

DIGITAL TECHNOLOGIES IN PRESCHOOL EDUCATION: A STUDY WITH CAPE VERDEAN EDUCATORS

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Abstract

Technological advancement of society is driving the use of digital technologies in education. In Cape Verde, educational initiatives that integrate technologies into the teaching and learning process are still scarce. This work focuses on the use of digital technologies in pre-school education by educators in Praia, Cape Verde. The methodological approach is mixed, qualitative, and quantitative, and the data collection instrument is the online questionnaire survey, applied from October 2020 to January 2021, to early childhood educators. The sample of participants was 60 early childhood educators from public and private kindergartens in the city of Praia. The results show that most kindergartens do not have digital technologies and early childhood educators express the need to acquire training in the ICT area for its pedagogical use. Therefore, it is urgent to equip kindergartens with digital technologies and invest in the training of educators, so that preschool children have access to more diverse, flexible, dynamic, and participatory teaching and learning environments centred on the student as a key element of the educational process. On the other hand, the combination of digital learning resources with the development of active pedagogical experiences allows the acquisition of new literacy skills, such as digital and other social skills, essential to face the challenges of a world in constant evolution and transformation.

Keywords: Cape Verde, preschool education, digital technologies, teaching and learning, early childhood educators.

1 INTRODUCTION

Scientific and technological advances have driven the development of society, as well as profound and constant changes in all domains. In education, digital technologies are an important and complementary instrument, enhancing teaching and learning. The use of ICT in the teaching and learning process has been shown to be very efficient and has been solidifying within the educational scenario, as we know that the use of these new technologies implies a new way of thinking, acting, and learning [1].

In recent years, the Cape Verdean government has implemented several projects that have contributed to promoting the use of technologies in different segments of society, including the education system. As part of the introduction of digital technologies in education in Cape Verde, several projects were developed, including the “Konekta” project, which intended to guarantee access to the internet for all, and the “Mundo Novo” program with the objective of promoting equitable conditions of access to digital technologies in primary and secondary schools, the creation of a school computer network and a computerization program and the internet connection in schools [2].

However, in pre-school education, no program or project related to digital technologies was found. If, on the one hand, pre-school education is the first stage of basic education in the process of lifelong education, complementary and in collaboration with the family, favoring the balanced formation and development of the child, with a view to its fullness insertion into society. On the other hand, early childhood educators, as professionals in the field of pre-school education, have the task of guiding and organizing children's activities, with the aim of encouraging them to learn by developing their skills.

Therefore, it is essential to enable children to have contact with different resources and multiple learning, including technological tools and digital literacy. In this context, we present a study on the use of digital technologies in pre-school education by early childhood educators in Praia, Cape Verde.

2 METHODOLOGY

This study follows a qualitative and quantitative methodological approach, using the questionnaire survey as a data collection instrument. Regarding the nature of the study, the quantitative method is characterized by quantification, both in terms of collecting information, and in the treatment of these through statistical techniques, from the simplest to the most complex. The qualitative method is the one that works predominantly with qualitative data, that is, the information gathered by the investigator is not expressed in numbers. Qualitative and quantitative research is based on specific questions or problems; adopts both the use of questionnaires and interviews in one and the other [3].

The questionnaire survey is one of the most used procedures to obtain information. The inquiry by questionnaire is a research technique that, through a set of questions, aims to raise a series of individual speeches, interpret them, and then generalize them to broader sets. It is a non-participant observation technique, as it does not require the researcher to integrate into the environment, group or social processes studied. Consisting of a series of questions, but also being able to integrate other instruments, such as tests and scales of attitudes and opinions that aim to measure a certain type of behavior and reactions, and to assess the intensity with which a certain opinion or attitude is given, the answers thus obtained will constitute the material, on which the researcher will produce interpretations and arrive at generalizations [4].

The questionnaire has two sections, one on personal and professional data, with six questions, and another on digital technologies in preschool education in Cape Verde, which contains eleven closed-answer questions and two open-ended questions. The analysis of the obtained results was carried out through content analysis, for open-answer questions, and descriptive and statistical analysis, for closed-answer questions. The questionnaire was analyzed descriptively and analytically, with codes assigned to the participants, that is, we assigned the EI code to the early childhood educators, following the sequence of numbers in the order of response (e.g., EI1, EI2, EI3).

