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MediaLabs in Higher Education: Ecuadorian Experiences

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Abstract

The present study focuses on the exhaustive analysis of the development and influence of Media Labs in Ecuador, specifically in the field of higher education, in order to discover their impact and effectiveness. Methodology. Based on the collection of numerical and descriptive ideas, the importance of these spaces to improve the quality of creative teaching and incorporate digital tools in the academy is evaluated. For this study, conversations have been held with representatives and leaders of the laboratories (MediaLabs), with the objective of understanding their perspective and competence in the use of technological tools and content within academic environments. Likewise, an exhaustive review of the remains of each group was carried out to evaluate the variety and quality of the resources accessible to educators and students. Results and conclusions. The pedagogical practices of teachers who make use of these resources are examined, as well as their ability to take advantage of digital tools effectively in the classroom.

Keywords: *Innovation Labs, Medialabs, Educational Resources, Digital Society, Technology, Education.*

Introduction

Higher education institutions are undergoing a significant technological reorganization to meet the challenges of using contemporary technological tools in instruction. The objective of implementing these technologies is to provide an educational opportunity that meets the present and future demands of society, which implies ensuring an education of high quality, equity and social importance within a constant educational system, an educational model that does not end with higher education but provides opportunities for continuing education through academic programs designed to constantly renew and enhance professional and personal skills.

Innovation begins to consider not only the learning processes of students but also the personal and professional development processes of teachers, since they are responsible for curriculum development. The image of the teacher as a researcher is present in the proposals for curricular innovation; his beliefs, ethical judgments and language constitute means to study the social life of the centers from approaches of interpretative inquiry to improve teaching and learning.

The constant development of technologies marks a new trend in education; each person can choose the content he/she wants from the place he/she prefers, without any kind of intermediation. Educational content is distributed on the network and is not limited to a single

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system; learning material is present in videos, photos, audios, forums, chats and other multimedia material, which are even beginning to replace the classical model of education.

In Higher Education, the integration of these online technologies enables the emergence of disruptive innovations and paradigm shifts in education that respond to the economic, social, cultural, and political demands of society. Faced with this scenario, Higher Education institutions are experiencing a new scenario that forces them to convert traditional spaces into technological ones, using tools, platforms, equipment, laboratories and other resources that provide students with a new environment in which to develop their competencies, based on the implementation of a set of academic and web-oriented knowledge.

These laboratories are ideal spaces where participants can acquire the ability to comprehensively investigate the social, economic and ecological processes that involve sustainable development and the conservation of natural resources (Espinoza et al., 2017). These spaces, function as open platforms for the development of projects, allow students and teachers to work on the design and implementation of innovative solutions to complex social problems, connecting theory with practice. The nature of these laboratories fosters an environment of constant experimentation. Here, students have the opportunity to take an active part, to be the main characters in the development of knowledge. This is how MediaLabs, by fostering autonomy and collaboration, cultivate essential skills that are vital in today's world, such as critical thinking, creativity and the ability to experiment and innovate in real projects close to the community.

Another important aspect is the promotion of social networking and collaboration with different disciplines that are unique to these environments. Medialabs provide the opportunity for students from diverse professions to collaborate, enhancing the educational experience by offering diverse points of view and expertise in problem solving. In this way, these spaces present an approach that leads to the development of comprehensive and efficient solutions, while preparing students with the skills to address real-world challenges. In this sense, these laboratories are presented as a cross-section of society, where diversity is valued and empathy and mutual understanding are fostered.

MediaLabs encourage social entrepreneurship and innovation with community impact. By working on projects with concrete applications, students develop technological and digital skills, and understand the importance of generating proposals that can contribute to the welfare of society. This strong emphasis on social impact leads MediaLabs spaces to become plans for generating technical knowledge and social and civic awareness. In this sense, the projects developed in these areas tend towards a more practical dimension than the teaching staff, leaving the walls of the classroom to directly address the needs of local communities, while encouraging the use of technology in a way that makes life easier.

The importance of MediaLabs in higher education has increased significantly, as they allow students to apply theories and concepts learned in the classroom through practice and experimentation (Gutiérrez, 2021). Navarrete, analyzes how the incorporation of digital technologies in the educational curriculum of higher education institutions improves the skills and competencies of students, facilitating a more comprehensive training adapted to current demands (Navarrete, 2017). Likewise, MediaLabs encourage autonomous learning and interdisciplinary work, preparing students for the challenges of the labor market. In the case of the UTPL MediaLabs, it plays a fundamental role in promoting creativity and innovation in education, offering students the opportunity to experiment and develop new ideas in a collaborative environment (Maldonado et al., 2019).

This study aims to examine the management of digital competencies in MediaLabs in Ecuador, identifying the competencies that exist, evaluating their management and offering recommendations to optimize it. In this way, the research helps to better understand how crucial digital competencies are in innovation environments.

MediaLabs are an educational approach that breaks the traditional norms of higher education. They always encourage collaboration, interdisciplinarity and learning through experimentation and working with society. In these places, students and faculty have the opportunity to learn by doing, interacting with knowledge in a hands-on, experiential way, and working on projects that truly make a difference by solving problems in their communities. By positioning students as agents of change, the MediaLabs contribute to the formation of professionals who are better able to face the challenges of a complex and constantly changing world.

New Forms of Learning

The new forms of learning have had their limitations due to the costs of technologies, among them the internet connection to have access to ICT, for these reasons the actors of education must seek new alternatives of interest and be able to process and critically apply relevant and pertinent information in the resolution of problems in a creative and innovative way, for these educators have seen advances in collaborative work in networks.

The irruption of information technologies in the educational field, added to the growing accessibility of institutions and individuals to these resources and the possibility offered by these technologies to incorporate socializing elements in the teaching-learning process, as well as the growing need for lifelong learning generated by the information society, have given an unprecedented impulse to the offer of distance education in its different levels, formats and modalities (Silva, 2011, p. 24).

