training of MIL educators.
7. Nation-wide adoption and implementation of the UNESCO's MIL policy and strategy guidelines in Nigeria, for reinforcing or strengthening ongoing institutional MIL projects by the likes of the Nigerian Film and Video Censors Board (through her media literacy campaigns to schools), the African Centre for MIL (though training, research and advocacy on media literacy in Nigeria).

Conclusion

This study began by noting that value neutrality remains one characteristic of technology that determines the usage of technological innovation and the gratification derived from it. This presupposes that ICT affords opportunities and positives as well as threats and ills when deployed adversely. Hence, the onus of responsible and ethical deployment of ICT is cast on every user of the technological innovations that has graced the 21st century world, and that is exactly the gospel that MIL preaches.

When used for social interaction, social networking and mobile phones can be abused by user (students, citizens, etc.) who lack media-literacy skills and knowledge about safe and ethical uses of such technology. However, with proactive media-literacy initiatives citizens can be educated to maximize opportunities and minimize risks associated with the unethical use of ICT.

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The Self and the Other: Social Integration through Art and Communication in a Multicultural Context

Estrella Luna Muñoz

Abstract

This research aims at developing learning, social integration, and media and information literacy among young people in communities with low economic and technological resources through artistic and communication activities like video creation, community interviews, cartographies, street games, news, animations, debates, fanzines etc. We work from the Self and the Other to understand, learn, and respect together with the cultural difference to create an intercultural dialog. Taking a participatory action research methodology approach, the empirical field of the qualitative study was with 18 young people with school and integration difficulties, from African, Brazilian, and Portuguese families. The activity theory was used for the learning analysis with the focus of group interviews, products made by the group, field notes, and reports used as collective source of data and analysis. This study aims at defining easy principles and actions in a multicultural environment and difficult sectors for generating alternative and attractive forms of learning, digital inclusion, and generating the skills needed for a 21st century socially integrated society.

Keywords: interculturality; social integration; digital inclusion; pluralism; youth; empowerment.

Data from the Global Digital Yearbook (We Are Social, 2020) show that in 2020, 4.388 billion people representing 59% of the world's population are active Internet users, implying that 41% of the population is still in a digital divide. The digital divide creates barriers that affects the human being, such as educational, social, economic, and cultural barriers that prevent inclusion, "the continued existence of a digital divide, however defined, is an obstacle to any agenda of social inclusion" (European Science Foundation, 2014, pp. 18). People who are digitally excluded are also socially excluded, resulting in double exclusion. Citizens who are digitally excluded are unable to exercise their rights and participate in the new world, mostly mediated by technology (Cuevas, A., & Simeão, E., 2011).

What about communities and environments with few technological resources or that are at risk of social, educational, or digital exclusion? In response to this question, beyond being just a specific problem, the digital divide and social integration are a set of needs for generating an integration that leads to freedom and later to a sum of human rights as raised by the media and information literacy (MIL). MIL leads to the development of digital citizen competencies and also to social integration. MIL is defined as:

> …essential competencies (knowledge, skills and attitude) that allow citizens to engage with media and other information providers effectively and develop critical thinking and lifelong learning skills for socializing and becoming active citizens.
>
> (Wilson et al., 2011, pp. 187)

From home confinement due to the COVID-19 pandemic, the increased use of technology and social media was necessary despite the current digital barrier. The data available in September 2020 shows that because of the confinement caused by COVID-19, the use of social networks increased with young people between 16 and 24 years as the highest percentage of users worldwide (We Are Social, 2020).

The data shows that, young people are most active users of the social media, but this information does not mean that young people have the necessary skills for critical thinking, analysis, and comprehension of the media and information.

Thus, the current situation raises some important question for young Internet users such as, how could we promote social integration and MIL in young people? It is because of this question that this research and action project seeks to develop specific activities for implementing MIL and social integration with young people in communities with low economic and technological resources. We have to develop skills for the new social media reality with more media exposure and available technology.

