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The Challenges of Using ICT in the Teaching and Learning Process in Mozambique

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ABSTRACT

The Challenges of the Use of ICTs in the Teaching and Learning Process in Mozambique – is the subject of this study and arises in the context of the centrality that is attributed today to ICT as mediators of the teaching and learning process. The objective of this essay is to reflect on the challenges of using ICT in the teaching and learning process in Mozambique and to propose practices that guarantee the coherent use of digital resources, available at school and in the family, for pedagogical purposes. Methodologically, the study is based on a review of the existing literature on the subject. The pertinence of this study resides in the need to help teachers face the challenges imposed by the use of ICT in their work. The results reveal that educational practices demand from man an ability to adapt to changes in society. ICT have become indispensable in everyday school life in the 21st century alongside traditional methods. Therefore, it is necessary to equip educational institutions with technological equipment, as well as to make the teacher a critical, reflective and competent professional in the field of new technologies in order to help students to make the correct and intelligent use of ICT, allowing greater motivation for learning. Furthermore, each context must adapt the use of ICT according to its needs and particularities.

Keywords: Education, Learning, ICT, Methodologies.

INTRODUCTION

Education is a segment that is being transformed by ICT, which is demonstrating its role in social and economic changes and in its ability to allow rapid access to information and knowledge production [1]. The didactic-pedagogical potential of ICT for the teaching-learning process in the educational system is highlighted. Educational institutions are not oblivious to technological advances, considering that they are responsible for the process of human formation; this reality brings new demands to the education sector, as it is necessary to replace traditional methods with ICT. Some authors [2] reinforce the need for teachers to change their way of thinking in the teaching process, abandoning the traditional paradigm, characterized by the teacher-student distance, reinforcing that, in addition to a technical perspective, of equipping educational institutions with technological equipment, it is necessary to make teachers critical, reflective and competent professionals in mastering new digital technologies.

If the arrival of the Digital Age has allowed and driven greater agility and speed in communication, the educational field must advance with mechanisms that allow its target audience to have the cognitive capacities to keep up with this reality [3].

Therefore, having access to information, having interpretative, analytical, critical and communicative skills that allow for effectively decoding and encoding this same information, seems to be decisive for full social integration. Thus, it is essential to rethink media education. It is almost impossible to imagine the world without information and communication technologies. Anyone who does not have a basic command of these tools is considered illiterate, which is why it is important to educate children on the appropriate use of these means. Thus, this study, which is carried out from the perspective of the bibliographic and documentary review method, consists of four points, namely: 1) ICT and Education, 2) Use of ICT for Educational Purposes, 3) New Paradigm of the Teaching and Learning Process and 4) Technological Sensationalism versus Conservation of Pedagogical Objectivity.

ICT AND EDUCATION

In recent times, society has embraced the digital life wave as a result of scientific and technical advances occurring worldwide. These advances are driving changes in society's way of life and in the operating methods of the different institutions that include education. Hence, there is a need to invest heavily in training human resources, with a view to advancing rapidly in this era of the information and knowledge society [4].

According to the same source, the most important thing about ICT is the ability to know how to use the equipment to perform daily tasks with competence and quality.

All sectors of human activity find themselves needing to adapt to the new demands of the current reality in which everyone finds themselves. Information and communication technologies (ICT) are part of these technical advances, and they constitute an important auxiliary means for facilitating the teaching and learning process. Therefore, schools that are responsible for transmitting the knowledge accumulated throughout the history of humanity must also adopt the use of ICT in the PEA [5].

According to Pereira & Oliveira [6], advances in technology are creating new ways of reading, writing, seeing, listening, creating and learning.

