

THE USE OF DIGITAL TECHNOLOGIES IN TEACHING PRACTICE IN HIGH SCHOOL IN PUBLIC SOBRAL SCHOOLS

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RESUMO

As inovações tecnológicas, a globalização e o surgimento de novos tipos de mídia consolidam-se como estratégias para o desenvolvimento educacional, econômico, político e cultural da sociedade. O presente trabalho objetivou analisar o uso das tecnologias digitais de informação e comunicação (TDIC's) na prática docente dos professores do ensino médio da rede pública de Sobral, localizado no semiárido do Ceará, visando perceber tais práticas como metodologia de ensino nas salas de aulas do município que atualmente se destaca na educação de ensino básico. O trabalho trata-se de uma pesquisa qualitativa, realizada no período de setembro de 2019 a janeiro de 2020, na qual foram aplicados questionários estruturados e objetivos que foram aplicados presencialmente a uma amostra de quinze (15) escolas de nível médio. Destas, onze (11) escolas estão localizadas na sede do município e quatro (4) nos distritos de Aracatiagu, Jaibaras, Jordão e Rafael Arruda. Foram aplicados questionários em cada escola, onde aleatoriamente participaram da pesquisa de dois a três professores por escola, totalizando 41 docentes na amostra. A análise se deu através de interpretação, reflexão e agrupamentos de respostas. Após análise, foi constatado que os docentes da rede pública de ensino compreendem, utilizam e consideram que os usos das TDIC's são de grande relevância para o desenvolvimento do ensino-aprendizagem dos alunos. Dentre os meios digitais, os mais utilizados são o notebook e o data show. Estes recursos para alguns docentes encontram-se disponíveis nas escolas atendendo a demanda das aulas. Entretanto, constatou-se que, apesar da maioria dos docentes afirmarem que as TDIC's são discutidas no âmbito escolar, ainda há uma carência significativa quanto ao treinamento/formação continuada do professor direcionada para o uso mais adequado destas ferramentas digitais. É necessário que as escolas do município invistam de modo significativo na capacitação dos educadores quanto ao uso adequado destes meios digitais, melhorando mais ainda o ensino - aprendizagem e o desenvolvimento do senso crítico dos alunos nas escolas de Sobral.

Palavras-Chave: Tecnologias de Comunicação e Informação. Inovação. Educação básica.

ABSTRACT

Technological innovations, globalization and the emergence of new types of media are consolidated as strategies for the educational, economic, political and cultural development of society. The present work aimed to analyze the use of digital information and communication technologies (TDIC's) in the teaching practice of high school teachers from public schools in Sobral, located in the semi-arid region of Ceará, aiming to perceive such practices as teaching methodology in the classrooms of municipality that currently stands out in basic education. The work is a qualitative and quantitative research, carried out from September 2019 to January 2020, in which structured questionnaires and objectives were applied, which were applied in person to a sample of fifteen (15) secondary schools. Of these, eleven (11) schools are located at the headquarters of the municipality and four (4) in the districts of Aracatiagu, Jaibaras, Jordão and Rafael Arruda. Questionnaires were applied in each school, where randomly two to three teachers per school participated in the survey, totaling 41 teachers in the sample. The analysis took place through interpretation, reflection and groupings of responses. After analysis, it was found that public school teachers understand, use and consider that the uses of TDIC's are of great relevance to the development of student teaching and learning. Among the digital media, the most used are the notebook and the data show. These resources for some teachers are available in schools to meet the demand for classes. However, it was found that, despite the majority of teachers affirming that TDIC's are discussed in the school environment, there is still a significant lack regarding the teacher's training / continuing education aimed at the most appropriate use of these digital tools. It is necessary that schools in the municipality invest significantly in training educators in the proper use of these digital media, further improving teaching - learning and the development of students' critical sense in schools in Sobral.

Keywords: Communication and Information Technologies. Innovation. Basic education.

INTRODUCTION

Information and Communication Technology has been advancing all the time and taking up space in education. It has become a more modern and sophisticated method, making classes more dynamic and attractive, holding students' attention to the traditional method imposed in classes. The use of such methods in favor of education becomes a challenge for teachers, who need to appropriate and use technological resources in the classroom.