Another consequence of the confinement and the increasing use of social networks during the Covid-19 pandemic was the massive phenomenon of misinformation and fake news. However, like a world war, Covid-19 arrived in some countries before others but considerably affected every inhabited corner of the planet. This was a recipe for global misinformation permeating countries in unpredictable ways (Reuters Institute, 2020). Consequently, it is necessary to provide guidance toward understanding personal privacy, data usage, and access but also to be aware of the current intolerance, violence, and extremism, to develop human values, ethics, gender equality, intercultural dialog, freedom of expression, critical, democratic, and citizen participation.

At the same time, all people, including young people, need strong MIL competencies (knowledge, skills, and attitude) in understanding the kinds of questions to ask about how their data is accessed and used, how they may be consciously and unconsciously permitting and facilitating this access, and what the implications may be (Hope, S., & Grizzle, A., 2017, p. 15). MIL competencies worked in various formal and nonformal education systems could help in constructing MIL cities.

A key aspiration is the twinning of MIL cities across regions of the world to support each other's efforts, which can also help to stimulate MIL as a tool for intercultural and interreligious dialog, tolerance building, countering hate and disinformation, and facilitating sustainable development in general (UNESCO, 2019). MIL cities can be helpful in developing social integration, critical citizenship, and dialog despite cultural differences and social problems. Small actions in various parts of the world can create changes for future MIL cities, which address existing inequality and advocates the importance of tolerance, dialog, and the understanding of cultures. Consequently, this project tries to face the problems of technological barriers and the social integration at the same time.

We live in a globalized society, with large migratory flows, and in a multicultural environment. The multicultural environment of a city does not always mean that the environment integrates its diverse populations; it is here that many of the conflicts of acceptance of the other are born, whether by religion, culture, nationality, sexual orientation, or physical appearance. One of the objectives of MIL cities is to promote for interculturality (UNESCO, 2019, pp.5), and interculturality involves relationships between cultural differences in creating an exchange and a dialog with respect. "The major challenge when discussing the issue of education and multiculturalism is dealing with some of the inherent tensions that arise in reconciling competing world views with each other" (UNESCO, 2012, pp.10).

Thus, the current situation raises other important questions such as "How can I communicate and live with other people? How can we reconcile our differences with the unity of the collective life?" (Touraine, 2000, pp.16). These questions make us think whether we really can be integrated despite conflicts. Interculturality is one

of today's needs, so what kind of dynamic could help to create it? How could it be creative and attractive for young people?

Activities with the Youth

Through the state of the art and in response to these questions, this project used artistic and communicative activities, which together with technology and collaboration work with the community in a multicultural context, gradually helped young people break the digital and social gaps that exist in their exclusion sectors.
The actions developed were with 18 young people, girls and boys between the ages of 14 and 18 years old, with school and integration difficulties, from Angola, Cabo Verde, Guinea, Brazil, and Portugal. The actions were performed in the area of Amadora in Lisbon Portugal characterized by its multicultural population, its problematic neighborhood, and its areas of low economic resources. The artistic and communicative activities were:

1. Creation of videos, interviews, and news in the community for journalistic and communicative purposes.
2. Creation of stories, fanzines, legends, and digital animations for artistic and creative objectives.
3. Creation of symbolic maps of collective experiences for understanding and recognizing the multiculturality and the role of each community member.
4. Realization of constant debates, reflection, critical thinking, dialog creation, and respect for the others.
5. Use the art, the drawing, and the play to create group interaction, teamwork, and self-expression.

Figure 1. *Activities with young people*

Note. *This figure shows photographs of some of the activities developed with the young people. Activities such as conducting interviews with homeless people, realization of digital animations (stop motion technique), session of debates, interviews, and digital news.*

With these activities through the participatory action research methodological approach based on participation and research with the members of a community (Kemmis & McTaggart, 2007), we sought to identify and strengthen social structures, processes, and knowledge among all the participants resulting in a collaborative process.

We focused on using the process of action, design, and research phases with constant and collective transformation cycles. These collective cycles were analyzed and realized with the participants, the mediators, and the research during the entire project: *planning*; *action; observation*; *reflection*; *analysis*, and; *re-planning*…

The project was qualitative research and 94 data collection resources were used as interviews, focal group interviews, the products made by the group, field notes, and reports by the monitors and the researcher (Table 1). Three scripts previously endorsed by specialists were used for the data collection. One script for the observation during the project implementation, second for the mediator's interviews, and third for the focus group interviews with the participants. The data were subsequently analyzed with the NVIVO program.