Therefore, for schools to keep up with the pace of development of society, it is imperative that they adapt to the use of ICT in the teaching and learning process. And for the implementation of these new tools to happen in the best possible way, investment must be made in the training of human resource

USE OF ICT FOR EDUCATIONAL PURPOSES

The debate on the role of ICT in the teaching and learning process and the problem of curricular integration in education are relevant and current issues. The use of the Internet in schools is also focused on, as is the appropriation by students and teachers of skills that allow them to work with these ICTs [7]. Due to the multiple changes that occur, driven by technological advances, it becomes necessary to understand the importance of education as an organization, to give meaning and planning to life, so that it is understood that we live in a broad and dynamic system, which is influenced by ICTs [8].

The world is in a dynamic state, characterized by several changes, be they cultural, social and political. This set of changes requires society to find a new way of facing challenges. In this

context, technology appears as an important vector in the occurrence and mediation of these changes, with the need for intelligent use of ICTs for better adaptation [9].

Samussne, Silveira, Júnior, Alexandre & Reis [10] highlight that the world currently moves quickly in digital and informational media, and the role of ICT in education is becoming increasingly accelerated and increasingly important in the 21st century.

Studies explain that the application of ICT in the classroom allows students to acquire skills that enable them to act in new social practices in specific contexts, requiring them to be able to construct knowledge from ICT [11].

Going further, the authors highlight the need for the teacher to act as an agent of a new educational and methodological practice, which leads the student to operate intelligently and autonomously in learning. Rosa and Cecílio (2010) apud Samussne, Silveira, Júnior, Alexandre & Reis [12], (2021), argue that the use of ICT in the construction of knowledge favors interdisciplinarity, critical understanding of reality and human, cultural, social and educational development. Despite this, they add, they are not applied to the teaching-learning process adequately, and many teachers are not prepared to include them in their pedagogical practices. Bento and Prus (2011) apud Samussne, Silveira, Júnior, Alexandre & Reis [13] (2021), share the idea that teachers need to understand technology and pedagogy to ensure better performance in teaching and learning for students.

Bianchi and Hatje (2007) apud Samussne, Silveira, Júnior, Alexandre & Reis (2021) [14], understand that one of the main characteristics of education involving ICT is to enable access to information and a decentralization of the power of communication in the classroom, which was centered on the figure of the teacher. The use of technology is influenced by several factors, and as a result, it is not always well received. According to Nganga (2015) apud Samussne, Silveira, Júnior, Alexandre & Reis (2021) [15], these factors vary according to the individual's demographic perspective (age, gender, level of education), as well as those related to usefulness, attitude and social influence. The application of ICT in education allow students to search for, select, organize, interpret and critically evaluate information, as well as the creation of creative and innovative learning environments. ICT should be used inside and outside the classroom for teaching or recreational purposes. However, it is essential that common sense prevails and therefore guardians and teachers must be able to guide children in their daily lives [16].

The success of ICT use in schools depends on the particularities of the context. Factors such as public policies for the inclusion of ICT, school technological infrastructure, teacher training on ICT, curricular organization, school management, teacher and student access to technologies outside of school, are closely related to the directions and characteristics of the processes of curricular integration of ICT [17].

It should also be considered that there are many perceptions and interpretations about how this important tool should be used as a vehicle for the transmission of knowledge [18]. Therefore, the use of ICT in schools can boost learning and undertake positive changes in the educational system with new methodologies and strategies for teaching and carrying out tasks by students [19].

NEW PARADIGM OF THE TEACHING AND LEARNING PROCESS

The technological revolution requires reflection on schools, teaching-learning processes and the redimensioning of the teacher's role in the formation of citizens [20].

In fact, today's society requires education to change its practices, giving students the opportunity to discover and create their own knowledge, through the use of ICT devices found in their daily lives [21]. After all, technologies allow students to be connected to the world and seek out a lot of useful information for their learning. Education prepares people to live in society, and therefore must keep up with and incorporate the changes that occur in society so as not to make the mistake of forming individuals who will not be useful or who will have difficulty integrating themselves into the world of work and modern life.

As stated by Pinheiro & Da Silva [22], schools being responsible for the formation of the "man of tomorrow", must incorporate into their curriculum the most modern cultural aspects and social practices of society, thus providing new resources to awaken students' interest in learning. Therefore, it is imperative that education offers new teaching and learning methodologies with ICT [23].

