Digital learning ecology for global citizenship education

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ABSTRACT

In the context of globalization and the interest of many higher education institutions in carrying out internationalization activities, this work presents the development and results of an educational experience for global citizenship in which the concept of digital ecology of learning was used for its description. The case study focuses on a postgraduate course in education from a university in Brazil, taught through face-to-face and virtual sessions. The distance sessions were developed using synchronous videoconferences with guest professors from nine Ibero-American countries. The objective of these sessions was to learn about the progress of educational technologies in each of their countries, based on the concepts of global citizenship during the development of the classes. The experience made it clear that, although the contents and the learning environment were the same, each student developed their own themes supported by the proposed digital learning ecology, according to their particular interests and context.

Keywords: Educational technology, Global citizenship, Learning ecology, Teaching methods.

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INTRODUCTION

Today we see that it is possible to carry out transactions with total freedom and it is extremely difficult to detect its origin. On the other hand, people fleeing their countries are being detained at the borders. It is possible to talk about economic, cultural and political dependence between countries, but at the same time, we see the increase in refugees and inequality.

In this work, the starting point is that, in the educational context, spaces should be created that allow reflection on contemporary problems or conflicts common to humanity and that make it necessary to learn other types of skills. These spaces can also serve to establish collaboration between peers, from which it is possible to study the particular situations of each country, through interaction between people of different nationalities, but with similar interests (Morosini, 2019). For these experiences to be meaningful and natural, it is necessary to train citizens who are increasingly technologically fluent, that is, with the ability to critically understand problems and share innovative solutions (Guilherme and Cheron, 2019).

In the educational context, technological fluency goes beyond the instrumental and operational domain, it must be based on epistemological, ontological, psychological, historical, and philosophical models and conceptions of pedagogy. These elements are essential for understanding the nature, political, cultural, social, and economic principles of the digital universe, as well as their impacts. This perspective is based on the inseparability between humans and non-humans, as articulated in the tripod science, technology and society widely defended by Latour (1994; 1999; 2000; 2001). In this scenario, it is increasingly important to be prepared to act as global citizens, considering the great impact, potential, and challenges that contemporary technologies impose.

A global citizen is a citizen of the world, who identifies with and actively participates in local and global issues, values the differences between people of different nationalities and languages, as well as works with them to find solutions to problems that transcend borders. According to UNESCO (2023), global citizens do not have a special passport or official title, nor do they need to travel to other countries or speak different languages. Rather, it is about the mindset and actual actions a person takes on a daily basis, but there is no single concept to define a global citizen. It is said that a global citizen must have certain characteristics, such as awareness, responsibility, intercultural participation and empathy, personal fulfillment, and international mobility (Schattle, 2008). And to this, we add the need to build fluency around contemporary technologies, especially in the universe of content, interactivity and digital interactions.

Thus, global digital citizenship presents as an inherent challenge the development of the conditions for critical analysis of contents, sources, interests, influences, development conditions that allow technical and technological inventiveness, the constant restructuring of work models and the role of workers in each context, investment in science and data sovereignty based on the principles of

the ethics of the common good. According to Kraska, Bourn and Blum (2018), global citizenship is demonstrated by the awareness that the person has of himself, of the world and of his position within it. This, in turn, generates a sense of responsibility towards the world as a whole and results in individual and collective calls to action.

In this sense, the internationalization of education has become a fundamental element in the preparation of students for this globalized society, seeking to improve the quality of education, encourage research and promote intercultural understanding. It also contributes to the formation of global citizens, capable of facing current challenges and working together to build a fairer and more sustainable world. The contents, interactions, and dynamics of life in an increasingly digital society demand global efforts that intend to organize, delimit, and direct sustainability, since the wide range of socio-technical creations has been made possible from the perspective of the profitability of production and consumption models. In the digital world, one of the most obvious opportunities for the internationalization of higher education is the possibility for students to get to know first-hand different cultures, languages, and ways of life. (Baranzeli, 2019). This allows them to learn from each other and develop intercultural skills that will be valuable to their professional and personal lives. Internationalization also provides the opportunity to enhance students' language skills, as they are exposed to different languages and have the chance to practice them in real-life situations.

This article presents a learning experience developed within the scope of a discipline offered in a postgraduate course in Education at a federal university in Brazil, during semester 1-2023. The discussion spaces were planned over a semester with the participation of teachers from different Latin American countries, with the intention of discussing policies, projects, innovations, resources and pedagogical practices related to educational technologies in each of their countries. Specifically, nine professors from Brazil, Bolivia, Chile, Colombia, Ecuador, Spain, Mexico, Uruguay and Venezuela were invited. Each of the sessions featured an Ibero-American guest who shared, with the group, information about educational technologies in his country, as well as his experiences, productions and private reflections on the subject. The sessions were held in two languages: Spanish and Portuguese.