Online learning has emerged as one of the key tools in modern education, offering the possibility of combining social, academic and technological aspects, eliminating geographical barriers for access to knowledge (Anderson & Dron, 2011).

With new technologies, knowledge has ceased to be basically written and asynchronous to become visual and synchronous; content has ceased to be linear and authored to become fragmented and shared; and users are no longer consumers of information but also producers (Ibarra, 2015).

Collaborative Learning Models

The new forms of learning have had their limitations due to the costs of technologies, among them the internet connection to have access to ICT, for these reasons the actors of education must seek new alternatives of interest and be able to process and critically apply relevant and pertinent information in solving problems in a creative and innovative way, for these educators have seen advances in collaborative networking.

To promote the true achievement of collaborative learning experiences, we must start by teaching small groups, between two and four members, also intervene in the achievement, those who extend the duration of the work sessions, will have the opportunity to get to know each other better and integrate effectively to generate learning, as well as the development of social skills for successful insertion into the group. When closely analyzing the Labs, we will observe that their first settlement is in the dialogue and dialectic between art, science and technology, which began with the birth of modern thought (Caerols & Escribano, 2019).

Regarding the use of ICT, the general opinion is quite favorable. Students especially emphasize how useful the virtual classroom is for them, since it allows them constant access to resources, materials, activities and assignments of the subject. In addition, it facilitates communication and collaboration in small groups, as well as the exchange of documents.

The appropriate context for this collaboration should provide the necessary training to participate in common projects. According to this approach, proposals for innovation in teaching have two main goals: on the one hand, to improve how the teacher adapts the educational aid for each student, and on the other, to encourage autonomous and self-regulated work by the students. All this with the goal of making learning more meaningful and useful for them. Motivation is sought, calling the student's attention through the observation of an everyday phenomenon and capturing it in a prototype, in addition to collaborative work and the presence of the teacher as a companion simply, leaving the student to act freely and decisively (Londoño, 2020).

Technological Tools for Teaching and Learning in Medialabs

When we speak of the knowledge society, we are referring to a new technological paradigm that has two fundamental expressions: one is the Internet and the other is the capacity to recode the codes of living matter (Castells, 2002).

A university MediaLab also serves as a place for academic practice related to the potential development of technological tools, currently focused on audiovisual, film, television production, graphic design, educational content production, sound design, photography, in short, a series of transmedia elements that enhance the field of training, in addition to serving as a platform for students to develop skills and competencies in the creation of content based on experimentation.

The centers dedicated to the production of digital educational materials have different names, depending on the institution that supports them. Some are known as digital innovation labs, medialabs, edulabs or videolabs, while others are called content factories or support units in teacher training centers. In addition, content has been evolving along with the technology, platforms and pedagogical models that are in trend.

For the teacher it is very important and very useful, the ideas and information of the students, also allowing to promote the combination of collaborative learning and experimentation. In addition, it enables reflection and self-evaluation on the competencies and skills acquired through activities assigned to each individual (Maldonado et al., 2019).

Accordingly, the conceptual transformation that educational videos have undergone is evident, not only with the advent of new technologies, but also with the transformations in pedagogical approaches and narratives. In this sense, we speak of a first stage, the 1960s, in which the approach was more functionalist. This approach was more focused on the use of films in cinema club for an analysis of aesthetics, semiotics of the image, expressive languages and to teach communication theories. In step with these evolutions, in the mid-1980s, distance education (Anderson and Dron, 2011) is also changing formats, from print and radio, moving to Learning Management System and LMS platforms, where video becomes an essential part of generating educational content online.

Digital Competencies

Digital competencies are essential skills in the 21st century, necessary to fully participate in the digital society and economy (Ferrari, 2013). These competencies include a variety of skills, from

basic digital literacy to advanced competencies in the use of information and communication technologies (ICT) (Van Laar et al., 2017). According to the European Commission (2018), digital competencies are fundamental for education, employment and social inclusion. Digital competencies fall into several categories, including information and data literacy, communication and collaboration, digital content creation, security and problem solving (Carretero et al., 2017). In the educational context, these competencies enable students not only to consume digital content critically, but also to produce and share content ethically and effectively (Redecker, 2017).

Instead, it should be noted that the management of digital competencies involves the identification, development and evaluation of these skills in various contexts (Bawden, 2008). In laboratory spaces, this management is crucial to ensure that participants, both teachers, students and society in general, acquire the necessary skills to be competitive in the constantly evolving digital environment. Effective management of digital competencies requires strategic planning that considers user needs, available resources and educational goals (Ala-Mutka, 2011). Best practices in digital competency management include the integration of emerging technologies, the design of continuous training programs, and the constant evaluation of acquired skills (Claro et al., 2018). Likewise, it is important to foster a culture of collaborative learning, where all participants can experiment and learn from their mistakes.

These spaces act as engines of innovation and creativity in the academic environment. They provide an environment conducive to hands-on learning and experimentation with new technologies, allowing users to develop digital competencies effectively (Jenkins, 2006). In the Ecuadorian context, MediaLabs have proven to be valuable tools for higher education, providing students and academics with the necessary tools to explore and develop new ideas and projects (García & Hernández, 2019). Likewise, these labs contribute to the development of a more inclusive and participatory digital society by providing access to advanced technologies and promoting the responsible use of ICTs (Martín-Barbero, 2009). MediaLabs have been developed in different global contexts, each adapting to the cultural, economic and social particularities of their regions (Gros, 2011).

It is necessary to insist that technology plays a crucial role in the transformation of education, facilitating the creation of learning environments that are both flexible and personalized (Fedorov, 2010). MediaLabs allow students to experiment with new forms of digital communication, through technological platforms that foster creativity and collaboration (Prensky, 2001).

