Implementation of Media and Information Literacy in the Educational Ecosystem of a Public University in Northern Mexico

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Abstract

As a result of the pandemic, The Universidad Autónoma de Nuevo León (UANL), developed a series of digital strategies. This was done to enrich the teaching-learning process with the use of new platforms, in addition to those already being used in the institution. The changes were made to adapt education to virtual environments. This article presents a theoretical analysis to support the implementation of Media and Information Literacy (MIL) in the UANL. For this, the digital strategy carried out by the institution is analysed, in addition to international theories and research of the MIL from UNESCO (Wilson, C., 2012), educational leadership through transformational leadership theories (Acosta, D., & Ponce, E., 2019) and electronic leadership (e-leadership) (Avolio, B., Kahai, S., & Dodge, GE, 2000) in the new virtual educational environments, the foundations of education for life (Delors, 1996) and the experience of organisational management with the vision of Peter Senge (2006) who proposes the concept of intelligent organizations.

Keywords: *media and information literacy, educational ecosystem, transformational leadership, COVID-19 context, virtual educational environments, education for life, theoretical analysis, universidad autónoma de nuevo león*

Introduction

The Universidad Autónoma de Nuevo León (UANL) is one of the most important public universities in northern Mexico. Like the rest of the Universities in Mexico, the UANL found it necessary during the COVID-19 pandemic to implement 100% non-face-to-face teaching at all educational levels. As a result of the pandemic, the institution developed a series of digital strategies to enrich the teaching-learning processes with the use of new platforms, in addition to those being followed in the institution. What was required was to adapt Media and Information Literacy (MIL) to a virtual education platform according to the United Nations Educational Scientific and Cultural Organization (UNESCO). In this context, the chapter presents an analysis of educational leadership theories that are considered important for the creation of an educational ecosystem that integrates UANL's Media and Information Literacy (MIL) into digital strategies. This analysis is part of the author's doctoral thesis.

The Uanl Context

The Universidad Autónoma de Nuevo León (UANL) is a public university in northern Mexico that is considered one of the most important educational institutions. It is the third-largest public university in Mexico, with the largest educational offerings in the country and a population of 2,15,000 students and

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more than 6,000 teachers (UANL, 2019). This Higher Educational Institution implemented new non-attendance learning environments as a response to the COVID-19 pandemic to give continuity to the educational processes, although some of the technologies like NEXUS, an educational platform, were already used in the university. The fact that the entire educational population and society in general connected from their electronic devices to perform almost all the activities during the first wave of this pandemic, caused problems that affected the teaching-learning processes. These included barriers to change from optional face-to-face environments to mandatory virtual environments and stress due to exposure to fake news, among other situations.

In order to improve new learning environments for the coming academic cycles and reduce stress for students and teachers, the authors proposed the implementation of a culture of Media and Information Literacy, supported by theories of educational leadership. The analysis presented here, therefore, aims to serve as the basis for proposing a model that integrates an educational ecosystem based on MIL according to UNESCO (2020) "reminded the importance of the Internet in all aspects, as a window to education, access to information, health, culture and countless other aspects of daily life."

For this reason, the UANL sees the need to give continuity to educational processes, through digital strategies, including the use of different technological tools, digital manuals for the generation of virtual classrooms, guides for teachers and students to teach and designing learning units in the virtual environment, workshops and diplomas for teachers at all levels of education for the development of skills in the learning process in virtual environments and new digital skills (Cavazos, R. L., Fraire, R. G., & Rubén, E., 2021). This was done to ensure student learning in virtual contexts that includes the design of joint and articulated actions between the different departments of the UANL of which six university campuses in the state of Nuevo León stand out: University City, Health Sciences, Mederos, Agricultural Sciences, Sabinas Hidalgo and Linares, which integrate a total of 26 faculties, the Institute of Social Research and 29 high schools (UANL, n.d.) and that all are adapted to the complex environment of the pandemic.

Importance of MIL in the educational ecosystem as a result of UANL digital strategy

All educational institutions the world over experience unique situations and require their own combination of educational management techniques and learning methods.

