

New Instructional Formats for Media Literacy Education: A Retrospective Analysis of Projects Based on Gamification, Exploration, and Multiformats

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The challenge of fostering media and information literacy (MIL) is particularly significant in a society marked by the accelerated growth of fake news, digital noise, and information overload. This challenge is compounded by the new generation's particular experience and use of media, platforms, and content. Therefore, it is crucial to promote new projects and initiatives that reinvent educational dynamics, types of content, and the role of young people. This chapter presents a comparative analysis of six MIL projects conducted by the Autonomous University of Barcelona (UAB) in Spain over the last 10 years, which combine gamification, experiential learning, and multimedia messages, to encourage young people to look at media critically. These initiatives have resulted from national and international calls and/or have been awarded different prizes and recognition in the fields of communication and education. The comparison of these six cases highlights young users' recognition and persuasive capacity of learning dynamics based on escape rooms, educational video games, project-based learning, exploration, and storytelling. The study concludes that MIL education requires increasingly innovative and unconventional proposals adapted to new media and platforms. It is crucial to develop these in collaborative lines of research between academia, the media, and other industry players.

Keywords: Instructional format development, video games, project-based learning, Spain

Promoting media and information literacy (MIL) and intercultural dialog during and after the pandemic is considered an important and urgent challenge. In a society characterized by increasing information overload and digital noise, cooperation between stakeholders to sustain the development of media and information literacy is key. Accordingly, it is crucial to explore and document projects, experiences, and cases that are based on research and that apply the MIL curriculum from experiences based on UNESCO's global standards. In that context, various questions emerge: How can this curriculum be developed with appropriate pedagogies and instructional solutions to match the educational scenarios? How can education concretely relate to the Sustainable Development Goals (SDGs) proposed in the global MIL curriculum (Grizzle et al. 2021)? Furthermore, per the global curriculum, how can gender balance be promoted? How can we take advantage of the potential of gamification and playful dynamics in educational processes? Most importantly, how can we inaugurate new lines of research and action that promote the study and knowledge of MIL and its impact on policies toward global access to MIL learning? All this revolves around a challenge of great strategic value: incorporating the aspect of public good, conceived as projects, values, actions, and contents that benefit a given community (Pérez-Tornero, 2020). The common good gives decisive importance to collective participation in the formation of a shared will based on respect for dignity, diversity, and human rights.

Media literacy, conceived as the ability to access, read, and process media content critically (Grizzle et al., 2021), is a highly valuable territory for the development of research projects, especially, as UNESCO has been promoting “action-research” initiatives (Pérez-Tornero & Varis, 2010), with special attention to the context of a scenario impacted by information overload, disinformation, and fake news (however, in the Council of Europe report *Information disorder*, Wardle [2017] proposed changing the concept of “fake news” to “information disorder”). The so-called “echo chambers” are leading to worrying dynamics where users have their views and beliefs confirmed, endorsed, or even amplified. MIL education aimed at advancing the public good can offer valuable tools, strategies, and guidelines to address this threat, bringing us closer to tackling misinformation and biased readings of our environments and societies.

Fake news is one of the main concerns resulting from the massive increase in deepfakes (Vaccari & Chadwick, 2020). Faced with such content, the ability of citizens to differentiate between quality information and

harmful content, as well as fact and fiction, is pivotal. Many scholars, including Tandoc et al. (2018), Chesney and Citron (2019), Aparici et al. (2019), and Salaverría et al. (2020), have warned us of the risk of disinformation and its rapid growth. In this context, the emergence of artificial intelligence (AI) offers interesting and varied opportunities to address this disinformation challenge. Studies by Flores-Vivar (2019) and Martín-Gutiérrez et al. (2020), among others, have highlighted the potential of AI to combat fake news. Kumar et al. (2019) have devised technological developments capable of identifying fake news. Meanwhile, Kanozia (2019) investigated the possibilities of boosting projects that MIL could reinforce to generate initiatives, platforms, instruments, and tools that take advantage of AI to combat fake content and disinformation at a global level. Mistrust in artificial intelligence (Vaccari & Chadwick, 2020; Jaakkola, 2023) conditions and limits the possibilities of taking advantage of it in MIL contexts.

AI technology and its possibilities relate to the need to promote new methodological, didactic, and pedagogical approaches (Perceval & Tejedor, 2006). In this context, gamification, which is conceived as the use of the playful potential of games, is a valuable ally. Different studies (Echevarría, 2000; Gómez, 2001; Castells, 2003; Quesada & Tejedor, 2016) have analyzed the educational potential of games, especially video games. Games have been consolidated as a valuable resource for MIL education, especially from the “public good” perspective. Games have been observed to be used at all levels of education, ranging from primary and secondary education (Tejedor, Recoder, & Pulido, 2022) to higher education (Pastor, 2010), covering highly diverse disciplines, such as medicine (Peña-Fernández & Ukaegbu, 2022), geography (Morote Seguido & Hernández, 2022), business (López Arquillos & Rey Merchán, 2022), and heritage literacy (Camuñas García et al., 2022). In the digital context, the commitment to games and their educational possibilities and the promotion of critical thinking allow for varied and strategic development in the promotion of cognitive, emotional, and personal skills (Quesada & Tejedor, 2016). The incorporation of complex systems in their proposals (Gee, 2004; Gil, 2007), or the promotion of teamwork or problem-solving (Aranda & Sánchez, 2009), acquires a key value in a scenario where the recipients become users, prosumers/readers-authors, or “emirecs,” as described by the researcher and theorist Alvin Toffler (1980) in his book *The Third Wave*.