Method

Given the diverse nature of this research, which mixes qualitative and quantitative approaches, methods have been employed to gather essential information on how MediaLabs are influencing higher education in Ecuador. The methodology integrates various data collection techniques to achieve a triangulation of information that strengthens the validity of the findings. Without hesitation, triangulation is the most discussed technical-operational strategy for the application of multimethod design in the specialized literature, as it is considered the most methodologically integrated; it is defined as a multimethod practice in which both approaches are used in the same research for the same object of study, thus obtaining a more complete picture of the studied reality (Duran, 2019).

Interviews were conducted with teachers, students, administrative staff and experts from

different MediaLabs. Semi-structured interviews allow us to capture the experiences and perspectives of the participants in depth, providing detailed information about their interpretations of the phenomenon studied (Kvale, 2007; Brinkmann, 2013). These interviews sought to inquire into their personal perspectives on the experiences, challenges, and advantages of these spaces. Likewise, they allowed us to capture in depth the subjective perceptions of the key actors and their interpretation of the role of MediaLabs in learning.

An exhaustive analysis of institutional documents, study programs, research projects and publications related to MediaLabs in higher education in Ecuador will be carried out. Documentary analysis allows contextualizing the information obtained from interviews and surveys, offering a broader view of institutional practices (Bowen, 2009). This analysis will provide a broader context and complement the information gathered through interviews and observation.

Surveys will be conducted targeting students and teachers who use the MediaLabs. Surveys are key tools in social research to collect quantifiable data and analyze trends in specific populations (Babbie, 2013; Fowler, 2014). These surveys provided quantitative information on how these spaces are perceived, used and evaluated, in addition to identifying the challenges and opportunities they offer for the teaching-learning process.

The research focuses on collecting data through interviews, observations, surveys, focus groups and document analysis. For this purpose, Atlas.ti was used, a tool that facilitates the organization of all this information, allowing coding and labeling data fragments, as well as establishing connections to obtain a more complete view of the phenomenon. This tool makes it possible to manage, code and analyze large volumes of qualitative information, which makes it much easier to identify patterns and create emerging categories. This combination of methods allows for a complete understanding of the phenomenon, ensuring a rigorous and informed analysis of the impact of MediaLabs in the educational context of Ecuador.

Participants

According to Salaverria, in 2015 it identified approximately thirty Labs worldwide (Salaverría, 2015); with the rise of markets, the development and cheapening of technologies and access to ICTs, the number of Lab institutions increased exponentially worldwide by 2020 and subsequent post-pandemic decline to 2021. Based on previous research, these laboratories are understood as places of production, experimentation and research. These spaces are made up of experts and professionals from various areas who come together to pursue common interests and collaborate in the creation of knowledge in order to solve social problems in their environment. The study focuses on a representative study of MediaLab institutions in Ecuador, strategically selected to provide a broad and meaningful view in the present research. The selection of these institutions was based on criteria such as geographical diversity, academic prestige, size and relevance in the field of higher education. Through this exhibition, we seek to gain a deeper understanding of the role and impact of MediaLabs in the Ecuadorian context.

In Ecuador, since the beginning of this research, 9 laboratories related to this activity have been identified, of which they have been classified as: public: those with government aid; private: associated with private companies and institutional: those that are associated with an educational or academic institution. Likewise, experts in this field have been consulted to determine the functionalities and activities of these spaces. The study of these academic spaces clearly shows that they promote the innovation process in universities and, by dynamically promoting the

integration of technologies, invite us to think about the learning process in a much more participatory and collaborative way, facilitating teamwork and the collective generation of knowledge.

Once an experience of its own in the territory has been developed, MediaLab processes need to create more formal institutions; In this way, citizen processes, academia and cultural processes began a path towards the formation of spaces where multidisciplinarity, innovation, experimentation and collaboration have a place and can grow together and also contribute to the development of the academic training of both teachers and students.

The users of the MediaLabs depend on where they are anchored: There are many who depend on the universities; there are others that depend on public governments, others that come from purely private sectors. The MediaLabs are intended to be open spaces; that is, not because it is from the university, it is open only to the university; but obviously having that closeness to academia often the users are the students themselves or their teachers. It is necessary to seek the accompaniment of civil society in order to establish true alliances and true links between academia, the public and private sectors to enhance their development (C. Ortiz, personal communication, 2021).

Institution/Organization	**City**	**Main Focus**	**Technologies Used**
Centro Internacional de Estudios Superiores de Comunicación para América Latina (CIESPAL)	Quito	Communication and Digital Rights	Open Data Platforms, AI
Municipio de Guayaquil	Guayaquil	Citizen Innovation	Urban Technology, Smart Cities

Table 1: Non-academic Media Lab in Ecuador

Source: own elaboration

In Ecuador, non-academic MediaLabs are located in institutions that are not affiliated with universities, such as the Municipality of Guayaquil and the International Center for Higher Communication Studies for Latin America (CIESPAL). Although these laboratories do not focus on formal education, they play a crucial role in technological innovation and in the search for solutions to social and urban problems in their environment. Located in the city of Quito, it is well known for its focus on digital rights and they address communication as a fundamental axis. It can be determined that it is intended to investigate how information and communication technologies (ICTs) impact society, focusing on the protection of privacy and rights in the digital environment. CIESPAL promotes projects that address issues such as freedom of expression and the regulation of digital content, thus integrating open data platforms and using artificial intelligence.

Similarly, Semgroup is an innovation and entrepreneurship ecosystem that houses recognized companies in several sectors of great development in the country. Certified by Senescyt, they provide as a business incubator and accelerator in the city of Guayaquil, using technological tools to improve the lives of citizens through digital solutions that promote sustainability and

efficiency in public administration.