Table 1. *Resources for data analysis*

Resources for data analysis	Number
Reports (performed by the mediators and the researcher)	32
Research journals (performed by the researcher)	17
Interviews to mediators	4
Focus group interviews to young people	8
Debate sessions	5
Products made by young people: animations, videos, interviews, and news	28
Total	94

Note. *List and number of resources used for data analysis in the project.*

The theoretical framework and the two main categories of analysis used were MIL and social integration, resulting during the analysis process were nine more categories (Table 4), which were a part of the analysis and the results.

MIL integrates a set of competencies that empowers citizens to access, retrieve, understand, evaluate, use, create, and share information and media content in all formats, using various tools critically, ethically, and effectively for participating and acting in personal, professional, and social activities (Celot, P., & Pérez, J., 2009). This category was divided into three subcategories, focusing on the participants technology usage and comprehension. The division was necessary to have a better understanding of the level of MIL that the participants obtained in each activity and thus improved or modified the structure of the dynamics.

The MIL category and indicators were divided based on the structure of the media-literacy evaluation criteria (Celot, P., & Pérez, J., 2009, p.32), and the book "Media and information literacy curriculum for teachers" (Wilson, et al., 2011). The three subdivisions were: 1. Knowledge and understanding of the media and information for democratic discourses and social participation. 2. Evaluation of media texts and sources of information. 3. Production and use of media and information.

Table 2. *Analysis categories and indicators of MIL*

Analysis categories	Subcategories and levels	Indicators
Media and Information Literacy		
	Use of digital tools	Know how to work with technology, using video editing applications, photography, and working with basic office tool.
	Compression, research and critical media analysis	Know how to investigate autonomy in media environments. Analyze, interpret, and be critical of information and media. Understand the functions of the media, other information providers, as well as fake news.
	Creation and participation in and with the media	Have active participation by creating of information, audiovisual resources, and/or autonomous proposals in the various media. Have citizen participation within the digital, media, and informational environment.

Note. *Analysis categories of MIL. Tree subcategories, levels, and indicators.*

The second category of analysis was social integration. The United Nations Department of Economic and Social Affairs defines it as a dynamic process, where all members participate in dialog to achieve and maintain peaceful social relationships (DESA, 2018). Therefore, to analyze social integration and based on the terms that refer to it, three subcategories and their respective indicators were created: communication/empathy/assertiveness, respect and acceptance for multicultural differences, and collective debate.

These subcategories are components of social integration, measuring communication or communication with others; learning to respect, understand, and accept the other; and encourage collective debate on fundamental elements that generate social integration. Actions that, in turn, lead to dialog, social, and peaceful relations for the prevention and resolution of conflicts.

Table 3. *Analysis categories and indicators of social integration*

Analysis categories	Subcategories and levels	Indicators
Social integration		
	Communication/empathy/ assertiveness	Form of interaction and transmission of messages positively and effectively, in which empathy and assertiveness are mainly generated and worked between the participants and the community.
	Respect and acceptance of multicultural differences	Be tolerant of cultural or ideological differences; generate personal and group respect and toward the environment. To have respect and to recognize the diversity of multiculturalism, of the common points, and also differences with the other or the others.
	Collective debate	Know how to debate, listen, present ideas, and respect different opinions.

Note. *Analysis categories of social integration. Their tree subcategories, levels, and indicators.*

From these two categories of analysis, nine categories and indicators (Table 4) resulted from the process and analysis of the project. The activity theory (Engeström, Y., 2009) was used for learning analysis, where one of the objectives was to understand and analyze how human activities (in this case with young people) are determined as a set of social phenomena, comprising determined rules of the community, by actions, individuals, and their whole. In this way, we analyzed the dynamics implemented with the technology in the environment, with young participants, and with their community.

So through the analysis of the implemented dynamics, between the categories and indicators of social integration, and MIL resulted in nine categories: teamwork, motivation, active participation, freedom of expression, problem solving, autonomy, critical and reflective thinking, creativity, personal and collective expression, and social and cultural awareness.