To have an impact on societies characterized by screens, networks, and dialogic platforms, MIL education requires new approaches and communicative strategies, especially with the desire to promote public good. In addition, the growth of a new type of content that demands new connected formats, especially a reinvention of journalistic products, is witnessed. In this sense, different studies by authors such as Echevarría (2000), Gómez (2001), Castells (2003), and García-Ortega and García-Avilés (2018), among others, have highlighted the great value of convergence between education, communication, and journalism in line with technology for the effective promotion of MIL.

Research Objective

This study presents six cases as examples of instructional development related to formats and concepts using new technologies. The questions that we intend to answer are as follows: What are the characteristics of the edu-communicative project based on media literacy? How can we apply the inquiry learning method to media literacy initiatives? What new formats can be incorporated into projects that promote media literacy using a multidisciplinary and transversal approach?

Methodology

Using a methodology inspired by case studies, this article examines six selected projects that address the scope and possible strategies for promoting MIL for the public good by applying formats, technologies, and concepts of new and emerging media: audiovisual and audio production (podcasts), gamification, artificial intelligence, SDGs, and the gender perspective. These projects are derived from competitive calls for proposals and are committed to innovation in the MIL area as their central focus. The projects were developed by the Ministry of Communication and Education in Spain (Gabinete de Comunicación y Educación), a recognized and consolidated research group at the Autonomous University of Barcelona (UAB). The projects dovetail with the framework proposed by UNESCO's MIL curriculum (Grizzle et al., 2021) while simultaneously giving prominence to the dimension of public good.

This work is supported by the case study methodology, which, as Priya (2021) pointed out, focuses on the selection of successful or interesting initiatives around a certain topic. Specifically, a set of projects that derive from competitive calls have been selected. These projects have been promoted by multidisciplinary teams and respond to an applied research approach. Along these lines, Crowe et al. (2011) referred to the researcher’s criteria in the process of selecting and justifying the cases to be analyzed, which, in many cases, share characteristics similar to the general objectives of the proposed research.

Examining individual pedagogical projects or initiatives as a whole can offer us more understanding of how formats and concepts related to new technologies have been used for MIL education so far and help us further develop new technology formats. The initiatives studied were all developed by the Communication and Education Office of the Autonomous University of Barcelona (see Table 1).

Table 1. *The six projects selected for this study*

No	Title
P01	INFO/EDU: Collaborative ecosystem of informative audiovisual resources for education project
P02	Science Reporters: The adventure of knowledge
P03	Identification, Verification, and Response. The democratic state facing the challenge of self-interested disinformation
P04	Frontera Crónica Project: Workshop on cross-border journalism and co-creation for the promotion of a critical view and the construction of other narratives on violence, women, and migrations
P05	COMIMPACT Project: Social impact of the informative treatment of gender equality through scientific evidence
P06	OMEDIALITERACY. Overview of the challenges and opportunities of Media Literacy Policies in Europe

1. **“INFO/EDU: Collaborative ecosystem of informative audiovisual resources for education project”** is part of the State Plan for Scientific and Technical Research and Innovation 2017–2020 of Spain within the “Social changes and innovations” Challenge. The objective of this research was to develop, experiment, and validate a technological platform capable of adapting to educational uses and effectively distributing content among the different actors in the system. In addition, the project strives to enhance customization and cooperation in production by the user

community. The project emphasizes innovation in secondary education centers and focuses on the use of current audiovisual information content seen on television. It is aimed at students, researchers, teachers, and families, regardless of their profile or level of education (website: <https://www.infoedu.es/>).

2. **“Science Reporters: The adventure of knowledge”** is a project funded by FECYT (Fomento de la Cultura Científica, Tecnológica y de la Innovación) and aims to promote critical thinking and a scientific vocation among compulsory secondary education (ESO) students through a video game based on escape rooms. The Spanish Foundation for Science and Technology and the Ministry of Science, Innovation, and Universities have collaborated on this project. This initiative aims to instill knowledge and awareness of science among secondary school students. To achieve this, it employs pedagogical strategies adapted to the profile of this audience (12 to 16 years old) and their habits of using the media, especially digital platforms such as social networks. Specifically, the project configures and presents students with a gamified experience based on a series of challenges inspired by the universal history of science from a gender perspective. Young people will have to know and apply the scientific method, adopting the role of a reporter who investigates, documents, contrasts, and produces information. This participation may occur autonomously or in a virtual tournament with other schools in Spain. The project is committed to the gender perspective in its different actions. Furthermore, the initiative stands out for its environmental commitment and uses the current global challenges, various anniversaries and international celebrations in the field of science, and the Sustainable Development Goals as a transversal common thread (website: <https://reporterosdelaciencia.com/>).
3. **“Identification, Verification, and Response. The democratic state facing the challenge of self-interested disinformation”** seeks the development of an information verification system in the Spanish language that includes a user interface that naturally collects questions from people who want to verify content and returns a reasoned report that allows them to make decisions. In its experimental development phases, the verification system will be available for use by the Spanish Radio and Television Corporation (RTVE) journalists. Furthermore, there are plans to make it available in the future to other professionals from authorized public and private institutions (website: <https://iveres.es/>).