Currently, social and economic sectors are looking for individuals and professionals with multiple technical skills [24]. Therefore, it is important to accept changes in teaching and learning methodologies in order to adapt to the technological reality of the moment, despite the challenges they impose on teachers, educational managers and the school community in general, since they are more familiar with teaching without ICT. However, these changes imply many challenges, as teachers and students may not be prepared for the use of ICT in teaching and learning [25].

Furthermore, according to Costa cited by Kawaguchi [26], the fear of being replaced by machines leads teachers to not adopt ICT. With technology, access to learning materials becomes easy, fast and cheap, and students and teachers develop new skills for teaching and learning [27].

The use of ICT in the classroom is a way of innovating the AEP by meeting the students' interests, since people do best what they like. In addition, they arouse curiosity to make new discoveries. However, not all schools offer the material conditions for the use of ICT, in addition to the distance that can condition access to an internet connection. This would be one of the challenges for schools in terms of acquiring the materials and infrastructures that can modernize the AEP based on ICT. Therefore, schools need to be equipped with ICT resources and create conditions to train teachers to take the lead in using ICT for student learning [28].

With these conditions created, in all schools, ICT-based teaching and learning can ensure inclusion and equal opportunities among students who are part of the education system. In fact, the technological revolution is a global issue. However, no country can benefit from the new era of the information and communication society if it waits for a miracle [29].

Therefore, each country is responsible for boosting the creativity of its community in the use of technologies, innovating and adapting to its needs and concrete realities [30]. However, creativity is related to the qualifications of human beings (teachers, students, society in general), says the same source. However, it is important to understand that the implementation

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of technologies in education is not automatic; it takes time, due to financial issues as well as in defining which ones best suit the needs of each school. Hence, according to Nuvunga & Pempe [31], the educational technologies used in some schools and in some countries may not be suited to the reality of other schools and other countries.

Some resources available on social networks such as Facebook, Email, WhatsApp, Twitter, among others that can be accessed via mobile phones[1] offer possibilities for being used as pedagogical learning resources, allowing the sharing of content between students and teachers [32].

However, for pedagogical use, it is imperative that the teacher, as the mediator of the teaching and learning process, plans the actions or activities to be developed by the students through ICT, so that positive results are achieved. Therefore, it is essential that the teacher chooses one of the applications taking into account the availability of the students and the school, as well as the subject program.

In general, today's society demands changes in educational practices, placing the student as responsible for the discovery and production of their own knowledge, through the use of ICT. Given that technologies facilitate access to learning content and allow the development of new skills for teaching and learning

TECHNOLOGICAL SENSATIONALISM VERSUS PRESERVATION OF PEDAGOGICAL OBJECTIVITY

The integration of internet services into teaching practices with a defined purpose of a disciplinary and transdisciplinary nature can provide an enrichment in the approach to the objectives of the various disciplines, in the interaction with other sources of knowledge and in the acquisition of skills to manipulate the virtual environment [33]. To know how to research and assess the quality of the information found are factors of great importance. It is necessary to guide students in assessing the information found, helping them to identify parameters that guide them in this process. The Internet is a database and knowledge for education, all information is available with a simple click.

The advantage of using the web as a pedagogical tool is to motivate students to excel, to streamline the content of their learning and to foster the autonomy and creativity that are essential to their education. However, there is no learning without organization and control. Students have very little skills and knowledge of research methodology, which makes careful guidance from the teacher essential [34].

According to Gonsalves [35], one way to promote school work is to publish students' work online. When students know that they will be making their work available online, they do so with greater satisfaction and commitment, because other Internet users can see what they have done.

[1] In the Mozambican reality, the mobile phone is the most accessible resource for students, as many people living in rural areas still do not have electricity that enables the operation of various devices such as computers, televisions, radios and the Internet, which allow the use of ICT.