Table 4. *Analysis categories and indicators*

Analysis categories	Indicators
Teamwork	Group collaboration and cooperation.
Motivation	Interest, perseverance, and will of the young people in the activities.
Active participation	Active participation and initiative in activities. Propose, suggest, and make observations.
Freedom of expression and creation	Understand and act with freedom of expression and creation without authoritarianism.
Problem solving or autonomy in decision making	Resolution of the processes of performing the activities in their entirety with determination, decision, and autonomy.
Critical and reflective thinking	Reflection, analysis, and evaluation with solid knowledge and argumentation with respect.
Creativity	Curiosity and imagination; desire to experiment. Lack of fear for creating or making mistakes in generating new things or knowledge.
Personal and collective expression	Know how to express individual and collective feelings, ideas, and opinions. To communicate to one or more people in a simple and fair way.
Social and cultural awareness, and pluralism	Live in a democratic life based on participation, acceptance, and recognition of the different forms of existing thoughts.

Note. *Analysis categories and indicators of the project analysis. Categories developed with the participants in the activities.*

These categories show that with the activities developed in the project, the participants can create, and act at anytime and anywhere through social media using available technological devices such as a cellphone, tablets, or cameras. They learned by practice that MIL is beyond just knowing how to work with media technically. MIL is to be critical and active in the processes of analysis and creation of information. Dialog, pluralism, social awareness, and respect were essential actions and the starting point of the project. The participants learned to hear and dialog about topics and problems that they were interested in and had lived and seen. The topics discussed were discrimination, domestic violence, homosexuality, discrimination, social and cultural borders, problems of immigrants, unemployment, child poverty, fake news, and dangers children are exposed to through the Internet. These polemical topics were discussed and observed through media actions like videos, interviews, and artistic animation, always building, creating in groups, and through the participation of the actors capturing their daily life.

Understanding the other through dialog is essential, as mentioned by Zygmunt Bauman "Real dialogue isn´t about talking to people who believe the same things as you" (2000). Dialog is respecting the opinions of the other and the ability to communicate and interact despite differences. Dialog prevents conflict, intolerance, and violence. It consequently leads to pluralism, in which various social groups can live democratically based on participation, acceptance, and recognition of the different forms of existing thoughts.

Pluralistic education and participatory approaches to learning can be of great importance in developing intercultural competencies, becoming aware of the relative nature of one's own culture, and learning to distinguish what unites rather than what separates us. Such competencies go beyond the mere capacity to "live together," since they involve, besides the tolerance that makes us capable of living peacefully alongside one another, a true capacity to open up to differences and transcend what makes us who we are so as to meet others as they are (UNESCO, 2009, p. 114).

We saw that, through this project, it is possible to live together (even with differences) and create social integration. Speaking about the problems that exist in the neighborhood, sharing the points of view of young people, and finding together new creative forms to show, visualize, record, and talk, were essential for work, respect of values, learning to hear, and finding solutions by the collective work.

Therefore, they can acquire good tools of coexistence, work on the issues of multiculturality, or the concerns that they have, result in a strong basis for generating social integration and interculturality, using in this case technology like a weapon of social change.

The entire project was free and a voluntary participation by the participants in a period of three months (between January and April 2018). The majority of the activities were performed on the street, in common areas, and on computers in some digital activities found in the school of the neighborhood Escola Secundária da Seomara da Costa Primo.

> We were free to propose and create; because there were no authoritarian attitudes; we worked on issues that we were interested in; for the relationships that were generated in the group; we work with local people that we did not know; because we visited places in our neighborhood that we hadn't been before; because the activities were fun (comments from young participants).

Discussion

This project worked with the pillars that education should based on: Learning to Know, Learning to Do, Learning to live together, and Learning to be (UNESCO, 2006). These pillars were the basis for creating shared learning, generating learning through experience, of the game as space social learning, links, and coexistence among the members of a place.

In this study, research and an action based on the collective experience generated by the participants were conducted. Toward this research we reformulated and reconstructed what could be other kinds of social practices that the youth could do, and professors or mediators could use as well. In relation to a political dimension, the participants were empowered, they obtained a greater capacity for intervention, participation, and transformation from the generated learning, which will reinforce the identity as citizens and active actors of their environment derived from the collective activity and individual action.