Institution/Organization	**City**	**Main Focus**	**Technologies Used**
Universidad de las Artes	Guayaquil	Audiovisual Innovation	Augmented Reality, Virtual Reality
Universidad San Francisco de Quito	Quito	Media Research and Production	AI, Digital Editing, Multimedia
Universidad Técnica Particular de Loja	Loja	Technological Innovation	Big Data, Artificial Intelligence
Universidad de Cuenca	Cuenca	Audiovisual Production	Editing Software, 4K Cameras
Universidad Central del Ecuador	Quito	Communication and Digital Technologies	Virtual Reality, Video Editing
Universidad Regional Amazónica IKIAM	Tena	Environmental Research and Technologies	AI, Environmental Models
FLACSO Ecuador	Quito	Social Research and New Technologies	Data Analysis, AI, Collaborative Platforms

Table 2: Non-academic Media Lab in Ecuador

Source: own elaboration

In Ecuador, the academic MediaLabs are located in different universities that are prominent both nationally and regionally. These spaces, intended for innovation and experimentation, are presented as innovative pedagogical and technological solutions combining theory with practice and applying technologies related to research and teaching. Among the most relevant educational institutions, we can mention the University of the Arts, the University of San Francisco de Quito (USFQ) and the Universidad Técnica Particular de Loja (UTPL). These academic spaces have a particular focus, from the production of audiovisual content to social and environmental research, whose objective is to propose real solutions. For example, the MediaLabs of the USFQ or the University of Cuenca focus their attention on audiovisual production and the search for new narratives based on artificial intelligence or other advanced technologies. For their part, institutions such as the UTPL or the Amazonian Regional University IKIAM have made their efforts for research and innovation tecnológica en importantes campos como el medio ambiente o la educación.

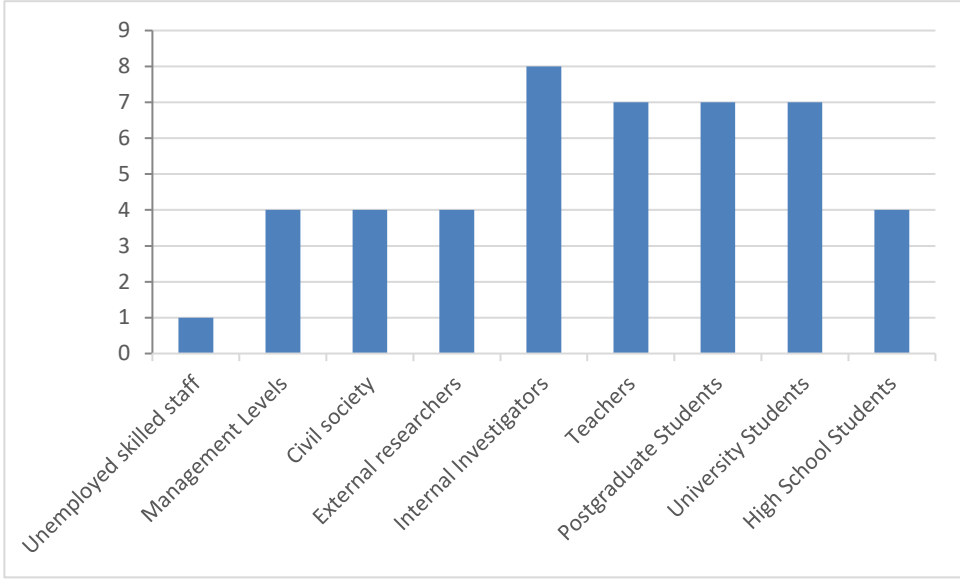
Resultados

Once the necessary information has been collected, we proceed to order and process it to obtain the expected results. All the differences between the ecosystems of the institutions and the experts consulted have been considered, which share similar realities in all Ecuadorian MediaLabs. This will allow us to draw meaningful conclusions and formulate relevant

discussions for the future development of MediaLabs in Ecuador.

Target audience of the MediaLabs

MediaLabs tend to focus primarily on students and academics, but they also aim to influence the community at large. In certain cases, specific strategies have been created to attract external groups such as entrepreneurs, artists, and professionals from different fields.



Graph 1: MediaLabs Users

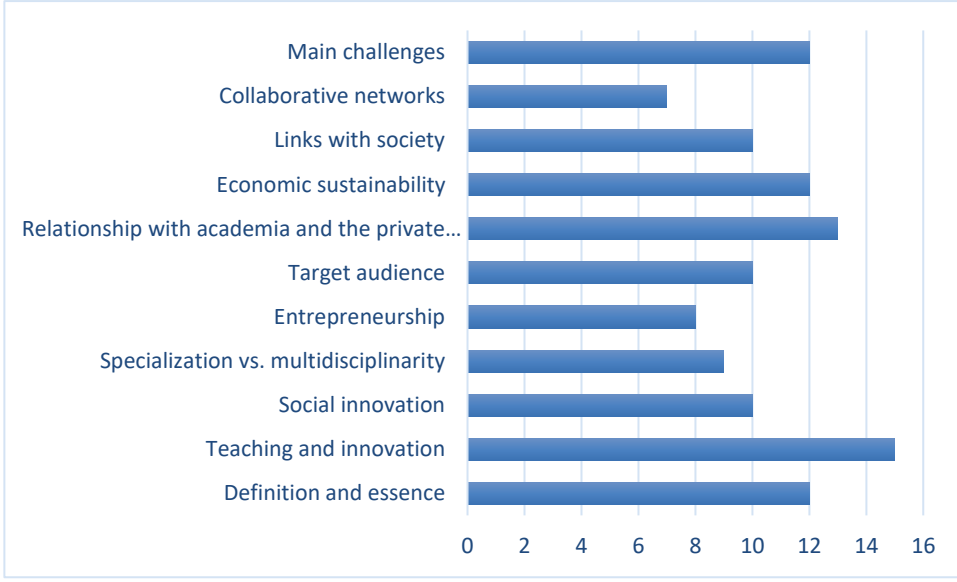
Source: own elaboration

These laboratories play a crucial role in technological innovation and in the search for solutions to social problems that affect citizens. For example, CIESPAL's MediaLab in Quito is known for its focus on digital rights and communication. It investigates how information and communication technologies (ICTs) impact society, focusing on the protection of privacy and rights in the digital environment. CIESPAL promotes projects that address issues such as freedom of expression and the regulation of digital content, integrating open data platforms and using artificial intelligence. On the other hand, although there are fewer researchers, their presence reinforces the idea that MediaLabs facilitate the production of knowledge and the exploration of new technologies in the academic field. Their participation is key in these spaces as they play a fundamental role in the generation of scientific projects, the development of experimental research and collaboration with other areas of knowledge and institutions or creative industries. Although their primary focus is still the university environment, there are MediaLabs that are willing to open their doors to the outside community. This includes entrepreneurs, professionals from different fields, and even citizens who have an interest in digital innovation. This expands their impact, turning them into centers of experimentation and co-creation with a potential to contribute to the educational, social and cultural transformation of the country.