4. **“Frontera Crónica Project: Workshop on cross-border journalism and co-creation for the promotion of a critical view and the construction of other narratives on violence, women, and migrations,”** derived from the call of the Solidarity Fund of the Autonomous Solidarity Foundation of the UAB, is a project that has supported and collaborated with the network of journalists from Mexico (“Yo sí soy periodista” or “I am a journalist”) who work in the city of Tijuana and surrounding areas. The initiative includes a set of training, reflection, and debate actions aimed at offering resources, tools, and new work dynamics on the narrative of violence, migration, and women in a sociopolitical context marked by an increase in attacks on reporters covering issues on the border between Mexico and the United States. Among its objectives are the recognition of the work of journalists in scenarios of violence; the proposal for new narratives around the borders marked by migration and violence; the facilitation of Mexican journalists working on the border with the United States; the development of a directory of resources and platforms that improve their stories and content; the generation of citizen commitment and interest in knowing other types of narratives about migration, women, and violence in the border territory; increasing the awareness of university students from Mexico and the UAB of social problems; and the promotion of media literacy in journalistic and non-journalistic scenarios. The project has generated several spaces for reflection, a multimedia book, and a cartography of resources (website: <http://frontera-cronica.gabinetecomunicacionyeducacion.com/>).

5. **“COMIMPACT Project: Social impact of the informative treatment of gender equality through scientific evidence,”** derived from a competitive contest of the Women’s Institute of the Spanish Government, is an informative project in an audiovisual format that addresses one of the main social challenges of today: information treatment for gender equality. It is financed by the Women’s Institute, and its two main objectives are as follows: 1) to train professionals and students in the field of journalism and communication as well as on the social impact of information treatment for gender equality based on scientific evidence and 2) to disseminate and transfer scientific knowledge that can have a social impact on issues related to equality and the prevention of gender violence as well as to improve information treatment from the media. The project is expected to result in the following: 1) two

hybrid seminars aimed at undergraduate, master's, and doctoral students, as well as journalism and communication professionals, which will address information treatment related to gender equality based on scientific evidence for the eradication of violence against women; 2) two audiovisual capsules in which the main contributions of the previous seminars are summarized; and 3) seven podcasts of 23 minutes each on the handling of information related to gender equality based on scientific evidence, Isolating Gender Violence as a key to overcoming gender violence, new alternative masculinities, scientific evidence versus hoaxes on gender equality, the Brave Club Violence 0—successful performance, the social impact of journalism on the eradication of violence against women and gypsy women, and equality of differences in social inclusion.

6. **“OMEDIALITERACY. Overview of the challenges and opportunities of Media Literacy Policies in Europe,”** supported by the European Media and Information Fund, is a descriptive and explanatory research project that addresses one of the main current social challenges: misinformation. This research aims to identify existing knowledge on the effects of disinformation in Europe, compare current policies on media literacy and disinformation among member countries, and identify good practices to overcome disinformation. To this end, a review of the scientific literature and the documentation on policies on disinformation in Europe will be conducted, comparing disinformation policies and identifying good practices. All information found will be published in a report with recommendations for policy and practice. Along with the main objective, the project pursues the following specific objectives: 1) identify scientific publications on the proliferation and effects of disinformation as well as on ways to counteract it; 2) learn about the actions, methodological approaches, and policies on disinformation adopted by the member countries and identify the good practices that are currently being applied in Europe; 3) prepare a report related to the bibliographic review on current gaps in terms of disinformation, contribution, and mapping of good practices; 4) define appropriate management procedures that guarantee the scientific and technical dimension of project execution; 5) track, exploit, and communicate the results and products of the project among the scientific community, policymakers, stakeholders, and end users to maximize the impact of the project (website: <https://omedialiteracy.univie.ac.at>).

Literature Review

This section presents the bibliographic references that have supported the six selected projects. That is, it is a framework that refers to the main authors and trends that, from the field of media literacy and other related scenarios, have allowed the conceptualization of the analyzed projects. It is worth highlighting that the six initiatives were promoted by the Communication and Education Office, a recognized and consolidated research group of the Autonomous University of Barcelona. The authors have participated directly or indirectly in the ideation, definition, development, and evaluation (where appropriate) of the various initiatives.

Artificial intelligence has become one of the most promising technological developments in the current context. Studies such as those of Kumar et al. (2019) and Martín-Gutiérrez et al. (2020), among others, have also highlighted AI's potential in combating disinformation in all its facets. This aspect makes AI a central technology for MIL and intercultural dialog, especially with the aim of enhancing public good. Ultimately, it is humans who train and prepare machines (Rass, 2020) to perform tasks and apply filters. Therefore, it is essential to consider the exponential growth of gamification, which has shaped serious games or newsgames, among other developments. Researchers have highlighted that entertainment is not the only attraction generated by video games. To them, these formats can be pivotal in the acquisition of new skills and for learning complex systems. Besides AI and gamification as resources with great potential, MILID can benefit from a large number of information resources in cyberspace (Tejedor, Recoder, & Pulido, 2022; Pastor, 2010). Marín, Hinojosa, and Ruíz (2018) highlighted the scope of these play-based proposals and, as Paíno and Rodríguez (2016) pointed out, identified them as scenarios of accelerated growth and evident consolidation.