The results showed that MIL skills were developed. Communication skills (participation, social relationships, and content creation); critical understanding (knowledge about the media, user behavior, and understanding of media content); and use (balanced and active use of media, advanced use of the Internet, computer, and Internet skills). The participants learned how to analyze the information, how to use the technology, as well as create and produce participation in different ways. The parallel results stand out the next skills and knowledge generated with the young people:

- Social and cultural awareness.
- Communication, dialog, and interculturality.
- Group interaction and teamwork.
- Active participation and critical thinking.
- Self-expression and creativity.
- Democratic values.
- Tolerance, pluralism, and equality.
- Respect toward self and the others.
- Encouragement for emotional intelligence.
- Learning by doing and problem solving.

As we previously observed by the elements listed above, this project created social integration. In the generational stages, the new environment demands intercultural citizens. It is necessary that young people find encouraging strategies of adaptability for creating solution to problems, to be adapted in this way to changes that are constantly generated in our global environment and be empowered in participation in their society.

In many cases and as mentioned by Gregorio Luri (2014), school always favors the one who has the most. A citizen with a middle or high class can have selection alternatives in their education, but for those with low resources, this is impossible. For these reasons, it is crucial to generate actions in nonformal educational settings because these places are probably the only ones or the few spaces where they can acquire an apprenticeship.

> "Since January to April we have been in this activity and we were able to meet new people and new friends. We think it was a strong experience cause we were able to see the world by other people´s mind. The people we meet in general were all nice, funny, crazy and of course like all teenagers misheard. You can´t judge someone by their looks…it doesn´t matter if they are white, black, gay or even with some mental problems. You can only judge someone until you met them. We hope that if anyone actually reads this think before you talk cause most of teenagers try to be heard but probably most of the times we aren´t. We just hope that every single person that was involved in this activity (teachers or students) can be happy in the future and be heard." (participant comment)

Conclusion

It is necessary to emphasize the importance of overcoming the social barriers to the proper functioning of integrating with our neighbors in our neighborhood through understanding strengthening, respect of cultural diversities, dialog, and better communication to foster social integration. Participating in our society and understanding our problems and social difficulties is the fundamental basis to generate critical thinking and pluralism. It is important to know our origins, our identity, and understand the diversity of identities that already exist in our surroundings. Creating dialog among young people and with the community is essential to engage them.

The practices in the locality through MIL, social integration, art, and communication strategies like this project did, can collaborate in the building of MIL cities. "We have to conceive and construct new forms of collective and personal life" (Touraine, 2000, p.15). MIL cities involve the respect of diversity therefore, with this construction, we can create other forms of intercultural collective life.

We must promote activities that facilitate being digital citizens and active subjects with critical thinking in this misinformation era. We must be prepared for future pandemic lockdowns or another biological or natural disaster. Thus, if we demonstrate how to learn by practice, create knowledge, and learn inside and outside the school with the available technology, we and the young people will develop competencies required for this changing world.

Practices in the locality, through media and information literacy, social integration, art, and communication strategies as conducted in this project, can foster the building of MIL cities. "We have to conceive and construct new forms of collective and personal life" (Touraine, 2000, p.15). MIL cities respect diversity; therefore, with this construction, we can create other forms of intercultural collective life.

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The UNESCO UNITWIN Cooperation Programme on Media and Information Literacy and Intercultural Dialogue (MILID) is based on an initiative from the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the UN Alliance of Civilizations (UNAOC). This Network was created in line with UNESCO's mission and objectives, as well as the mandate of UNAOC, to serve as a catalyst and facilitator helping to give impetus to innovative projects aimed at reducing polarization among nations and cultures through mutual partnerships.

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 intercultural and cooperative research on MIL. The programme also aims at promoting global actions related to MIL and intercultural dialogue. In such a context, a MILID Yearbook series is an important initiative.

This MILID Yearbook is a result of a collaboration between UNESCO UNITWIN Cooperation Programme on Media and Information Literacy and Intercultural Dialogue, The Corporación Universitaria Minuto de Dios - UNIMINUTO (Colombia) and the University of Gothenburg (Sweden).

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