Medialabs' Relationship with Academia, The Public and Private Sectors

It can be seen that most Media Labs are connected to university institutions, although they also

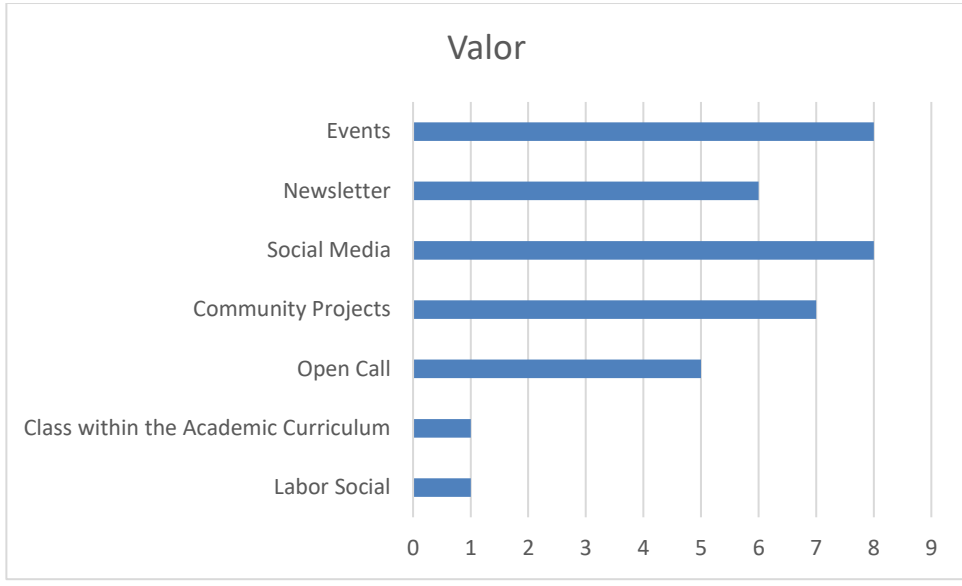
try to find funding and some collaboration with the public or private sector. The triple helix (university-public sector-private sector) is named the ideal model to achieve sustainability.



Graph 2: Key Factors in the Management and Development of MediaLabs

Source: own elaboration

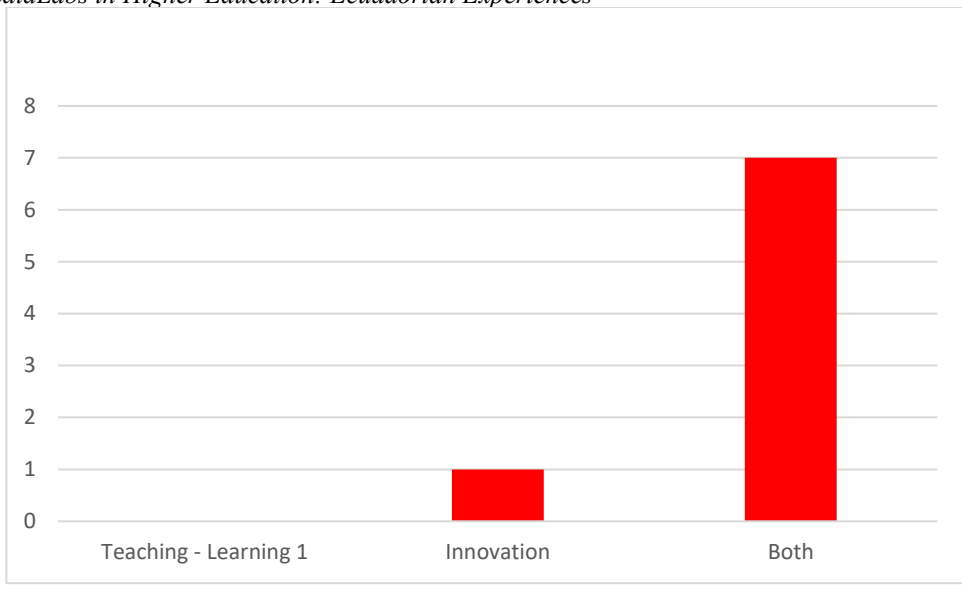
The graph illustrates the relative importance of several factors in the management and development of MediaLabs, according to the opinion of the experts consulted. Teaching and innovation, as well as the relationship with academia and the private sector, are the highlights, indicating that MediaLabs are appreciated both for their educational function and for their ability to establish strategic alliances. Economic sustainability and connection to society are key aspects that underscore the importance of having financial models that are sustainable, as well as maintaining active interaction with the community. In addition, elements such as collaborative networks and the main challenges highlight both the challenges and opportunities that arise in the development of these innovation spaces.