The educational scenario must react to this type of dynamic and take advantage of the enormous possibilities offered by the informative and educational potential of cyberspace. A decade ago, teacher and researcher Salvador “Pocho” Ottobre pointed out in his book *¡Profe, No Tengamos Recreo!* the importance of taking advantage of the playful potential of games to promote creativity and learning, especially in contexts marked by a lack of attention and the need for students to assume a leading role (Ottobre & Temporelli, 2010). Video games offer interesting possibilities, and the “Science Reporters: The adventure of knowledge” project has

tried to exploit these possibilities based on the educational potential of the so-called “serious games.” It is significant to consider the socialization process that this type of multimedia development makes possible, as different authors, such as Joyanes (1997), Echevarría (2000), and Castells (2003), have explained at the beginning of the century. In addition, the different forms of learning, as well as the in-depth work around personal, emotional, and cognitive skills, that video games allow are essential in promoting creativity and learning. Moreover, as Aranda and Sánchez (2009) pointed out, video games are cultural, learning, and socialization resources that enrich players’ communication, teamwork, and problem-solving skills and competencies. Furthermore, this type of content enables the exercise of new literacy, which, from a media literacy perspective, can be crucial for the promotion of critical thinking (McGonigal, 2011). The emergence of news games (Tejedor & Tusa Jumbo, 2020) as gamified content and development inspired by the logic of video games to address current issues, challenges, and discoveries gives a renewed halo to the commitment to the combination of information, communication, science, and games in a single format (Paíno & Rodríguez, 2016).

Based on this set of reflections and theoretical studies, this paper analyses six projects that stand out for applying UNESCO’s MILID guidelines based on the critical use of technology (especially artificial intelligence), the creation of new formats, the approach from a gender perspective, the importance of social transfer (specifically, in disadvantaged contexts and/or contexts marked by different types of violence), and the framework provided by the SDGs.

Six MIL Projects for the Public Good

Based on these six projects, this paper seeks to identify the potential of new formats for MIL— the confluence of audiovisual content, video games, and AI—by a systematic examination of their use. Although the projects have the common objective of fighting information disorder in all its forms, they are committed to different approaches and methodological techniques. Meanwhile, they have developed or aspire to generate transferable deliverables for citizens.

The six projects derived from national and international competitive calls for proposals can thus be expected to show innovativeness with respect to applying different technologies in a pedagogical context. The initiatives developed by the Communication and Education Office of the Autonomous University of Barcelona are characterized by their explanatory and exploratory nature within the MIL curriculum, with the cross-cutting presence of the SDGs and the gender perspective. Moreover, all projects present initiatives designed with a commitment to the transfer of knowledge to citizens.

P02 (see Figure 1) aimed to promote critical thinking within MIL and scientific vocation among secondary school students through a video game based on escape rooms. The initiative sought to develop training, knowledge, and awareness of science through pedagogical strategies adapted to the profile of young students and their media use habits, especially social networks. Students played the game by solving challenges inspired by the history of science from a gender perspective. The proposal applies the scientific method, giving the user the role of a reporter who investigates, documents, and prepares information. The scientific method has been conceived as a methodology for accessing new knowledge, which has historically characterized science. This method covers the following phases: systematic observation, measurement, experimentation, and the formulation, analysis, and modification of hypotheses. The initiative stands out for its environmental commitment and uses the SDGs, among others, as a common thread.

Figure 1. Home page of the Science Reporters project



Source: <https://reporterosdelaciencia.com/>

P03 emphasizes the importance of information quality based on technological developments introduced by artificial intelligence. This proposal seeks to develop a system for verifying information in Spanish.

P04 won the 39th call of the UAB Solidarity Fund and aims to promote, finance, and accompany projects with a global justice perspective. Based on the precepts of UNESCO's MILID curriculum, the project will support and collaborate with the Mexican network of journalists ("Yo sí soy periodista" or "I am a journalist") working in the city of Tijuana and surrounding areas. The initiative includes a series of training, reflection, and debate actions aimed at offering resources, tools, and new dynamics on the narrative of violence, migration, and women in a sociopolitical context marked by an increase in attacks on reporters covering issues on the border between Mexico and the United States. This initiative, which includes two practical workshops, two days of reflection, and a series of debates, is conceived as a collaborative space for co-creation among journalists, teachers, and researchers. Among its objectives are the recognition of the work of journalists in situations involving violence, the proposal of new narratives around the borders marked by migration and violence, and the provision of a directory of resources and platforms for Mexican journalists working on the border with the United States. The project also aims to create a directory of resources and platforms to help journalists improve their stories and content; generate citizen commitment and interest in learning about other types of narratives on migration, women, and violence in the border region; raise awareness of social problems among university students in Mexico and at the UAB; and promote media literacy in journalistic and non-journalistic scenarios. The project features the collaboration of the cybermedia platform Revista 5W, which specializes in migrations; the Gabo Journalism Foundation; the Baja Autonomous University of Baja California (Tijuana); and the network of journalists in Mexico ("Yo sí soy periodista" or "I am a journalist").