According to Mora, D. (2009), educational management is responsible for studying the various actions, activities, processes, and operation of the respective particular or specific institutional educational projects, and general or global, in various areas of the educational world. In this sense, the field of educational management involves not only the administrative staff of a given educational institution, however small it may be, but also the other educational entities that directly or indirectly contribute to learning inside or outside the institution.

The Organization for Economic Co-operation and Development (OECD) reflects on what some of the contexts of education for the future would look like, regarding the ways in which technology and learning evolve with the use of the various networks, replacing schools to operate in "a networked society" (OECD, 2001c). Such reflections and forms of evolution are currently a reality that has been

caused by the intensified use of ICT, derived from the confinement by the pandemic, forcing society to continue with its daily professional, and educational activities, from virtual or online contexts, through the use of electronic devices from the context of the home, changing the forms of management and educational leadership. From a social perspective, information, learning and communication technologies are influencing personal relationships and, from an educational point of view, they are impacting the development of the teaching-learning process (Martín, C. T., 2019).

The Secretaría de EducaciónPública (SEP) in México saw the need to implement specific programmes such as Learn at Home I and Learn at Home II, through televised and online courses where it was possible to access the content without restriction and through the use of mobile devices (Sallán, J. G., & Juan, C.M., 2021). The UANL was also faced with the need to create strategies to provide continuity of education in virtual environments at different educational levels. In response to the confinement, the Universidad Autonoma de Nuevo León implemented the UANL Digital Strategy seeking to adapt education in virtual environments, to give continuity to the school period and take advantage of existing technological resources.

The purpose of this digital strategy was to provide the necessary facilities to students to continue their classes from virtuality, with the support and advice of teachers who were prepared with workshops, diplomas and training for the correct use of technological tools and digital educational resources. The UANL made available manuals for the generation of virtual classrooms, practical guides for online learning, video tutorials for students and teachers, external digital resources of free access which complemented the learning tools. Also provided were digital platforms already used previously such as Nexus and collaborations with new platforms such as Territorium and Microsoft Teams (MS Teams), that are of great help to programme virtual classes and facilitate learning, and to carry out the introductory courses like Induction to the Non-school Mode to contextualise the first entry students of the middle level. These actions already mentioned have a positive impact on the creation of more than 65,000 virtual classrooms, more than 7,000 trained teachers, more than 300 visual resources, including manuals, presentations, videos and infographics, more than 225,000 views of university content from the platform on youtube, training 28,166 groups in SIASE and 10,589 groups in MS Teams; the results that so far have yielded this digital strategy will allow to propose the implementation of a hybrid model as an alternative to learning methods (Cavazos, R. L., Fraire, R. G., & Rubén, E. 2021).

The success and consolidation of the digital strategy at UANL was thanks to the support of the leadership of the educational authorities involved who saw the need to continue with the mission of education in online environments and where they had to exercise their leadership in virtual contexts through the different technological tools. This new way of carrying out all the educational processes at the UANL is here to stay, making a call to rethink the feasibility of updating the academic plans or curricula that have to continue to educate students from an online context, with the technological platforms made available by the institution itself. Where we must consider integrating the MIL through its implementation in the different areas of knowledge and educational levels that make up the ecosystem of the University considering that within the characteristics that the institution takes into account in its Academic Model (UANL, 2020) is to promote the formation of autonomous and critical university students with sensitivity

and ethical-social commitment to the problems of the environment.

In coincidence with the values promoted by Media and Information Literacy, Peter Senge (2006) proposes the concept of "intelligent organizations," understood as those in which their members continuously acquire knowledge, share it, and use it to adapt to the new opportunities of changing environments. According to the author, organisations of this type not only acquire knowledge, but also build and disseminate it throughout the educational ecosystem by strengthening three levels: the learning classroom, the learning school, and the learning community. In this scheme, the school is a support fulcrum for educational and social change, where classroom education progresses steadily, but only if its respective levels improve.

This means that to implement MIL as a method of educational and social change in the uncertain situation of the impact on media and information education derived from the pandemic, the principles proposed by Senge will be vital to "put into practice new values, achieve the aims and objectives of the people who make up an intelligent organization" (Valbuena, 2001, p. 2), such the UANL.