Technological innovations, globalization and the emergence of new types of media are consolidated as strategies for the educational, economic, political and cultural development of society. For Kenski (2012) technologies have become for education a tool for exploring and learning cultures, research, project development, and debate, as well as defining powers based on the speed of access to information available on networks. They can also develop important skills and reasoning in students, such as teamwork.

Digital technologies are undoubtedly resources very close to students. The speed of access to information, the form of random access, full of connections, with countless possibilities of paths to be navigated, as is the case of the Internet, for example, approach the way the student thinks, allowing exchanges of ideas among themselves and the realization of collaborative activities, contributing positively to the teaching and learning process (JORDÃO, 2009; OLIVEIRA; MORAES, 2013).

According to Brito and Purificação (2011) the new technologies have had a great impact on the education developed today, creating different forms of learning, disseminating knowledge, changing methodologies and relationships between teacher and student.

Currently the presence of digital technologies is so intense, to the point of formatting a new configuration for society, changing social, economic, political and educational relations. New technologies are influencing the behavior of contemporary society and transforming the world. However, the technology that enables progress and new forms of social organization also has great potential to widen the distances between the worlds of the included and those excluded (SILVA, 2011).

Hübner (2016) diagnosing the role of information and communication technologies in eeb biology classes Jacob Marando municipality of Dionísio Cerqueira in Santa Catarina, found that the use of technologies motivates students to the most theoretical contents, stimulates creativity, participation and learning.

Marcolla (2012) emphasizes that information and communication technologies should be integrated into the school context not as mere supports or technological teaching tools, but as an integral part of the teaching process. It can be considered as a process and not a resource.

Considering the advance of digital technologies for teaching-learning and the prominence of education in the municipality of Sobral, this study aimed to analyze the use of these technologies as resources in the teaching practices of public high schools in the municipality, given their evidence in the educational scenario.

DISCUSSING THE TOPIC/AREA OF STUDY/THEORETICAL BASES

The municipality of Sobral is located in the state of Ceará, has 208,000 inhabitants and more recently has been projecting at the national level in the area of education by the rapid growth in the Basic Education Development Index (IDEB), an indicator of Brazilian education performance. Education in the municipality presents the best result in the final years of elementary school according to IDEB 2017 (ECO, 2019).

MATERIAL AND METHOD

This research is defined as a quali-quantitative approach, in which according to Ensslin and Vianna (2008) consider that the quali-quantitative predominance research can be used to better explore the unstructured issues, the territories not yet mapped, the unexplored horizons, problems involving contexts and processes.

Based on the perception and understanding of the human being, the application of questionnaires for data collection and data collection was used as methodology. The questionnaire, according to Gil (1999), can be defined "as the research technique composed of a more or less high number of questions presented in writing to people, aiming at the knowledge of opinions, beliefs, feelings, interests, expectations, situations experienced, etc."

The work was carried out from September 2019 to January 2020, developing in two stages: In the first, a bibliographic research was carried out, for the recognition of Digital Information and Communication Technologies (TDIC's) and its use in education. In the second, a questionnaire was applied to teachers from different areas of high school in selected schools (or in public schools).

The study sample consisted of fifteen (15) of the seventeen (17) public high schools in the municipality of Sobral, accounting for twelve of the headquarters and five of the districts (Aracatiçu, Jaibaras, Jordão, Rafael Arruda, Taparuaba).

The questionnaire was consisted of 12 questions (nine objectives and three discursive), addressing two categories: one about teachers' conceptions about digital technologies and the other about the use and types of digital technologies applied in their classes. The questionnaires were applied between two and three teachers per school, totaling 41 teachers in the work sample.

The data were analyzed through interpretation, reflection and grouping of the answers, being copilated in tables and tables.

RESULTS AND DISCUSSION

When teachers were asked about the understanding of digital technology, the majority (51%) stated that digital technologies are pedagogical tools that facilitate the teaching-learning of students and the others affirm that THE's are resources to help and support them, in which it improves the way of developing activities helping students to learn (27%) and 22% say they are virtual and multimedia means, in which they were cited: computers, data show, tablets, among other digital instruments (Table 1).

Table 1- Conception of primary education teachers on Digital Information and Communication Technologies (TDIC's) and their use in education in the municipality of Sobral-Ceará, 2019.