The questionnaire survey was applied to the universe of kindergarten teachers, public and private, in the city of Praia to collect data in Cape Verde. This collection was preceded by authorization to the pre-school education coordinator of the School Delegation and then to the educators of kindergartens in the city of Praia for its application, with the informed consent of all parties, guaranteeing anonymity, protection and use data only for this investigation. Data collection was carried out online, from October 2020 to January 2021, through the application and availability of the questionnaire survey through emails, Facebook, and Messenger of early childhood educators.

3 RESULTS

In the questionnaire survey on the use of digital technologies in pre-school education, 60 early childhood educators participated, whose data are presented according to its structure: personal and professional data, and digital technologies in pre-school education.

3.1 Personal and professional data

Most participants (98%) are female and only one (2%) is male. As for the age of early childhood educators, we found that the ages between 31 and 35 years represent 30%, between 36 and 40 years old 27%, 13% over 50 years old, between 41 and 45 years old 12% and under 25 years old and 26 to 30 years of age, both with 8%, and, finally, 2% aged between 46 and 50 years. About academic qualification, most have secondary education (53%), then a degree (18%), basic education (11%) and other qualifications (17%). Regarding the years of work as a kindergarten teacher, 31% said they had 6 to 10 years of work, 22% had been working for less than 5 years, 17% had already worked between 11 and 15 years old and with the same percentage of kindergarten teachers who had been working for a long time over 20 years, and 12% work as a child educator from 16 to 20 years old. Relating to practice the professional activity and years of working with children, 67% of the kindergartens work in private kindergartens, run by individuals, and 33% work in public kindergartens, run by the City Council, of which 62% work with children aged between 3 and 6 years, 28% with children aged 0 to 6 years, 5% with children aged 0 to 2 years and with the same percentage work with other ages.

3.2 Digital technologies in preschool education

3.2.1 ICT training

Concerning the training of early childhood educators in digital technologies, educational technologies, and information technology, 51% of the child educators said they did not have such training, 48% claim to have the trainings and 2% did not respond. As a result, 93% expressed interest in attending training courses in digital technologies, 7% might be able to attend the training and none of the respondents replied that they would not like to participate in the training. Asked about the need for training in digital technologies, 31% of early childhood educators need training in software or applications to create educational games and educational resources, 20% in interactive whiteboards and learning platforms, 18% in installing and making suitable games children's age, 16% in video and audio production/editing, 7% in text production and presentation, 4% in programming and robotics, and the same percentage in email and social networks.

3.2.2 Digital literacy

According to respondents, 88% of early childhood educators stated that they know how to use technological devices (computers, printers, internet, etc.) and 12% said they do not know how to use these devices. Of this use, 87% responded that they use digital resources to communicate with the children's parents and guardians and 13% do not use digital resources for this communication. Those who answered that they use digital resources to communicate with the children's parents and guardians, Messenger is the most used resource (65%), then the garden website (12%), Viber (3%), email (2%), other resources (5%) and 13% did not respond. Of the respondents who responded that they do not use digital resources to communicate with the children's parents and guardians, they report that they use other resources: "we send it through a notice on printed paper" (EI15) and the ease of communication and direct contact with the parents and guardians, who identify: "most of the children are from the area where the garden is located, so it is easy to communicate with their guardians" (EI31); "because I can talk directly or call on my cell phone" (EI57) and "I don't have an electronic device, I don't use cell phones and I visit from house to house" (EI48).

3.2.3 Use of digital technologies in kindergartens for children's teaching and learning

Respondents' early childhood educators about the kindergarten have devices and digital resources (computers, printers, internet, software/applications, educational programs, multimedia content) for teaching and learning of children, 43% said they have and 57% said no. As for the use of digital technologies to encourage learning, 51% of early childhood educators sometimes use digital technologies to encourage children, 19% always use it, equally with those who said they never use it, 8% use it often and only 3% use it rarely. In this follow-up, when asked if children show interest in learning using digital technologies, 90% of early childhood educators answered yes, that children show interest, 7% answered that children are indifferent and only 3% answered that children do not show interest in learning using digital technologies. About the use of digital technologies in the teaching and learning process and in contributing to the development of children, 95% of early childhood educators agree, 5% neither agree nor disagree, and none of the respondents disagree. In relation to the resource(s) that early childhood educators use in the teaching and learning process, 50% of respondents answered that they use the resource to watch videos (cartoons, movies, stories, etc.), 23% produce educational resources (worksheets, activities, etc.), 18% use printing (coloring drawings, activities, etc.), 5% digital record activities (photos, videos, etc.), 2% use games and 2% the search.

