ICT IN EARLY CHILDHOOD TEACHERS AND CHILDREN IN PORTUGUESE PRE-SCHOOL

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Abstract

ICT (Information and Communication Technologies) have brought a rapid transformation of the economic, political and cultural society in general, known as the *Information Society*. It is therefore necessary that schools adapts to the changing needs of their students, so not to be left behind in relation to major social changes, failing to adapt is to become obsolete. Several initiatives have been undertaken with the aim of introducing ICT at various levels of education in schools, however there are few studies that relate the results of its introduction especially in kindergartens. This is the starting point of our work; to observe the approach, methods and practices of kindergarten teachers and children in Portugal.

Keywords: Information Communication Technology (ICT), School/Early Childhood Education, Learning.

1 INFORMATION SOCIETY AND SCHOOL

We have witnessed a technological revolution that has brought many changes that are observed in our culture, education and forms of communication. In this information society there is no impediment to knowledge. Communication goes beyond the barriers of space and time, influencing the individual in his way of thinking and acting. Based on this assumption, the mass media play an important role in the organization of a culture based on technological parameters. It is necessary for schools to adapt to the changing needs of their students so as not to become obsolete. It is also essential to answer the numerous challenges of our times characterized by technological change due to rapid developments in technology, especially those associated with communications and computers.

It is a challenge and a need to take advantage of the potential of technology in education, but this requires teachers to explore the advantages and versatility of the many resources available, using them as means of favoring a more active learning, centered and contextualized on the student. These are the times in which teachers should be placed as masters and apprentices in the expectation that through the established interaction and communication with students, learning can take place for both.

2 ICT AND PRESCHOOL

It is necessary to meet the demands of society regarding the implementation of new technologies, so it has been instilled in schools the idea that such implementation should be initiated in an early stage, and should take place where young children obtain a training base used throughout life [1].

ICT enables expanded access to knowledge, multiplying the learning situations because they are an inexhaustible resource to the potential of "information highways". Computers should be seen as flexible and powerful tools that improve teaching and learning. The needs of individual children are met in a more attractive and exciting way. They promote independence and provide access to a wide range of information, encouraging children to explore and create. With a computer we are able to access games and other fun activities, with different methods of presenting educational content that captivate children and adults.

Research on the subject has shown that an appropriate use of information technology allows to develop skills such as language development and literacy [2] [3], written language [4], mathematical concepts [5], cognitive abilities [6], stimulate imagination and creativity [7], develop collaboration [8] [9], fine motor skills [10], among other areas. The Internet and E-mail have also been referenced by many authors as valuable communication tools and information production [11] [12].

3 PROBLEM AND METHODOGY

Our choice to develop this work in early childhood education and related with technologies was based on several reasons. A first reason concerns the fact that the pre-school is an educational level that hasn't had much attention by research [13] and technological innovation, so little is known about the potential for their use within this level of education. Another aspect relates to the results of current research [11] [14] [2] [15] [16] [3] [17] [18]. These results have demonstrated the importance of familiarizing young children with technology, either because it is unquestionably part of the world that surrounds, as well as the relevance of educational experiences that it can provide. It is true that, despite much having been written about the integration of ICT in school (there are several studies that show the rates and usage percentages, numbers of users, ratio of pupils to computers, applications used, etc.), there are however hardly any studies that describe and analyze the actual process of integrating technology in pre-school education. This is the starting point of our research, to verify the practices of educators and Portuguese children in pre-school education. A questionnaire was elaborated and e-mailed to educators across the country from September 2008 to July 2009. In August 2009 we proceeded to the processing of the collected data. The population who responded to questionnaires incorporated 363 pre-school teachers nationwide. As a form of triangulation of data observations were also conducted in two kindergartens (kindergarten A and kindergarten E). These observations took place in computer classes for children from pre-school, where the subject's behavior was observed in several sessions over 7 months (from January to July 2009). The population of observations incorporated 355 pre-school children.