The educational ecosystem

Education is a complex and permanent process, the product of interactions between diverse agents and actors that include individuals and institutions from different sectors, levels and realities. It is also developed in diverse and complementary scenarios, since its interrelated functioning is a condition for achieving university objectives.

One way to address the complexity of the educational process is found in the ecosystem model. As Laurrari (2009) mentions, the educational ecosystem is based on the ecological paradigm integrated by a living environment that involves living organisms and objects that influence each other and in which there is a dynamic character where each element is both origin and object of influence through reciprocity (Tessier, 1994).

In this sense, the educational ecosystem, as an organization formed by people, is also permeable to the adaptations and changes that its members are acquiring and assuming in their professional and personal development (Martín, C. T. 2019); and, consequently, where the environments are changing and where within the same context there are different actors that also influence management processes and forms of leadership.

Pont, Nusche and Moorman (2008) found that there is a relationship between school leadership and student learning in an indirect way. Since school leaders work primarily outside the classroom, their impact on student learning is largely mediated in large part by other people, events, and organizational factors, such as teachers, classroom practices, and the school environment (Hallinger and Heck, 1998). These factors and actors that impact on student learning are of great relevance to achieve the goal of education, so it is essential to identify them, analyze them and find the most innovative ways to ensure the educational process effectively.

The importance of leadership in educational processes

According to León, A. (2007), education is a very complex human and cultural process, because in it, the condition of the nature of man and culture as a whole must be considered, and each particularity acquires a sense of linkage and interdependence with the rest of them. Therefore, there are many factors, variables and questions that are directly involved in this process.

Despite sharing multiple traits with the rest of the species and organisms that inhabit our planet, humans do not have some survival characteristics that are derived from their instinct, these qualities attached to the nature of these species allow us to analyze patterns of behavior and create simple teaching methods for their understanding. However, humans are not born with these aptitudes that allow us to adapt in a better way in our natural environment, since they are not innate to us, and we are forced to develop in a joint social context through individual stories. Therefore, understanding that education is a process generated through strategies that have allowed us to assimilate the culture created through our individuality will allow us to understand the ways in which we should educate each other.

Delors, J. (2013) postulates four pillars of education: learning to know, learning to do, learning to live together and learning to be. He determines that school education is essentially oriented towards learning to know and learning to do. He also posits that every structured education system should pay special attention to the four pillars equally, as they should aim to prepare humans, both as individuals and as members of a functional society.

In the same sense, García, G., Addine, F. and Recarey, S. (2014) point out that "although the center of learning is the individual person, learning is a process of participation, collaboration and interaction between several people. That is why we learn among groups of people, in communication and with the help of others." (p. 93). Humans, being social by nature, find it easier to function in collaborative environments that allow us to learn from others through the senses, guided by systems based on the third pillar: learning to live together. For this reason, university education, on many occasions, focuses principally on the development of individual and group competencies.

These approaches allow us to visualise a circle in which humans have made an effort to create educational systems oriented to the preparation of people who can perform in social, cultural, professional, labour situations, and coexistence and more settings/contexts. However, the new form of learning and teaching that digital education has brought with it have been described as disruptive, since they break with the development of what we consider normal and that has been happening for years. The new pandemic contexts and high technological innovation have driven a measured advance in leaps and bounds, but already with precedents, in our educational environment.

Aretio, L. G. (2019) expresses that many of the educational principles that had worked for a large number of years have been faltering in the face of new digital teaching trends. In the same way, he theorises that these pedagogies, perhaps, have not been adequately integrated into new technologies; or even in reverse, as he points to the possibility that these educational strategies have been undervalued, but remain current and functional for the foundations of learning. It is considered that both positions could be adequate and approached for their correct fusion. However, it seems that we are trying to point

fingers, or that one of these factors is demeriting the results of the other. Technology, which is constantly developing, overtakes us in speed. The advances in ICT are increasingly large or developed in smaller amounts of time, so this does not allow us to adapt knowledge and appropriate strategies to new forms and sources of information. Therefore, it is more complicated for us to tie both branches of education into one.