P05 will organize two seminars and produce seven podcasts that will be available in open access for all citizens and for the continuous training of journalists in this subject. Scientific studies coincide in highlighting how gender coverage still lacks equity in the amount of coverage, with information being insensitive, inaccurate, and biased. Gender coverage does not show the social roots of gender violence and fails to remind social responsibility as well as to provide supportive contact information for survivors and witnesses. Journalistic practice must improve journalistic

reports on gender equality and gender violence coverage. The creation of quality journalistic podcasts will contribute to one of UNESCO's priorities: to offer citizens quality information in the face of the current challenge of disinformation.

P06 seeks to identify existing knowledge about the effects of disinformation in Europe, compare current policies on media literacy and disinformation among member countries, and identify good practices for overcoming disinformation. To meet such objectives, a review of the scientific literature and the documentation on policies on disinformation and media literacy in Europe will be conducted, in addition to comparing disinformation policies and identifying good practices. All the information found will be published in a report with recommendations for policy and practice. The project is developed in collaboration with the Universidade Nova de Lisboa, the Vrije University of Amsterdam, and the University of Vienna.

The case study methodology is understood as a technique that allows the selection and detailed study of a project based on questions designed to understand the entity, subject, or project under study (Reyes, 1999). Based on a limited number of successful experiences, an attempt has been made to extrapolate conclusions that respond to a triple purpose—(1) exploratory, that is, to enable the formulation of new questions for future research; (2) descriptive, as the particularities of a project are detailed and enumerated; (3) explanatory, insofar as the interpretation of strategies and processes pursued (Reyes, 1999). As Simons (2011) highlighted, this technique enables the study of the singular. Stake stressed the importance of analyzing the interrelationships between the different projects selected, and Kathleen (1989) pointed to the need to identify patterns of relationships between the initiatives under study. The cases were selected based on the following requirements: 1) projects focused on media literacy; 2) projects derived from national competitive calls; 3) projects focused on the promotion of media and information literacy for the public good. They present applied research with the characteristics detailed in Table 2.

Table 2. *Characteristics of the projects*

Project	Main subject	Audience	Objectives	Educational approaches
P01	Media literacy with audiovisual content	Teachers, researchers, students, and families of all profiles and levels	Promotion of media education based on individual audiovisual content and its combination in the construction of thematic itineraries	Inquiry learning methodology, critical reading of media, audiovisual formats
P2	Gamification: "Serious" games	Secondary students	Create scientific awareness, encourage critical thinking, and create a student club involved in the project	Multimedia escape room, gamification and serious games, and problem solving and case studies
P3	Artificial intelligence	Journalism and news professionals and citizens	Create a news verification platform in Spanish and improve the quality of journalism	Content automation technology, automatic generation of messages, and production of audiovisual content from text or audio
P4	Journalism and MIL	Journalists from Mexico's border states and Mexican citizens	Provide MIL training for journalists and raise citizens' awareness of MIL issues	Spaces for reflection and debate, narrative co-creation and redesign workshops, and case studies and learning by doing

Project	Main subject	Audience	Objectives	Educational approaches
P5	Gender and science perspectives	The scientific community and citizens	Offers quality information on gender applying MIL	Inquiry learning methodology and sound production from co-creation and collective participation workshops
P6	MIL and disinformation	Researchers, institutional actors, and citizens	Create a theoretical framework and a map of best practices	Document review and bibliographic analysis and study of experiences and success stories

Results

An analysis of the selected projects allows us to identify several positive aspects in the design of projects and initiatives for the promotion of MIL for the public good. First, the research “OMEDIALITERACY. Overview of the challenges and opportunities of Media Literacy Policies in Europe” stresses the need and usefulness of mapping good practices, reference projects, and MIL success stories at the national, regional, and global levels. This mapping of good examples is pivotal for establishing, under UNESCO’s leadership, reference frameworks that allow all actors to have starting points and references, both theoretical and practical, for the promotion of UNESCO’s MIL curriculum.

Regarding the INFO/EDU project, it is worth highlighting the commitment to a platform that can be accessed not only by primary, secondary, and baccalaureate students (and even university students) but also by the teachers of these classes to prepare the topics of the school curriculum. This holistic approach is of great value because it allows for far-reaching training strategies that include families as a key entity in the promotion of MILID. As a first general result, this initiative allows us to stress the importance of devising MILID projects that are conceived from approaches

that involve a wide variety of profiles, including teachers, students, and families, to promote public good. Students and teachers can find more than 300 audiovisual resources on the website, enabling them to access the content that best suits their educational level (primary, secondary, high school, and university), their age (children, teenagers, and adults), and the subject they are studying or teaching (natural and social sciences, history of art, and Spanish language and literature). In addition, users can filter the content by subject, duration, or profile. The platform compiles reports, chronicles, documentaries, interviews, and so forth from the Spanish Radio and Television Corporation and the media that make up the Association of Ibero-American Educational and Cultural Television (ATEI), an aspect that guarantees the quality of the information made available to students and teachers (see Figure 2).