It is essential that students know how to select information; to be able to distinguish between relevant and irrelevant information. Nowadays, many children and young people have access to ICT resources, but some of them do not use them in a way that promotes learning. Many use these resources for leisure and fun, not with a focus on learning [36].

However, sometimes students use these resources for studying, but in a passive way, limiting themselves to copying and pasting information. Therefore, it is important that students adopt a more active attitude, developing creativity, critical thinking and the ability to solve problems. Therefore, it is a challenge for teachers to empower students with knowledge to know how to use ICT in the search for knowledge with an active and critical attitude. It is important that students are taught to select information, distinguishing good from bad content, as well as to work with it in a critical and conscious way [37]. Hence the need for teacher mediation in the construction of knowledge through ICT. To this end, teachers must be properly prepared in their training to deal with ICT in their work [38].

Given that traditional educational procedures no longer provide teachers with all the essential skills to enable students to enter the current job market [39]. Furthermore, teachers need to be creative in order to know how to use digital resources in the AEP.

Therefore, in addition to the training in ICT that teachers and students must have, it is imperative that they constantly search for new tools, since the world of technology is very complex. Thus, there must be greater cooperation between teachers, students and teachers and students in the search for tools that facilitate the AEP, so that they can be empowered for the new dynamics of education.

Given that, according to Prensky [40], students are digital natives because they were born in a digital world, that is, they live with technology on a daily basis, while teachers are digital immigrants because they are from previous generations and need more time to adapt to technology. However, Maleane [41], considers that in most cases, mastery of technology is not related to age and social class, but to receptiveness and training in handling technological means.

Students must be taught and guided to use ICT rationally and consciously in order to seek knowledge. Therefore, it is imperative that students are taught how to use the telephone for academic purposes and that they contribute to facilitating their learning. For example, in some subjects, certain content can be better understood through videos demonstrating the subject matter, which can be found on the internet or shared by teachers with their students. Furthermore, by using ICT, teachers can motivate students to learn, since students are very attached to devices connected to the internet. Therefore, teachers can use these resources to make classes more lively and participatory, asking students to consult the content under discussion. Furthermore, some classes can be taught remotely as a way of valuing students' and teachers' skills in handling ICT, as well as saving time and money on transportation between home and school. Furthermore, through technology, specifically the Internet, students and teachers can interact, exchange knowledge, share experiences, and find answers to questions and doubts. This means that students acquire a great deal of learning in real time and remotely [42]. In order for ICT to help create a new dynamic in the teaching and learning process, it is important for teachers to be more involved and creative in planning and mediating classes.

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CONCLUSION

Education, which is globally assumed to be necessary for the construction, structuring and projection of societies, takes place in contexts and circumstances marked by historical processes that accompany the evolution of humanity. Thus, educational practices have undergone profound transformations throughout history that require a continuous capacity for adaptation. At the same time, education pursues its goals using new tools and methods that are considered extremely powerful in terms of their efficiency and ability to reach a wider audience. The study consisted of reflecting on the challenges of using ICT in the teaching and learning process in Mozambique and proposes practices that can guarantee the rational/coherent use of digital resources, accessible/available at school and in the family, for pedagogical purposes. From this research it was found that, for ICT to help create a new dynamic in the teaching and learning process, greater involvement and creativity of the teacher in planning and mediating classes is important. To this end, teachers need to be trained to work with ICT. It was also found that the greatest challenge for teachers is to empower their students with the knowledge to use ICT in the search for knowledge with an active and critical attitude, knowing how to distinguish between relevant and irrelevant information. Finally, it was found that not all schools offer the material conditions for the use of ICT, in addition to the distances that limit access to the Internet.

Suggestions

1) Teacher training institutions could create more space in the curriculum to teach trainees how to use computers and the Internet as a means of teaching and learning.
2) All schools (rural and urban) could focus on continually improving teachers' technical skills and competencies in the use of ICT for pedagogical purposes.
3) In rural areas where there is no electricity, schools could focus on acquiring and using resources that run on solar power.

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