According to Acosta, D., & Ponce, E. (2019), during the last century teachers had the responsibility and skills to be the transmitters of knowledge with their students. Today, they only perform the work of a guide within their professional or educational areas. This could not be closer to reality. The new generations have almost infinite source of information in the digital world of the internet, since they have all that knowledge at the reach of their mobile devices and computers. Teachers reaffirm their authority and expertise by being able to guide them to train with special knowledge found in a wide wide horizon of important data, but not always true or grounded data.

For this reason, the information society and the internet have demanded new leaders in educational environments, people capable of adapting, understanding and learning to use technological tools that expand the horizons of education. Yarce, J. (2007) describes leadership as the ability to influence, motivate, organise, and lead individuals, groups and societies to action for the free achievement or their goals and objectives, within a framework of values. For people, this is possible to achieve, also, thanks to their social skills such as empathy, loyalty, the ability to solve problems or adapt to situations. These types of skills are widely used in educational environments, due to the tasks and responsibilities required for the performance of activities.

Also, Acosta, D., & Ponce, E. (2019) explain that transformational leadership has a huge role in educational settings, since teachers start from this style by seeking to share and complement their knowledge with their peers. Transformational leadership entails four dimensions: intellectual stimulation, individual consideration, inspiring leadership, and idealised influence. A positive indicator of this type of leadership is reflected when students feel comfortable and valued by teachers, since they perceive themselves as self-sufficient people who express their knowledge and information to a teacher who is attentive and interested in what they have to offer through their ideas and knowledge.

However, these attitudes could be the first step to generate or provide the basis for another type of leadership, the so-called electronic leadership, which for Avolio, B., Kahai, S., & Dodge, G. E. (2000), is the process of social influence mediated by ICT to produce changes in attitudes, feelings, thoughts, behavior and/or performance in individuals, groups, and organisations. This means that, depending on the contexts in which our environment is immersed, it forces us to coexist and develop communication and planning strategies through new technologies, these strategies must be set out in objectives and perceptible results for the team members or the organization. It is important to make it clear that electronic leadership is not only measured in the ability of the organization to obtain the most advanced technological resources but is based on the ability of its leaders to adapt to these environments and lead a team of individuals to a personal and professional fulfillment.

Virtual Education

UNIQUE EDUCATIONAL ENVIRONMENT IN THE WAKE OF THE PANDEMIC

Certainly, Information and Communication Technologies have been present in academic environments for a couple of decades now, evidently, their beginnings were quite simple. However, these changes marked the beginning of a new era in educational strategies. Today, educational models have endured in essence and have evolved into innovative systems, made possible by technological advances.

De la Nuez, B. L., & Aguirre, I. O. (2001) affirm that educational activity is one of the most complex in the human being; therefore, multiple methods of operability have been developed in the learning models that adhere to the new didactic resources that ICT has to offer, as long as they reflect a significant advance for students. Many of these new strategies revolve around the search for student participation, and it has been considered that with new technological devices involved in teaching processes it is much more attractive to generate enthusiasm and encourage interaction.

According to Cabero Almenara, J. (2004) the interactivity that is reflected in students can be perceived from different points of view, which can range from the interaction they have with the materials, to an interactivity with the people involved or not in the teaching process. We could think that all this is enhanced under the absolute guidance of teachers, however, the students themselves are able to know and learn to handle a satisfactory level of ICT to use them efficiently, and even involve them even more in their learning. This is mainly due to the technological tools that ICT offers, however, adapting teaching techniques to these tools is the real challenge. For this reason, previously mentioned that the teacher has gone from being an exclusive transmitter of information in the classrooms, to an interactive and dynamic guide who actively orients his or her students. Thus, in the words of CaberoAlmenara, J. (2004) its use requires a previous pedagogical project that gives it meaning and theoretical coverage.

In turn, CaberoAlmenara, J. (2004) also emphasizes that the preparation of these new teaching strategies not only refers to the teachers and students involved, but also to the group of professionals who are necessary for the creation of each variant involved, such as the contents, the didactic materials, and the technicians of production of multimedia materials for the network. This is how new technologies begin to be created from visionary leaders who detect an area of opportunity in innovation of contents, transforming them into something even more interactive with great possibilities to improving and inviting social, cultural, and professional action.