4 RESULTS

4.1 Subjects

The population of our study consists of 363 kindergarten teachers. We found that 69% of them are from the Central region, 18% of the North and 11% of the South area of the country. Also 2% of respondents were from Madeira. Regarding gender, 100% of respondents were female and the majority of respondents over 45 years (28%) 86% of the teachers who participated in the study have completed a higher education degree and the majority of respondents (22%) are between 20 to 24 years of service in kindergarten.

4.2 Educators and the use of ICT

We found that 59% of respondents believe that using the ICT in early childhood education is very important, and 86% reported to use them. However it is important to note that most of the questionnaires were collected by E-mail, which implies that the majority of respondents used a computer.

It was accounted that 64% of our respondents have a computer in the kindergarten classroom and use it with children, which is a very important fact because it reflects that educators recognize the importance of the computer has as a tool in the classroom. Educators that do not use the computer (36%), justify they do not have computers at the kindergarten or in the classroom.

We wanted to know if kindergarten teachers had Internet access in the classroom. Of the respondents who said they had the computer in the room, 52% answered to have Internet access, which is for us a significant number of educators with access to Internet.

In regards to training, 65% of educators reported being self-taught on ICT and only 8% receive ICT job training, which reflects the low priority that these educational institutions give to ICT. However, educators are concerned in being updated and this is reflected by the large number of educators of our study population who have bet on self-training.

4.3 Children and the computer

Regarding the number of times that teachers used the computer with children, most said do this five times a week (37%), each session lasting an average of 15 to 20 minutes (32%). We also noted that children have daily access to the computer.

The favorite activities with computers are using interactive CD-ROMs (84%), Microsoft Paint ™ (71%) and Microsoft Word ™ (68%). During our observations we concluded that these were also the favorite activities of teachers in both observed kindergartens.

Educators are concerned that the CD-ROMs used are beneficial to children's learning and are not used as simply as a sporadic "hobby", so educators reported that the main motivation for their use should be learning from different content subjects, such as mathematics (45%), games (42%), music (31%) and basic writing learning software (26 %). In the computer classes of kindergarten E, the teacher also mentioned that she had been careful to provide software to teach children a variety of content and activities with specific learning objectives. In the computer classes of kindergarten A the teacher did not have the same care, and computer classes ended up being just an entertainment for children.

Although the Ministry of Education in Portugal provides a free CD-ROM "Nós e os outros" to the kindergartens, educators do not elect it as preferred, since only 6% of teachers use it and the vast majority eventually choose CD-ROMs that can be purchased in large supermarkets such as "Planeta das Surpresas ™", used by 38% of the educators, and" Aprendilândia ™", used by 32%. It was noted that the Ministry of Education demonstrated little priority and attention to software for pre-school, barely investing in it all.

The majority of educators noticed progress in cognitive development (90%), motor development (83%), cooperation between pairs (75%) and socialization (68%), which allows us to state that computer use is beneficial on several levels.

Throughout our observations we noticed also changes the level of cooperation between pairs, socialization and motor development. It should be noted that this progress resulted from computer use.

4.4   Kindergarten teachers and the computer

Educators reported that they also use a computer besides with children, 93% use it for planning activities, 88% use the computer to assessment of children, 87% use for preparation of worksheets and also 87% use the computer to evaluate activities, 67% use it to support the performance of other positions, 44% of educators attend MOODLE platforms and 31% communicate with parents through E-mail, chat or forums. This data reflects that the computer is a tool for supporting other activities.

5   CONCLUSIONS

Pre-school has been gradually grasping the idea that the integration and appropriation of technologies by children is the only path forward.

Our research data shows that ICTs are increasingly becoming an important tool and integral part of the educators' job and professional culture. ICT's achieve this importance by providing alternative opportunities for creative expression, projects and critical reflection.

The computer can be used as an ally in the development of autonomy and the building of knowledge of children interacting with various media and languages, reflecting on the cognitive dimensions and socio-emotional learning and its relationship to knowledge. We need to encourage debate and evaluation of the issue on how to teach and integrate these tools. Advantages must be quantified and presented as added value teaching tools for pre-schools.

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