Teachers' conception	Number. of interviewees/	Percentage (%)
They are pedagogical tools that improve learning teaching	21	51
Digital technologies are means of assisting/supporting the activities of students	11	27
. They are virtual and multimedia media: Computers, data show, tablets, among others.	09	22
Total	41	100

*TDCI's : Digital Communication and Information Technologies.

Teachers' answers are assertive in nature, since initially the TDIC's were used as a means, support, alternative teaching, but, with technological advances and educational needs, in some situations, they became fundamental instruments for change in education (PEREIRAet.al., 2012). However, Busnelo (2003) complements those digital technologies can help the educator, showing new proposals, strategies and actions that improve the process of learning, teaching and living in educational spaces.

It is also important to remember that in education, the history of technology developed in the United States from the 1940s, which aimed to develop courses for military personnel with the help of audiovisual tools. As a subject in the school curriculum, educational technology emerged in the audiovisual education studies of Indiana University in 1946. The use of audiovisual media with a formative purpose was the first specific field of educational technology and since then has been a permanent area of investigative (ALTOÉ; SILVA, 2005).

Table 2- Conception of teachers on the use of digital technologies in basic didactic-pedagogical activities in the city of Sobral-Ceará, 2019

Questions to teachers	YES (%)	NO (%)
In their design, can digital technologies be considered tools for teaching and learning in teaching practice?	98	2
Do you find it difficult to use these digital resources?	22	78
Would you like to use different types of digital technology in your classes?	95	5

It is worth noting that, according to Peixoto and Araújo (2012) digital technologies such as the computer is taken as a pedagogical resource that can improve the quality of the teaching and learning process, the student is seen as a knowledge builder and the teacher as a mediator between the student, the computer and knowledge.

Moran, Masetto and Behrens (2006) state that teachers struggle to master technologies; although they try to do as much as they can, they have not yet been able to modify the repressive and repeating methods. For Silva, Prates and Ribeiro (2016) it is important to emphasize, that it takes more than a knowledge of technological equipment, it is necessary to know the potentialities of each one to frame within the teaching method to be applied. The teacher needs to familiarize himself with the equipment, reflect, question.

The teacher must be able to change further at the heart of being a mediator and facilitator of teaching and learning, taking for himself the role of "mentor" of a new teaching dynamic, for the active challenge of students (SILVA; FERREIRA, 2017).

Given the teachers' understanding of the contributions of digital technologies in the classroom, they stated that 71% report that BDD's can facilitate the development of students' teaching-learning and provide differentiated classes that cause the student to motivate, 15% say it is a resource that arouses the interest and attention of students, while 7% claim that THE's have a better use of time in the room and improve the transmission of information and the aid of research on a given subject (Table 3).

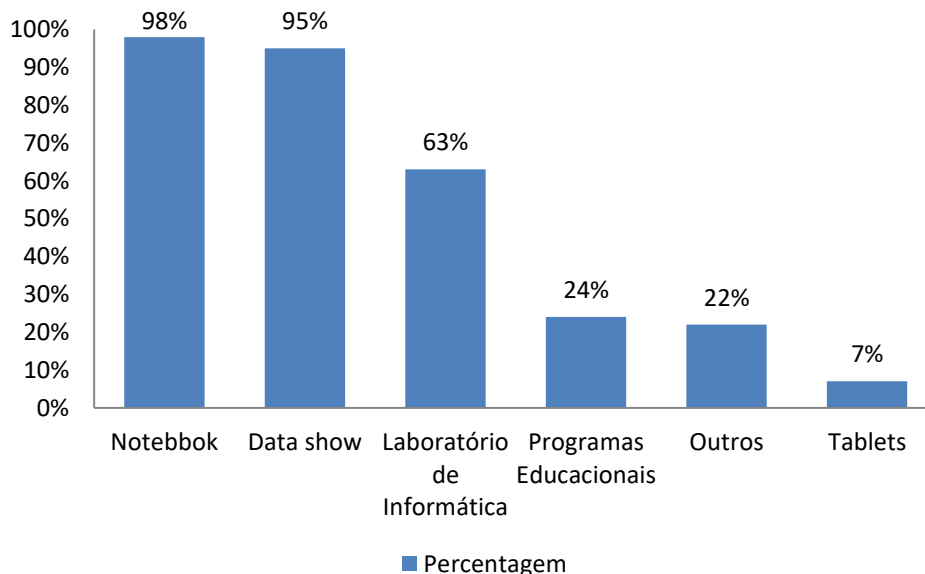
It is observed that the teachers of the high schools of Sobral consider the ease in learning (71%), as well as the increased interest of students for the contents as greater contributions of digital technologies in classes (Table 3). In this sense, Rosa, (2012) points out that the use of technologies in the teaching and learning process has numerous contributions, but it is very challenging as well. In everyday school life, technologies are increasingly being imposed on the teacher, and many still resist to use it in class, making it impossible to have a creative and learning environment for the student