To present the experience, the concept of learning ecology is incorporated, with the intention of describing the particular characteristics of each student, the connections with their classmates and with the guest teachers, who, in turn, have other characteristics: they speak another language, work with other educational policies, with other technological resources, among other situations that arose during the course.

In this sense, the objective of this work is to present a digital learning ecology for education in global citizenship, used in the development of a teaching-learning experience within the scope of a postgraduate course in education. The results of this experience are still being produced, as the bonds

between teachers and students have been established and continue to be maintained. It is also worth mentioning that both students and teachers, regents and guests, were able to share experiences, misunderstandings, establish similarities between different contexts and associate them with the strong cultural relationship that unites these countries. This international dialogue is strengthening the study of different epistemological conceptions of technology related to politics, science and society.

EDUCATION FOR THE GLOBAL CITIZEN

The term global citizen has begun to be part of the political vocabulary of higher education institutions around the world. The relationship between globalization, internationalization, and higher education has been an important topic of academic debate over the past decade. In response to the economic and social pressures of globalization, universities are now engaged in a wide range of activities aimed at internationalizing their institutions, including the recruitment of foreign students and faculty, the internationalization of curricula, and the promotion of international research collaborations. The concept of global citizenship emerged along with these debates on internationalization and is proposed as a way to prepare people to deal with the rapid changes and uncertainty that characterize globalization. In this sense, the concept of global citizenship education aims, among other things, to go beyond citizenship education, as it may not be sufficient to describe today's citizens, who are informed and relocated, who exercise rights beyond a nation-state, and who can engage with events elsewhere and with citizens of other countries (Davies, 2016).

A separate category deserves the global educator, who, according to the same author, are classroom teachers, school principals and students with international credentials, contacts and research agendas; leaders of international exchange programs, coordinators of international working groups. Together, they form a visible and dynamic group of global citizens. Global educators prepare their students to function in an international context while instilling awareness and empathy for other countries, cultures, and other issues of common concern around the world. A global educator does not necessarily seek recognition as a global citizen, but wants their students to achieve that description.

Historians of education explain how the concept of mass education was created with the aim of educating citizens for the nation-state. The schools were created with the intention of imparting a set of values and knowledge that would lead to social cohesion and a sense of national belonging. A simple search on the Internet shows that citizenship education is now not only national, but also global. Global citizenship education is becoming part of international policies (UNESCO, 2023) and is being included in some national curricula, for example in Ecuador, Korea and Scotland (Davies et al, 2018). It is likely to be one of the educational priorities in the twenty-first century. The concept of

citizenship education can be complex, as it is unlikely that we will find a definition that encompasses all aspects of the groups and individualities involved. Known as Global Citizenship Education (GCE), it contains different underlying ideologies about the meaning of citizenship, globalization, and the role of education in a global society. According to Franch (2020), GCE can be understood in relation to the three main objectives of education: socialization, qualification, and subjectivation.

Educational institutions play a key role in the socialization of students. They transmit values, cultural norms and knowledge that contribute to students understanding their role in society. In the context of the GCE, socialization goes beyond national borders. It involves cultivating a sense of global responsibility and interconnectedness. Through socialization, students learn about global challenges, diversity, and interdependence.

Regarding qualification, GCE aims to equip individuals with the knowledge, skills and competencies to deal with the complexities of an interconnected world. It fosters a global mindset by encouraging students to recognize their role as active national citizens with an informed global conscience. In essence, it prepares them to participate effectively in a globalized system.

The dimension of subjectivation emphasizes critical thinking, autonomy and political awareness. Subjectivation encourages students to question dominant discourses, challenge inequalities, and engage in social justice. It goes beyond mere qualification and socialization, requiring educators to promote a political perspective based on global citizenship. By critically deconstructing existing orders, students become more autonomous and independent in their thoughts and actions.

In summary, GCE provides educators with tools to help young people understand the contemporary world. It encourages conscious decision-making about their role as global citizens, emphasizing both the skills and qualities essential for responsible global engagement.

DESCRIPTION OF THE LEARNING EXPERIENCE

The experience was developed in a course offered in the Graduate Program in Education at the Federal University of Santa Maria (UFSM), in Brazil, during semester 1-2023. Discussion spaces were planned throughout the semester with the participation of teachers from different Latin American countries, with the intention of discussing the use of educational technologies in each of their countries. Specifically, nine teachers from Brazil, Bolivia, Chile, Colombia, Ecuador, Spain, Mexico, Uruguay and Venezuela participated. Each of the sessions featured a guest speaker who shared with the group information about the use of educational technologies in their country, as well as their particular experiences in this area. The sessions were held in two languages: Spanish and Portuguese.