Graph 3: Social Bonding

Source: own elaboration

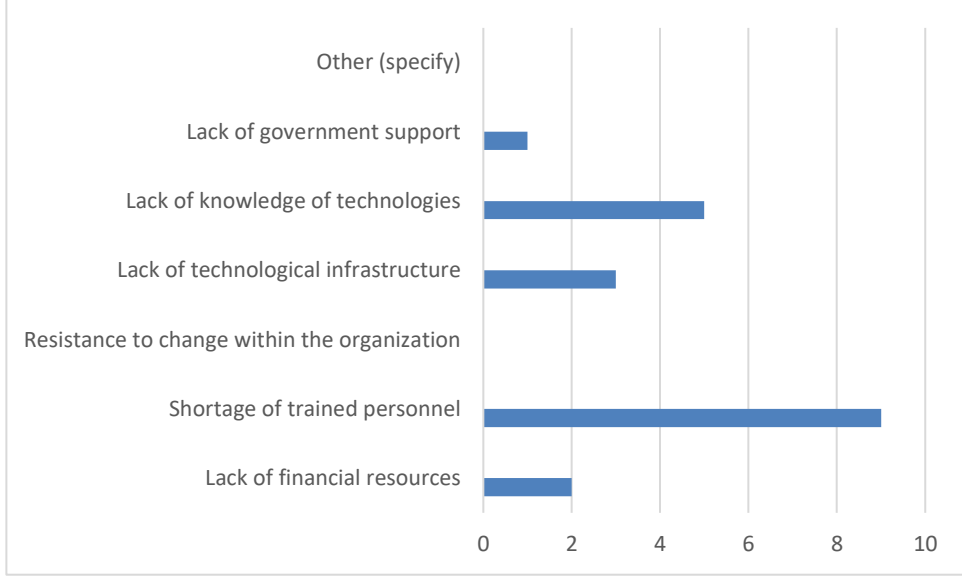
The graph reveals that experts agree that events organized in these spaces and social networks are the most effective strategies to promote social bonding of MediaLabs, thus achieving the highest number of interactions. Events, such as workshops, hackathons, exhibitions and conferences, offer spaces for direct interaction with different audiences, promoting knowledge exchange and interdisciplinary collaboration. It can also be defined how social networks have established themselves as a key tool to disseminate activities, strengthen the identity of the MediaLabs and attract new participants, taking advantage of their wide reach and capacity for interaction in real time. Work focused on community projects plays a key role, acting as a bridge of connection with society. These initiatives, which range from co-creation to collaborative content production and digital skills training, allow MediaLabs to expand their influence beyond university classrooms, involving a variety of social actors such as NGOs, cultural institutions and citizen groups. The implementation of these initiatives reinforces the vision of these laboratories as spaces of open innovation, where technology and creativity are used to benefit society. As can be seen in the graph, more than 50% of the entities consulted have adopted open call alternatives, which indicates a clear trend towards inclusion and citizen participation. These collaborations not only provide MediaLabs with the necessary resources to operate, but also offer students the opportunity to work alongside companies, public and private organizations, thus expanding the network of contacts and their academic and professional experience.



Graph 4: Strategic Role of the Medialabs

Source: own elaboration

The graph indicates that the multimodality of the MediaLab occupies a fundamental place in the opinions of the experts questioned. The great importance of the set of categories such as teaching and innovation, relationship with academia and the private sector and economic sustainability, makes us glimpse that these spaces can not only fulfill a teaching function, but could also behave as environments for experimentation, collaboration and the production of knowledge. The fact that innovation, entrepreneurship and relationship with society are born together makes it even more credible that MediaLabs can be seen as transformative elements in the academic and professional system, deployed in creative production processes, taking place in different areas.

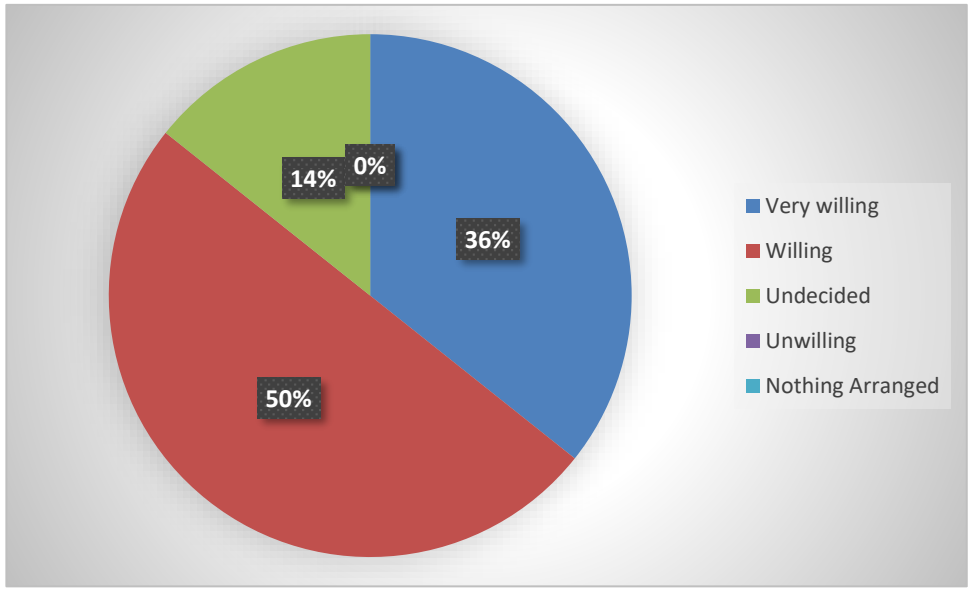


Graph 5: Implementation of Emerging Technologies

Source: own elaboration

The graph shows that the main barrier to the adoption of emerging technologies in MediaLabs is the shortage of trained personnel, with 64.3%, which highlights the need for continuous training to strengthen these innovation spaces. This lack of knowledge of technologies represents a significant obstacle to the development and adoption of MediaLabs, with 35.7%. This barrier translates into a lack of technical skills on the part of users, resistance to change and the difficulty in integrating appropriate digital tools into teaching, experimentation and innovation processes. The lack of knowledge limits the full use of these spaces, which highlights the need to implement training and constant updating programs for students, teachers, and researchers. Training in new technologies, teaching methodologies, collaborative work and digital project management is essential to enhance impact and promote sustainable growth. Likewise, a clear deficit of technological infrastructure is identified with 21.4% and the lack of economic resources 14.3%, emerge as relevant challenges, which limits the acquisition of specialized equipment, state-of-the-art software and adequate connectivity.