Table 3 – Teachers' understanding of the contributions of BDD's in the classroom in the municipality of Sobral, Ceará, 2019.

Understanding of teachers about the contributions of TDCI's to teaching classroom learning	Number. of interviewees/	Percentage (%)
Technologies facilitate student learning and building differentiated classes	29	71
Arouses the interest and attention of students	06	15
Better use of time	03	7
They contribute to the transmission of information such as educational videos and assists in conducting research on a given subject	03	7
Total	41	100

When the teacher was asked about the use of TDCI's in the classroom as a teaching learning method, it was observed that 98% of the teachers use notebooks, followed by 95% make use of the data show and 23% of the computer lab. The teachers also stated that they use educational programs (24%) and tablets (7%), as well as other technological means such as: TV, apps, speakers, and blogs, among others. The professors highlighted the equipment most cited by some authors (Figure 1).

Figure 1 – Conception of teachers about the use of digital technologies in classes in the municipality of Sobral, Ceará, 2019.



*In the questionnaire, the teacher was allowed to use more than one resource

Silva, Prates and Ribeiro (2016) highlight as technological resources to support the teacher within the classroom: multimedia audio and video resources, data show, notebook, TV, DVD, slides. Although these resources may be somewhat technologically outdated for students, but within the classroom they can make a big difference when well applied. Kenski(2012) draws attention to the need to respect the specificities of teaching and technology itself in order to be able to ensure that its use really makes a difference. It is not enough to use the television or the computer, it is necessary to know how to use the chosen technology in a pedagogically correct way.

Regarding the availability of instruments for the use of educational technologies, 100% of high school teachers stated that they use some tencological resource in their classes as a method for the development of teaching-learning. (Table 4)

When asked if there was discussion within the school about the use of digital technologies, 80% stated that yes, the use of these means in school is discussed and, 20% state that there is no topic discussed and addressed at school (Table 4).

Table 4 - Conception of teachers on the discussion of digital technologies in school in the city of Sobral, Ceará, 2019.

Questions to teachers	YES(%)	NO (%)
Does your school provide any instruments for the use of educational technology?	100	0
Mr. Teacher in your school is discussed the use of digital technologies?	80	20
Has the school provided any kind of training for use on digital technologies?	29	71

As for the question about the school providing some training for teachers on the use of these technological resources, 71% say that there was no training that covered this subject, while 29% report that yes, there is specific training on the use of BDD's in the classroom. Thus, it can be inferred that the public schools analyzed do not yet receive continuous training focused on the use of digital technologies, making it difficult to insert innovative methodologies, although the education of the municipality is pointed out as one of the best in the country.

Corroborating the result obtained, Costa (2014) explains that the lack of teacher training in the area, makes many professionals become resistant to the use and incorporation of new technologies in the classroom and stop using them due to lack of knowledge. The use of technological resources in the teaching and learning process is still a challenge that must be faced by the teacher, as well as to reflect and rethink their pedagogical practice.

Evaluating the availability of technological means that are at the service of the school for the use of teachers in the classroom, most stated that the school has data show (90%) and notebook (66%), also report having a computer lab (51%), sound box (15%) and computer (15%), available for the activities of teachers. Some teachers stated that the school has tablets (10%) and TV (10%) and others claim that the institution has other equipment such as: educational programs (5%), digital staff (2%) and microscope (2%) (Table 5).

Table 5- Conception of teachers about the availability of technological resources in the school used in didactic-pedagogical activities in the classroom in the municipal of Sobral, Ceará, 2019.