Within the scope of the internationalization movement of Brazilian universities, UFSM has incorporated among its policies the hiring of visiting professors, this being the case of one of the professors of the discipline, who currently works as a foreign visiting professor in the Graduate Program in Education. These hires are made with the objective of allowing the integration of foreign researchers in research and teaching activities linked to graduate studies, in order to strengthen and qualify the programs and enable scientific and technological exchange, in this case mainly between the professor's home university, the Central University of Venezuela and UFSM and between these and other higher education institutions.

The course content was structured in two thematic units: the first with the objective of studying aspects related to educational technologies, their evolution, types and successful scenarios of use. The second unit was oriented towards the study of educational technologies in Latin American countries, with special emphasis on educational policies related to technologies in the countries studied. In the first unit, the contents were discussed and studied between teachers and students in five face-to-face sessions with an average duration of four hours. The second unit was developed with nine distance sessions with an average duration of two hours, each with the participation of a guest professor. During these distance sessions, the guest professor presented the theme of educational technologies in his country, aiming to expose the current situation and his particular experience teaching in this area. At the end of the guest teacher's explanation, a space for interaction was opened that often led to memories of global events that marked advances in educational technologies, enriching the conversation and reconstructing experiences in each of the participants.

One of the important aspects of this experience is that each student in the course had their own workspace and concerns regarding the topic at hand: educational technologies, but each session shared the vision of a different country, with distinct political, economic, social and educational characteristics. Likewise, each guest professor also had his own context, that of his country, but he was also interested in knowing the context of Brazil, which is considered one of the references in Ibero-America. With this configuration, the concept of learning ecology is incorporated, which seeks to define particular learning contexts according to similar characteristics.

LEARNING ECOLOGY

Barron (2004, p. 6) defines learning ecology as the set of contexts found in physical or virtual spaces that offer learning opportunities. Each context is composed of a unique configuration of activities, material resources, relationships, and interactions that arise from them. From this point of view, the role of interactions, practices, social resources, and technologies is emphasized throughout individual learning trajectories mediated by digital tools (Barron, 2006).

According to González-Sanmamed, Muñoz-Carril, Santos-Caamaño (2019), the components of a learning ecology are grouped into two dimensions according to their characteristics, origin, and projection. The Intrinsic Dimension, which includes the aspects most related to the internal character that represent a disposition for learning: conceptions, motivations and expectations; and the Experiential Dimension, which includes other elements that are part of the person's learning path as a result of their successive lifelong learning processes: relationships, resources, actions, and context. Each of these elements is related to others and cannot be analyzed in isolation.

For this research, the components of learning ecology are defined as follows:

- Experiential Dimension

  Actions: refers to the specific events and experiences that mediated learning. During the first five Sessions, the basic concepts of educational technologies were discussed in face-to-face classes, allowing teachers and students of the course to share information, know the motivation of each student to participate in the course and what their expectations were. The following nine classes were held synchronously through videoconferencing platforms, with the participation of an international guest speaker in each class, who presented the situation of educational technologies in their country. After each presentation, there was a space for questions and interaction with the guest. The Moodle platform was also used for the exchange of experiences and the delivery of the assigned assignments.

  Resources: they are the mediators of the activities of the disciplines directed to the learning objective and are defined by their different ways of interacting with the context. In the experiment described here, guests were asked to provide digital materials or URLs of information about the topic of study in their country. This information was made available in Moodle with the link to the videoconference. A wiki was also made available for the elaboration of possible questions to the guests. Subsequently, the slides of each guest were published in the institutional Moodle.

  Interpersonal relationships: are linked to different learning activities to link resources; They are the fundamental basis for the construction of knowledge networks, one of the main strategies in learning ecologies. The relationships were between the course professors, the students and the guest speakers. In all cases, the guest teachers were receptive to communication with the students and provided their contact details.

  Context: according to González-Sanmamed, Muñoz-Carril, Santos-Caamaño (2019), the idea of context is fundamentally inductive because it is built from the presence and interaction of the central elements described and requires the existence of a learning objective that generates and gives meaning to its internal dynamics. In the case described,

the context was the central axis of the course. The context changed with each class, depending on the guest's country and the information he had to present, as well as the previous readings that each student had done. This is consistent with the same author's assertion that there is a third level of intercontextual relations that give full meaning to ecological theory, as often a real learning objective is not fully satisfied in a single context, but may appear distributed in multiple environments.