The limited investment in these spaces prevents their expansion and optimization, which in turn affects the quality of the projects developed. Although government support is mentioned to a lesser extent (7.1%), its role is still fundamental in consolidating these laboratories as environments of open innovation and knowledge transfer. These findings reinforce the importance of designing diversified financing strategies, including partnerships between academia, the private sector and the public sector, thus ensuring the sustainability of MediaLabs and their contribution to the educational and technological innovation ecosystem.



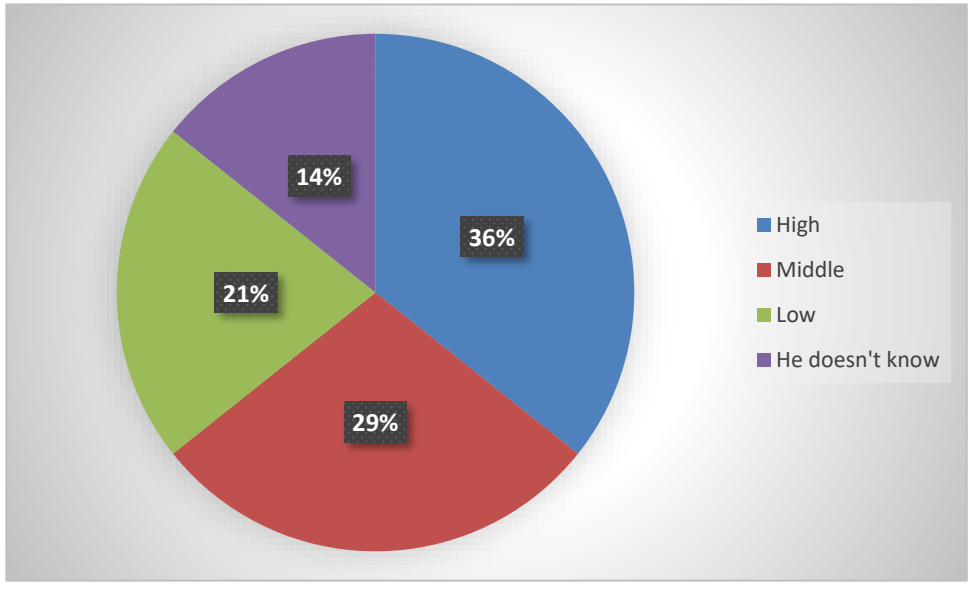
Graph 6: Technologies and their Impact on MediaLabs

Source: own elaboration

The analysis related to the willingness to invest in the implementation of emerging technologies only reinforces the connection with the previously identified barriers. The shortage of trained

personnel and lack of technological knowledge, which we have previously pointed out as the main obstacles, is based on the explanation for the indecision of up to 14.3% of respondents. However, the fact that 85.7% of the participants (half are willing [50%] and a remarkable 35.7% say they are very willing), indicates that despite the difficulties and obstacles that appear, they do not seem to be at odds with the desire to implement them.

This interest is related to the versatility of MediaLabs and their role in education, innovation and connection with society. MediaLabs have the potential to be key players in bridging the knowledge and training gap, aiding in staff training and encouraging the adoption of emerging technologies. On the other hand, cooperation with academia and the private sector, as can be seen in the graphs above, is important for the sustainability of this type of investment, since collaboration between sectors allows for the provision of resources, infrastructure, and implementation strategies.

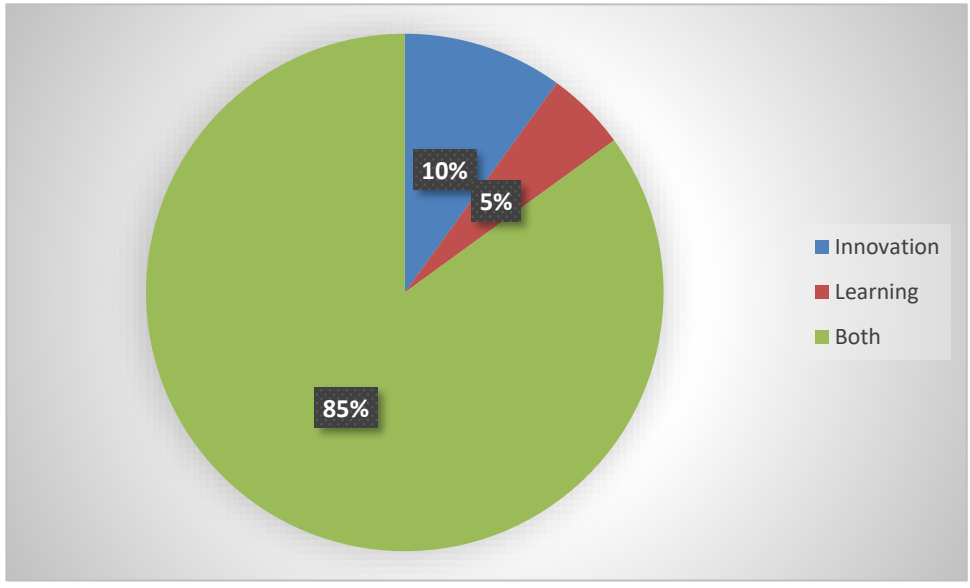


Graph 7: Creativity and Innovation

Source: own elaboration

The graph indicates that 35.7% of respondents believe that the adoption of emerging technologies has a high impact on creativity and innovation in audiovisual production. This data underlines the importance of continuing to explore new digital tools and work methodologies that promote the creation of innovative content. Technologies such as artificial intelligence, virtual reality, augmented reality and the automation of creative processes are changing the way audiovisual narratives are developed, offering greater expressive possibilities and expanding the limits of experimentation. In this line of argument, the favorable point of view on their impact indicates that the general trend is in favor of the inclusion of these resources in the production of multidisciplinary projects, which makes possible a considerable improvement in the way of understanding and in the way of producing content. 28.6% of those surveyed believe that the impact is medium, which indicates that, although they perceive the interest in these information technologies, they still have some resistance to their implementation, either due to lack of infrastructure, lack of training, or difficulty in changing previously established creative

processes. 21.4% believe that implementation has little impact, which suggests that some sectors still do not consider that there is an improvement, perhaps due to a lack of information or a shortage of resources for implementation. By relating this to the previous graphs, we can observe that user training affects end users, since their scarcity translates into a negative way of understanding the impact of the implementation of these technologies. The relationship between academia and the private sector can be decisive for technological adoption and for facilitating training processes and adaptation in the work environment to these technologies. In addition, the willingness of most companies to invest in new technologies suggests a growth in the perception of their value.