Technological Resources	Number. of interviewees/	Percentage (%)
Data Show	37	90
	27	66
Computer Lab		
Notebook	27	66
Sound box	06	15
Tablets	04	10
TV	04	10
Educational Programs	02	5
Digital frame	01	2
Microscope	01	2

Silva and Ferreira (2017) stress that for there to be innovative changes in school, it is not enough to make resources available in school, in addition to renewing teaching, it is necessary to understand the TDICs as a starting point for a quality education, and the continued training of the teacher must happen in the first place. The author also states that the use of TDICs in the classroom should aim at the integral development of the student assisting in the teaching-learning process, in addition to other aspects such as: autonomy and search for knowledge.

When teachers were asked about the existence of any law or regulation that could prohibit the use of any electronic device in the classroom, it was found that 51% of teachers stated that they do not agree with any law on the non-use of any digital device and, 49% say they agree with the law, with the exception of devices used for pedagogical use. It is noticed that there is a significant percentage of teachers, in which they have certain openness to the use of digital technologies in the classroom.

The State Law of Paraná of No. 18.118/2014-PR, of June 24, 2014 restricts the use of electronic devices in the classroom only for the execution of pedagogical activities and with guidance of a teacher (PARANÁ, 2014), because it distracts the student during class through the exchange of torpedoes and messages, impairing the development of teaching - student learning, as well as the exchange of information by the teacher.

Nicolau, Marinho and Marinho (2017) consider that the prohibition of these electronic devices does not seem to be a promising path, because both teachers and students circumvent this imposition. The intermediate use of these types of technologies may

develop a healthy and ethical application, however, it is not right to defend the constant use of devices, it is necessary to work in the classroom the critical spirit of when it is appropriate or not to use them, therefore, to introduce electronic devices in the classroom for the purpose of pedagogical use already an interesting basic criterion.

When teachers were asked about the cell phone being a teaching tool in teaching practice, 81% said they agree, because when it comes to education, the cell phone would be a more accessible and easy-to-handle resource in the teaching process – learning and, 19% did not agree with this resource because it would not be an appropriate option, because it ends up harming the class, helping in the distraction of students, preventing the development of pedagogical activities (Table 6).

Table 6 – Knowledge of teachers about the cell phone as a pedagogical resource in the classroom in the city of Sobral, Ceará, 2019.

Use of the cell phone as an instrument of TDCÍ's as a teaching practice in the classroom	Number. of interviewees/	Percentage (%)
Yes, for being a practical and accessible instrument. In a pedagogical context, the cell phone can facilitate teaching - student learning.	33	81
No, the cell phone is a device that distracts the student, hindering and hindering their learning.	08	19
Total	41	100

According to Gomes and Costa (2014) believe that the use of mobile promotes intellectual, social and cognitive development in the joint way, because it is a path, a stimulus to assist in the assimilation and accommodation of pedagogical contents. When new paths are proposed to learn, intellectual development happens in a natural way, because there is the exercise of the ability to think.

The use of mobile phones in classrooms, properly guided by the teacher, can create several other possibilities as a pedagogical resource for high school classes, such as: improving education when it comes to implementing projects that enable the timely arrival of information, on environmental, political and social issues and also improve communication and learning, optimizing time in the classroom, in a learning environment capable of promoting the skills necessary to the requests of our century (ALVES; VIEIRA, 2015). Furthermore, Bento and Cavalcante (2013) explain that, the cell phone can be a didactic resource to be used at different times in school, as long as it is included in the planning of the teachers and school institution's lesson plan. For this it is necessary that the faculty, families and the school communicate and promote a collaborative work.

FINAL CONSIDERATIONS

Based on the data analyzed, the teachers of public high schools in the municipality of Sobral understand, use and consider that the uses of Digital Communication and Information Technologies - TDCI's are of great relevance for the development of teaching – learning of students, transforming the most dynamic and attractive class that holds attention and motivates students in the classroom.

Among the known digital media, the most used by the teacher are the notebook and data show, in which these resources for some teachers may be available in the school meeting the demand of teachers, considering that they can also use other digital equipment such as: sound box, TV, even blogs and educational applications that can improve in the approach of content.

However, we can point out that, although the majority of teachers state that THE ISIS are discussed in the school environment, there is still a significant lack of training/continuing training of the teacher directed to the use of these digital tools, so it is necessary that the schools of Sobral invest in the training of educators for the proper use of these tools, improving the teaching and development of the critical sense of school students, so that the municipality continues to stand out.

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