Figure 2. Image of the home page of the InfoEdu project



At the methodological level, the project “Science Reporters: The adventure of knowledge,” which addresses how to train young people between 12 and 16 years of age through games, strengthens the MIL approach based on a detailed study of the digital world that surrounds and entices these young people. Thus, the proposal is articulated around a collection of multimedia escape rooms in which young people are the protagonists. The

project works with MIL from an approach that encourages creativity, the search for solutions, and collaborative work but also focuses on competition between students and schools. The initiative has an ecosystem of game-based deliverables: on the one hand, an educational multimedia game and, on the other hand, a collection of five multimedia interactive escape rooms. The project has developed its contents from a gender perspective and is based on the 17 SDGs promoted by the UN. The proposal seeks to generate a network of schools that work together to promote critical thinking based on recreational proposals that are open to constant updating and improvement (see Figures 3 and 4).

Figure 3. Image of the multimedia escape rooms of the Science Reporters project



Figure 4. *Detail of one of the multimedia escape rooms of the Science Reporters project*



The projects are committed to deliverables that are based on the narrative of the formats most widely used by society. The Reporter@s project stands out as it has created a collection of five maps that respond to the guidelines of screenwriting— which also respond to an approach based on clarity, the use of color as a decorative and grammatical element, and a commitment to the thematization of the story through a proposal grounded upon immersion—based on the bibliographical review carried out and as recommended by the main works that have identified the importance of video games in education.

Furthermore, the selected projects attach crucial importance to queries. In this sense, the set of projects was defined on the basis of a directory of queries that covered aspects linked to the gender perspective, the SDGs, technology, and critical thinking. In addition, it has been key to connect the table of contents of each project with challenges and everyday situations in each of the contexts studied. Specifically, these directories of queries were linked to current issues that alluded to priorities and areas of relevance in the day-to-day lives of the project's potential recipients. Accordingly, the study of this set of projects highlights the importance

of adapting (topicalizing) the tables of contents of MILID initiatives to the defining scenarios of their respective targets. In the case of the “Frontera Crónica” project, MILID for the public service has worked from a proposal based on ethics and raising awareness among citizens about aspects closely tied to their daily lives.

In terms of general results, the comparative study of the three selected projects has made it possible to identify a series of elements of great value in the field of promoting projects aimed at fostering media literacy through innovative formats. The importance given by users to the sound component is noticeable. Hence, the podcast is consolidated as a format of great interest and value for citizens, the youngest profiles, journalism professionals, and the rest of the Internet users. The project “COMIMPACT Project. Social impact of the informative treatment of gender equality through scientific evidence” is committed to this type of format to address a subject that has not been approached in this type of deliverable.

Discussion

Within the framework of MIL for the public good, the comparative study of the selected projects shows the importance of promoting interdisciplinary research and the combined work of different technological developments as a key component for the promotion and strengthening of MILID in the current context. In this sense, the promotion of media literacy requires a continued commitment to innovation in approaches, methodologies, and products. To this end, applied research from the crossroads of fields and thematic territories, which traditionally have been isolated due to the limits imposed by the division of knowledge, is pivotal. The novelty introduced by AI also requires new lines of research, as this technology has a clear impact on several aspects of the field of media literacy.

Furthermore, the comparative study that guides this research has made it possible to determine that in the field of MIL projects, it is pivotal to position citizens at the center of the training process, regardless of their profile and age. This aspect also affects the need to topicalize the themes and connect them with the priorities, needs, problems, and particular situations of citizens. In short, media literacy, conceived as a path to public good, must start from approaches that place the citizen at the center of the process. To this end, the methodology of inquiry-based learning

brings together many potentialities of great value and scope. Specifically, aspects such as project-based learning, problem-solving, and hands-on learning are key. In other words, beyond the widespread definition of the youngest users as multitasking recipients, this work defends the importance of educational-communicative initiatives with a desire for knowledge transfer to opt for proposals that offer their audiences the possibility of doing, experimenting, and creating. Moreover, as Gee (2004) and Paíno and Rodríguez (2016) pointed out, these are attributes and resources that enhance users' immersive experiences.

Conclusion

This study emphasizes the need to review and update the educational approaches from various scenarios that address the projects studied: audiovisual, podcast, video game, AI, gender perspective, and the SDGs, all within the context of MIL projects. From an inquiry-based learning model approach, there is a need for the education system to integrate a training methodology that provides teachers with the skills and competencies demanded by this type of technological development. However, training of a technical or experimental nature is not sufficient. The main objective is to address this type of dynamics from a transversal and holistic approach that enables the critical use of the instruments and platforms. Along these lines, MIL education projects must emphasize the gender perspective component on the one hand and raise awareness around the SDGs on the other. In line with Tejedor and Tusa Jumbo (2020), it is a matter of devising proposals that allow for a direct connection between citizens and the issues that concern them. Projects that foster ethical commitment are crucial in societies marked by disinformation and digital noise.

In terms of informative attributes, multimedia is consolidated as the clearest and most reinforced option in the projects studied. The hybridization of varied elements in a single message connected through interactivity is present in all the deliverables that the six initiatives have developed or propose to develop. Reinforcing this aspect and from a broader perspective, the research has been devised from transmedia ecosystems, which—in the different phases of work—are supported by autonomous dialogic platforms to disseminate, communicate, and transfer the results achieved.