At the end of 2021, the COVID-19 pandemic forced us to abandon traditional learning establishments and has also forced us to physically adapt to existing technologies that allow us to continue with teaching processes at all levels, in this way, we could say that virtual education has claimed its role in society.

Virtual education, as we know it, seemed to be only an alternative for those people who remained far from educational institutions or specific cases due to multiple social factors that did not allow them to engage in these learning processes. Now, it has become the only viable solution that gives us the possible tools to avoid a total halt in educational institutions. All this is happening through our mobile devices and computers.

Crespo, M., & Palaguachi, M. (2020) write that people relate to others in cyber society in a virtual space where there is no physical presence. While education was the main reason why new technologies have become fully involved in our learning methods, the social development of people has naturally crept into the priorities of people who must remain distant or quarantined.

Digital platforms created precisely to perform teamwork have been the main protagonists during these last two years. Since, they had enough tools to receive the thousands of people who, unexpectedly, should move to digital educational environments. Some examples of these platforms could be Microsoft Teams, Zoom, and Schoology.

According to Atarama, T. (2020) the teacher's role contemplates planning and accompaniment during the students' learning process to guarantee the fulfillment of the objectives of the subjects. In turn, Paulsen (1995) indicates that their function is fundamentally centered on the dynamisation of the group, motivation and the creation of a pleasant learning climate that facilitates education. However, the educational experience of students does not only depend on the skills of the teacher, or the tools provided by digital platforms; sometimes, what most affects the student's interaction may be the material resources and technological services they have to stay in the online digital environment.

According to Stojanovic, L. (2009) virtual education reflects some disadvantages that represent an important obstacle for students, which are often decisive in determining whether or not to continue with new education modality. Some of them are:

- **Unequal access of the population**
- **Technical limitations**
- **Technical failures that can disrupt class sessions**
- **Teachers professionally prepared for their virtual performance**

On many occasions, we determine that the strategies implemented to continue with our daily activities, such as receiving knowledge through education, are quiet accurate and well thought out for the population, with the exception of some natural details in the transition processes. However, some of the privileges we have, perhaps unconsciously, are an important factor that plays in the way we perceive changes such as these.

Final Reflexions

The circumstances of confinement of the students of UANL unleashed a series of learning processes different from the conventional ones that undoubtedly originated from the excessive use of technology and that increased with the exposure to virtual environments for the continuity of education. However, it is also a reality that exposure to a digital technology alone does not allow users to develop sufficient skills and competencies to analyze, reflect, and make critical use of information. These competences are not exclusive to the pedagogical process, rather, in light of the current reality, they are also indispensable in each of the members of the educational communities, including leaders and administrators, who are also obliged to make critical use of information in order to make decisions in schools.

Seen in this way, Media and Information Literacy becomes an urgent need among all people who are part of the educational community of the UANL, and, accordingly, Senge's proposal also approaches the critical use of learning for the construction of strengthened educational communities capable of facing the challenges of today's world educational communities strengthened and able to meet the challenges of today's world.

The specific proposal therefore focuses on the adoption of "MIL educational ecosystems". It is about intelligent organizations that adopt new mental schemes under the principles of Media and Information Literacy, and that, in this way, build in a systemic way communities governed by Human Rights and in which the informational and communicational reality is a trigger in their growth.

Key Terms And Definitions

Media and Information Literacy: The ability to access, understand and critically evaluate various aspects, as well as to establish forms of communication in various contexts.

Educational Ecosystem: All actors (students, teachers, administrative, parents) and all non- living elements used for education through teaching and learning like educational platforms and digital technologies.

Transformational Leadership: Capacity of a person, group of people or an institution to influence and motivate a group to organize, implement and evaluate actions to achieve changes that transform skills, knowledge and values to face new paradigms.

COVID-19 Context: Pandemic that forced a rapid change of paradigms in the educational environment

Virtual Educational Environments: Teaching-learning process in non-contact contexts with the use of digital technology

Education For Life: Development of competencies that allow the individual to obtain the bases to acquire continuous training that includes knowledge and values

Theoretical Analysis: Reflection based on theories and research on a topic or research problem.

Universidad Autónoma de Nuevo León: Public educational institution of intermediate, superior and postgraduate level located in the State of Nuevo León, north of Mexico

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