Graph 8: Educational Innovation

Source: own elaboration

In the Ecuadorian MediaLabs, a great similarity is revealed in the ranges of technological capacity, financing, users, autonomy and production. These laboratories are positioned as ideal spaces for the teaching-learning process and educational and research innovation in Ecuadorian universities.

The development of communicational content focused on the audiovisual field stands out as a fundamental tool in interactive communication, facilitating the development of skills and the promotion of critical thinking in participants. With the persistent evolution of digital technology, it is crucial that both teachers and students integrate specialized content that allows them to improve their knowledge and make the most of technologies. In this section it is clear to observe at first glance that the specialists consulted are inclined towards the multifunctionality of the MediaLab, where it is possible to apply innovation and teaching-learning exercises in the daily practice of a space dedicated to experimentation and innovation making use of current technologies and trends in this digital field.

Discussion

Since their inception, Media Labs have been characterized by being innovative entities. In the

words of Bernardo Flores, director of the Media Lab at the Universidad Panamericana, the essence of every laboratory must be innovation and the desire to experiment. Flores himself quotes: "The essence of any laboratory must be innovation and the desire to experiment" (B. Flores, personal communication, 2022).

The specialists consulted emphasize the multifunctionality of these laboratories, where it is possible to implement both innovation and teaching-learning projects in daily practice. These spaces thus become environments for experimentation and innovation that leverage current technologies and trends to enhance student learning and creativity.

Audiovisual content is a means of interactive communication, allowing students to develop skills and help foster critical thinking, taking into account the constant evolution of mobile devices, social media, and all digital technology, as well as the appropriate use and access to generate the skills and competencies necessary to make the most of technology.

The MediaLabs depend, to a large extent, on the strategic alliances they manage to establish with public and private institutions. Carlos Ortiz comments on how these laboratories are linked to academia, the public sector and the private sector, and how this link defines their operation and target audience: MediaLabs depend on where they are anchored; there are MediaLabs that depend on universities, others on public governments and others that come from private sectors (C. Ortiz, personal communication, 2022). Most of the spokespersons of the entities (just over 50%) have a system for making open calls so that the public can participate in these strategies and propose the performance of social work as a system of social linkage.

MediaLabs establish meaningful links with society through the realization of events, the use of social media and the development of community projects. Most of the entities consulted facilitate public participation through open calls and promote social work as an integral part of their mission. These spaces are presented as active agents in the generation of positive social impact and in the promotion of citizen participation in innovation and technological development.

Conclusions

MediaLabs move their projection and objectives away from the irruption of technologies, adapt to the characteristics of the virtual space and divide the audience according to the functionalities of each institution. In the pandemic and in the context of the economic or social crisis, MediaLabs have become spaces that create innovative solutions to achieve maximum efficiency. Despite the wealth and creative and innovative capacities, the MediaLabs found cons in aspects of citizenship, entrepreneurship and the response to economic or educational crises. It is essential that these same spaces integrate different capacities and, in addition, are sustainable over time, only in this way avoid depending on, and/or being dependent on, third parties, promoting the culture of institutional independence to adapt to what the circumstance demands for the community.

The MediaLabs appear as instances that promote innovation processes in higher education, in the educational space, in favor of learning that promotes a more participatory, collaborative approach. The virtual relationship between educational institutions and technology makes possible and facilitates practices that incorporate experimentation and innovation, favoring work in interdisciplinary teams and the collective elaboration of the environment.

These results highlight that the adoption of emerging technologies in MediaLabs faces important

challenges, one of the main ones being the lack of trained personnel in technological fields that contribute to educational training. Determination and constant updating in digital tools are critical factors to implement these technologies effectively. That is why training programs must be strengthened that would not only improve the technical competence of the personnel involved but would also facilitate a more efficient integration of innovation into creative and productive processes.

The difficulties they present must be considered, most of the participants express their clear willingness to invest in emerging technologies, which would mean a reflection of the progressive evidence of their impact on the realization of projects. The general idea that these tools promote creativity and innovation seems to corroborate the fact of strategic necessity versus a simple option when considering their implementation. However, the high conceptualization that the tools have, and even though a notable percentage of respondents do not have a high impact on technological adoption, there is a need to create spaces for experimentation and organization of training spaces that allow their true potential to be explored or felt.

In terms of linkage, MediaLabs play a key role in connecting academia, the public and private sectors. Its multifunctionality not only allows the development of innovation projects, but also strengthens the relationship with different strategic actors. Holding events and using social media have been identified as the main strategies for establishing connections with society. Taking into account this possibility, the implementation of community projects and open calls is very important, which could expand the impact of these laboratories, consolidating them as environments for knowledge transfer and generation of social value.

In short, MediaLabs are a fundamental space to carry out digital evolution in higher education, but their sustainability and evolution depend, to a large extent, on constant technological implementation, training of human talent and the strengthening of their collaboration networks. The combination of investment, training and effective engagement strategies will allow these spaces to continue to be engines of innovation, facilitating the adoption of emerging technologies and their use in the creation of high-impact content.

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