Finally, this work aspires to emphasize the importance of generating a space for exchange, reflection, and debate that connects universities and academic institutions with other social actors, such as the media, NGOs, or similar projects. UNESCO's role as a structuring body is crucial in this regard. Furthermore, it is important to highlight the value that applied research is acquiring in the field of digital and media literacy in all its facets and from all approaches. It is pivotal to launch a debate on the characteristics and scope of the concept of transfer. For this reason, the types of deliverables generated in MIL projects must be conceived and developed to promote their use by the public, going beyond the theoretical-academic stage that has traditionally accompanied social science research. Commitment to innovative formats based on interaction, horizontality, and collaborative creation is key for the impact of MIL education to become broader, stronger, and more varied.

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References

- Aparici, R., García-Marín, D., & Rincón-Manzano, L. (2019). Noticias falsas, [Bulos y trending topics]. *Anatomía y estrategias de la desinformación en el conflicto catalán* [Fake news, hoaxes and trending topics. Anatomy and strategies of disinformation in the Catalan conflict]. *El Profesional de la Información*, 28(3), e280313. <https://doi.org/10.3145/epi.2019.may.13>.
- Aranda, D., & Sánchez, J. (2009). *Aprovecha el tiempo y juega: Algunas claves para entender los videojuegos* [Take advantage of the time and play: Some keys to understanding video games]. UOC.
- Camuñas, D., Serrano, B., Cambil, M., & De la Cruz, J. C. (2022). Algunas características clave de los videojuegos comerciales para la educación patrimonial [Some key characteristics of commercial video games for heritage education]. In: Roig-Vila, R., Martines, V., & Antolí, J. (Eds.) *Actas – 1st International Congress: Education and Knowledge*, 194. Octaedro Editorial. <https://octaedro.com/wp-content/uploads/2022/05/9788419312372.pdf>.
- Castells, M. (2003). *The Internet galaxy*. Plaza & janes.
- Chesney, B., & Citron, D. (2019). Deep fakes: A looming challenge for privacy, democracy, and national security. *California Law Review*, 107(6), 1753–1820. http://www.californialawreview.org/wp-content/uploads/2020/01/2-Chesney-Citron.34.final_.pdf.
- Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., & Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology*, 11(100). <https://doi.org/10.1186/1471-2288-11-100>.
- Echevarría, J. (2000). Avatares, realidad virtual y educación digital [Avatars, virtual reality and digital education]. *Actas del I congreso internacional de educación. Digital*. Bilbao, 130–135.
- Flores Vivar, J. M. (2019). Artificial intelligence and journalism: Diluting the impact of disinformation and fake news through bots. *Doxa Comunicación. Revista Interdisciplinar de Estudios de Comunicación y Ciencias Sociales*, 29(29), 197–212.
- García-Ortega, A., & García-Avilés, J. A. (2018). Los newsgames como estrategia narrativa en el periodismo transmedia: Propuesta de un modelo de análisis [Newsgames as a narrative strategy in transmedia journalism: Proposal for an analysis model]. *Revista Mediterránea de Comunicación*, 9(1), 327–346.

- Gee, J. P. (2003). *What digital games have to teach us: About learning and literacy*. Palgrave Macmillan.
- Gil, A., & Vida, T. (2007). *Els videojocs [The video jocs]*. UOC.
- Gómez, D. (2001). *Ideología y videojuegos [Ideology and newsgames]*. http://www.lafh.info/.staticViewPage.php?cat_ID=90&idioma=ES.
- Grizzle, A., Wilson, C., Cheung, C. K., Tuazon, R., Lau, J., Gordon, D., Fischer, R., Akyempong, K., Singh, J., Stewart, K., Carr, P. R., Tayie, S., Suraj, O., Thésée, G., Shiel-Rolle, N., & Gulston, C. (2021). *Media and information literate citizens: Think critically, click wisely! Media & information literacy curriculum for educators and learners*. UNESCO.
- Jaakkola, M. (Ed.) (2023). *Reporting on artificial intelligence: A handbook for journalism educators*. UNESCO.
- Joyanes, A. (1997). *Cibersociedad: Los retos sociales ante un nuevo mundo digital [Cybersociety: Social challenges in the face of a new digital world]*. McGraw-Hill.
- Kanozia, R. (2019). Analysis of digital tools and technologies for debunking fake news. *Journal of Content, Community and Communication*, 9(5), 114–122. <https://doi.org/10.31620/JCCC.06.19/16>.
- Kumar, A., Singh, D. S., & Kaur, G. (2019). Fake news detection of Indian and united State election data using machine learning algorithm. *International Journal of Innovative Technology and Exploring Engineering*, 8(11), 1559–1563.
- López, A., & Rey, M. (2022). Evaluación de la docencia en organización de empresas mediante herramientas de gamificación [Evaluation of teaching in business organization using gamification tools]. In Roig-Vila, R., Martines, V., & Antolí, J. (Eds.), 208 *Actas – 1st International Congress: Education and Knowledge*. Octaedro Editorial. <https://octaedro.com/wp-content/uploads/2022/05/9788419312372.pdf>.
- Martín Gutiérrez, D., Hernández-Peñaloza, G., Menéndez, J. M., & Alvarez, F. (2020). A multimodal approach for fake news discovery and propagation from big data analysis and artificial intelligence operations. *NEM Summit*, 1(3).
- Marín, I., Hinojosa, M., & Ruiz, J. (2018). *Newsgames en Ecuador [newsgames in Ecuador]*. *Correspondencias and Análisis*, 8, 121–145.

- McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. Penguin.
- Morote, A., & Hernández, M. (2022). Enseñar geografía mediante la gamificación. Potencialidad y propuestas del alumnado para su implementación [Enseñar Geografía mediante la gamificación. Potencialidad y propuestas del alumnado para su implementación]. In: In: Roig-Vila, R., Martines, V., & Antolí, J. (Eds.) *Actas – 1st International Congress: Education and Knowledge*. Octaedro Editorial. <https://octaedro.com/wp-content/uploads/2022/05/9788419312372.pdf>.
- Ottobre, S., & Temporelli, W. (2010). ¡Profe, no tengamos recreo! [Teacher, let's not have recess]. *La crujía*.
- Paíno, A., & Rodríguez, M. (2016). Renovarse o morir: Los “docugames”, una nueva estrategia transmedia que reinventa las formas de transmitir la realidad [Renew or die: “Docugames”, a new transmedia strategy that reinvents the ways of transmitting reality]. *Icono 14*, 14, 155–180.
- Pastor, L. (2010). *Funiversity: Los medios de comunicación cambian la universidad* [Funiversity: The media changes the university]. UOC.
- Peña-Fernández, A., Ukaegbu, E., & Peña-Fernández, M. A. (2022). Gamification to strengthening clinical parasitology education in Sierra Leone. In: Roig-Vila, R., Martines, V., & Antolí, J. (Eds.) *Actas – 1st International Congress: Education and Knowledge*. Octaedro Editorial. <https://octaedro.com/wp-content/uploads/2022/05/9788419312372.pdf>.
- Perceval, J. M., & Tejedor, S. (2006). El cuento multimedia interactivo: Hacia una educación lúdica en la sociedad de la información [The interactive multimedia story: Towards a playful education in the information society]. *Comunicar. Revista Científica Iberoamericana de Comunicación y Educación*, 26(1), 177–182. <https://doi.org/10.3916/C26-2006-27>.
- Pérez Tornero, J. M. (2020). La gran mediatización I. El tsunami que expropia nuestras vidas. Del confinamiento digital a la sociedad de la distancia [the great mediatization I. The tsunami that expropriates our lives. From digital confinement to the distance society]. Editorial UOC.
- Pérez-Tornero, J. M., & Varis, T. (2010). *Media literacy and new humanism*. UNESCO.
- Priya, A. (2021). Case study methodology of qualitative research: Key attributes and navigating the conundrums in its application. *Sociological Bulletin*, 70(1), 94–110. <https://doi.org/10.1177/0038022920970318>.

- Quesada, A., & Tejedor, S. (2016). Aplicaciones educativas de los videojuegos: El caso de world of warcraft [Educational applications of video games: The case of world of warcraft]. *Píxel-Bit. Revista de Medios y Educación*, 48(1), 187–196. <http://doi.org/10.12795/pixelbit.2015.i48.12>.
- Rass, S. (2020). Judging the quality of (fake) news on the internet. *Mind and Society*, 1(5), 129–133.
- Salaverría, R., Buslón, N., López-Pan, F., León, B., López-Goñi, I., & Erviti, M.-C. (2020). Desinformación en tiempos de pandemia: Tipología de los bulos sobre la Covid-19 [Misinformation in times of pandemic: Typology of hoaxes about Covid-19]. *El Profesional de la Información*, 29(3). <https://doi.org/10.3145/epi.2020.may.15>.
- Tandoc Jr., E. C., Lim, Z. W., & Ling, R. (2018). Defining “fake news”. *Digital Journalism*, 6(2), 137–153. <https://doi.org/10.1080/21670811.2017.1360143>.
- Tejedor, S., Recoder, M. J., & Pulido, C. (2022). Reporter@s de la ciencia: Scaperoom y videojuegos para estimular las vocaciones científicas [Science Reporters: Scaperoom and video games to stimulate scientific vocations]. In: Roig-Vila, R., Martines, V., & Antolí, J. (Eds.). *Actes 1st International Congress: Education and Knowledge*, 269–289.
- Tejedor, S., & Tusa Jumbo, F. E. (2020). Los newsgames como herramienta periodística: Estudio de caso de experiencias de éxito [Newsgames as a journalistic tool: Case study of successful experiences]. *Revista Prisma Social*, 30(1), 115–140.
- Toffler, A. (1984). *The third wave*. Bantam.
- Vaccari, C., & Chadwick, A. (2020). Deepfakes and disinformation: Exploring the impact of synthetic political Video on DeWardle: Uncertainty, and trust in news. *Social Media + Society*, 6(1).
- Wardle, C. (2017, February 16). Fake news: It’s complicated. *First Draft News*. <https://firstdraftnews.com/fake-news-complicated/>.
- Wardle, C., & Derakhshan, H. (2017). *Information disorder: Toward an interdisciplinary framework for research and policy making*. Council of Europe.