- Intrinsic dimension: González-Sanmamed, Muñoz-Carril, Santos-Caamaño (2019) states that the intrinsic dimension influences and is influenced by the components of the Experiential Dimension that articulate the individual's life trajectory. Individuals choose to engage in certain activities based on the opportunities in which they live. These choices are not only conditioned by external structures, but also by each individual's interpretation of the available contexts, resources, relationships, and actions. These ecological components intrinsic to the individual are fundamental axes in educational environments: conceptions, motivation and expectations about learning as relevant factors in the individual's decision to engage or not in learning activities and contexts.

In the case presented, the individuals are graduate students in education, master's and doctoral degrees, linked to research related to educational technologies. His conceptions, motivations and expectations revolved around knowing the state of the art of the topic in question, information that could be of interest in each of his researches. They were also interested in establishing contacts with foreign professors that could lead to co-orientations, internships, or evaluation tribunals.

In the final evaluation of the course, students were asked to relate their research topic to the presentations of the invited speakers, so that the students had to do a second review of the materials provided and, in some cases, of the recordings of the classes, with the intention of looking for links between concepts, contexts and situations presented by the guests and their particular research situations. This learning ecology has led to collaborations between students and teachers that are still developing.

DISCUSSION OF THE RESULTS

As indicated in the previous section, as the final work of the course, students developed an essay in which they were asked to link each of the contexts presented by the guests with their master's and doctoral research topics. This task led them to seek information related to their own research in each of the guests' countries of origin, conducting a learning process linked to the global context, analyzing the relevance of their topics in each country and, in turn, linking them to the Brazilian context. It was not the intention of the evaluation to establish comparisons between the

different countries, but to seek information on research similar to its own and to analyze the possible results of its proposals in each invited country.

In general, the students stated that they did not have extensive prior knowledge about educational technologies in each of the countries studied. Thus, relying on the information of the professors-researchers of each country allowed them to establish this proximity with each context, promoting the characteristics of awareness, responsibility, participation and intercultural empathy that global citizens should have. At the same time, it was possible to develop the purposes of socialization, qualification and subjectivation that were described above. Thus, some of the essays presented include, for example, one related to food policies and technologies to promote healthy eating habits in Brazil. This is the research theme of the student who developed this essay, which led to the consultation of the guests on this specific point and the search for information in relation to the particular context of each country, with relevant results in this regard. Another essay that can be mentioned is related to the role of technologies during the pandemic period, a theme that was presented by several of the guests and that is part of the research of one of the students. In this case, it was possible to learn about good and not so good experiences in each of the participating countries, which also led to an in-depth search for official reports and research articles that could be part of the state of the art of the work that was being carried out. These examples show that students have used learning ecology and applied it in their specific research contexts, taking advantage of the content taught but also situated in the contexts of each country studied, demonstrating empathy and global responsibility.

CONCLUSIONS

The experience described here allowed the organization of the information generated during a graduate course with the concept of digital learning ecology, as it was possible to perceive that each student used the information and content available differently. From this, it generated a new network of information that directed its research to contexts outside its borders, that is, global, including policies, proposals, projects and innovative solutions. In this sense, it is important to note that, even though the ecology established by the teacher was exactly the same for the entire group of students, the learning was significantly different for each of them. This is mainly due to the fact that not only individual and group aspects were taken into account, but also contextual, social and cultural factors that influenced the learning experience. In the experience described, each student appropriated the knowledge related to the part directly linked to their discipline of study, adapting the described learning ecology to their particular process, without leaving aside the general context initially proposed by the course teachers. On the other hand, the development of skills related to intercultural awareness, responsibility, participation and empathy was notorious. Likewise, there was the

establishment of international research connections, which could lead, in the future, to the development of joint research with the participation of colleagues from different Ibero-American countries. The purposes of socialization, qualification and subjectivation were also developed by both students and teachers, constituting an experience of education for global citizenship.

These results indicate that the described experience encouraged students to deepen their learning, developing additional research to establish connections between the themes of study and the contents addressed by the invited teachers, thus building their own knowledge, especially highlighting the conditions and contours for the development of Technological-Pedagogical Fluency (FTP) of all those involved in educational events of this complexity and amplitude. At the same time, the training of students as global citizens was promoted, teaching them to work in the context of the digital society permeated by the ethical challenges of freedom of access and production of content, as well as interactivity and socio-cultural interactions. It is important to highlight that this research is based on a single case study, and a greater number of experiences are needed to consolidate the proposed ecology.

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