3.2.4 Introduction of technologies in preschool education

We found that nearly all early childhood educators who participated in the questionnaire survey agree that the introduction of technology in pre-school education will be an asset because it helps in the learning process, help in developing both the students as educators, with the technologies the children are more interested, among others, of which: "In a world of so much technology, where children are in one way or another in contact with digital devices, introducing ICT in kindergartens will be of great value in the learning of content and development in the technological area and the introduction of digital technologies in kindergartens, it encourages faster learning and maximizes the time children spend in the garden" (EI25); "With the use of digital technologies they learn more and develop more interest and it is very important for children's learning and empowerment" (EI26); "It is extremely important, it develops the child's ability, facilitates the discovery of new knowledge and ideas about the world around us" (EI10); "Digital technologies in the garden is very important because in the world we are living in, technology is the most used medium around the world and in my point of view it is very good to start

integrating little children into this world of technology, and so are children and educators become more competent, develop learning and knowledge, facilitates the search for work materials” (EI19); “The introduction of new digital technologies is an important and effective means for teaching and learning children due to their specificity and creativity and the fun way they help us in the transmission of knowledge and help a lot in the development of children at a cognitive level and develops their logical reasoning, it assists in the work of the monitors in the production of materials and in the document archiving process” (EI38). However, there were also participants who did not agree with the introduction of digital technologies in pre-school education: “I think that kindergartens should not have digital technologies because children are not prepared at their age” (EI44).

3.2.5 *Analysis of results*

Of the 60 early childhood educators who participated in the questionnaire survey on the use of digital technologies in pre-school education, the majority are female, with secondary education with academic qualification and aged between 31 and 35 years. Most of them work as a child educator between 6 and 10 years old, mainly in private kindergartens, with children aged between 3 and 6 years old. The participants stated that they had no training in digital technologies, educational technologies, and information technology, and therefore expressed an interest in attending training courses in these areas, namely in software or applications for the creation of educational games and educational resources and interactive whiteboards and learning platforms. Regarding the digital literacy of early childhood educators, most stated that they know how to use technological devices (computers, printers, internet, among others) and that they use digital resources to communicate with parents and guardians of children, including Messenger. We found that many kindergartens do not have digital devices and resources (computers, printers, internet, software/applications, educational programs, multimedia content) for teaching and learning children, and most educators stated that they sometimes use digital technologies to encourage children. Concerning children's interest in learning using digital technologies, almost all educators responded that children show interest and agree that the use of digital technologies in the teaching and learning process contributes to children's development. The resource that early childhood educators most use in their educational practices is the viewing of videos (cartoons, movies, stories, etc.). We note also that most early childhood educators agree with the introduction of technology in pre-school education, saying that will be of great importance because it helps children's learning, developing knowledge and skills, and diversifies the work material of educators.

4 CONCLUSIONS

This study aimed to know the current state of the use of digital technologies by childhood educators in kindergartens in Praia, Cape Verde, to know how digital technologies can contribute to the development of children in pre-school education, as well as understanding the importance of using digital technologies in pre-school education.

Data analysis allows us to conclude that most kindergartens do not have enough digital technologies and are not qualified for teaching and learning children. But early childhood educators use the technologies they have to communicate with parents and guardians and sometimes for children's teaching and learning. Early childhood educators, in general, are not trained in the field of technologies and are willing to acquire training in digital technologies, especially in interactive whiteboards and learning platforms, installation and realization of games suitable for the children's age, and in production/editing of video and audio. Respondents are aware of the importance of using digital technologies in pre-school education and the benefits for children's teaching and learning.

Although there are still no projects or educational policy guidelines aimed at the introduction and use of technologies at this level of education, there are several authors who warn of their importance and benefits for children's development. Preschool children should benefit from the integration of ICT [5] and when properly applied, technology can develop cognitive and social skills, and should be used as one of many other options to support learning [6].

We ended by referring to, and appealing to entities with educational responsibilities in Cape Verde, that it is urgent to equip kindergartens with digital technologies and invest in the training of educators so that preschool children have access to teaching and learning environments more diversified, flexible, dynamic, and participatory, for full development and skills to face the current and future challenges of society.

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