

EDU WORLD 2022**Edu World International Conference Education Facing Contemporary World Issues****COMPUTER USE IN EARLY CHILDHOOD EDUCATION.
INTEGRATING EDUCATIONAL SOFTWARE INTO
INTERACTIVE ACTIVITY**

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Abstract

In a world in which the use of computers is a fundamental characteristic, it will also represent the main element of the impact on education, involving interventions in educational policies, both at the level of setting goals and strategies, providing resources, training specialists. One of the recommendations of the new education is to organize learning content in such a way that it uses and integrates computers into the teaching-learning-assessment process. The paper, "Computer use in early childhood education. Integrating educational software in interactive activity" aims to demonstrate the need to use IT & C technologies as early as kindergarten by introducing educational software in teaching activity. The research aims to present some theoretical and practical aspects of new technologies in the current educational context used in the learning process ("lifelong learning"); to highlight the impact of ICT in education and the main specific studies to establish this impact; to present methods of using new technologies in kindergarten activities through the use of educational software. As a main outcome, the research will try to identify and present the effectiveness of the use of the newest technologies in pre-school learning, as well as the best practices of teaching with IT&C technologies

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1. Introduction

The use of educational programmed at kindergarten level proves to be an effective learning tool that leads to significant changes in children's assimilation of knowledge and attitude towards learning, especially given their age-specific curiosity and receptiveness to anything new. At the same time, the theoretical and applied relevance of the results of this research is also determined by the needs imposed by the current COVID-19 pandemic context, which has moved learning to the online space, without the school in general and those directly involved (students and teachers) in particular being sufficiently prepared for this change. For new technologies to be effective in use, in addition to the specific and necessary aspects of the pedagogical design of digital materials, the rules of educational planning and the individual and age-specific characteristics of children, they must clearly be designed for teaching - learning - assessment. The current context already puts us in a dilemma, if we are to ask ourselves how is better: to adapt technologies to the requirements of the educational process or to adapt the educational process to the specificities of technologies. Obviously, from a theoretical point of view, at least, the ideal would be that the educational process should benefit from specific, dedicated technologies, but practice shows that, at least for reasons of efficiency, if not effectiveness, the school must adapt the process according to the existing infrastructure and means, as has been shown in the current pandemic context.

1.1. Computer

It is well known that for pre-school children the element of novelty is very important in all the activities carried out as part of the educational process; the more this element is present, the better the pre-school child's attention and memory are stimulated, which leads to better concentration on the work task. In the context of computer use as a feature of contemporary society, the teacher now has the opportunity to manage teaching activities, thus using a modern teaching method, namely computer-assisted instruction (CAI), many and diverse pieces of information can be accessed and conveyed to pupils through the senses (sight and hearing), thus respecting the main teaching principles. Thus, in the paper I try to highlight the importance of planning and organizing teaching activities in kindergarten, seen through the prism of using the most appropriate teaching aids, involving the computer and information technology tools in an educational setting, as well as through the prism of applicability of teaching principles. It highlights how the use of new technologies contributes to the most efficient use of teaching activities while respecting two of the teaching principles: the principle of unity between the sensory and the rational, a principle which is dominant over the content of activities, and the principle of taking into account age and individual characteristics, a principle which refers strictly to the ability of pre-school children to assimilate knowledge and form skills according to their age. In the researcher's view (Globa, 2016), the calculator is a didactic tool that integrates into the context of other tools, amplifying their instructive and formative value, complementing them when necessary. In this sense, the random use, without a precise purpose, at an inappropriate time of the calculator during the activity leads to boredom, monotony, inefficiency of learning through absenteeism of some preschool students, non-fulfillment of the objectives of the activity and can produce repulsion towards this modern means of teaching-learning-evaluation. Excessive individualization of learning also leads to the contestation of preschool-teacher and

preschool-preschooler dialogues, to the isolation of learning in its psychosocial context, and to preschoolers' mental activity being diminished, and directed step by step. However, the researcher (Gremalschi, 2010) highlights many advantages of using the computer in the educational process:

- i. Stimulation of logical thinking and imagination;
- ii. Formation of an independent working style;
- iii. Mobilization of psychomotor functions through the use of the computer;
- iv. Development of auditory/visual senses;
- v. Training useful practical skills;
- vi. Providing permanent feedback, the teacher having the possibility to redesign the activity according to the previous sequence;
- vii. Ensuring the choice and use of appropriate strategies for solving various applications;
- viii. Development of thinking so that starting from a general way of solving a problem the preschooler finds the answer to a concrete problem by himself;
- ix. Preparing pre-school children for a society based on the concept of lifelong learning;
- x. Stimulating innovative learning capacity, adaptable to rapidly changing social conditions;
- xi. Determining a positive attitude of preschoolers towards the field of education in which the computer is used and towards the moral, cultural and spiritual values of society;
- xii. Improving preschoolers' motivation in the learning process;

International literature emphasizes the importance of using information and communication technologies (ICT) in education. A major impact of this can be seen in the curriculum design and development process. The present study aims to respond to the current needs generated by the implementation of a curriculum based on information and communication technologies, helping to make teaching practice compatible with this new orientation.

1.2. Educational software

Educational software of potential is an interactive-multimedia complex, representing a computer product, in various file formats, designed in accordance with a series of psycho-pedagogical coordinates (behavioral objectives; specific content; characteristics of the target group), methodological (pedagogical strategies, SKILLS materialized in work tasks), technological (ensuring data storage - essential; auxiliary central); organization of data in files; management of files with stored data, simulation and modelling of socio-cultural, evolutionary-economic educational phenomena, etc.) And technical (ensuring individualized -user-computerl interaction; sequential feedback and heterogeneous assessment), potentially implemented on a range of digital devices, including personal computers, for use in the educational process (education-instruction-self-instruction-learning-assessment-assessment) (Burlacu, 2014).

We have referred to some authors' definitions of educational software (Table 1).

Table 1. Definitions of SE (Educational Software)

Crt. no.	Author	The significance of educational software	Data source
1.	Petre Claudia	“Educational software is a computer product, in various formats, that can be used with a computer. It represents a carefully chosen topic specific to a particular field and can be an alternative or a solution to traditional teaching and learning methods. In the educational instructional process, SE is most often used at the stage of teaching and acquiring new knowledge, at the stage of deepening the acquired notions, and at the stage of checking and evaluating them. Educational software can be used to check both the knowledge acquired and the skills acquired” (Petre, 2013).	p. 3
2.	Cristea Sorin	“The pedagogical/educational software is a computer program, specifically designed to solve a didactic/educational task or problem by exploiting IAC's own technologies that ensure: data storage (essential; central-auxiliary), organization of data in files; file management, simulation, realization and formative evaluation of learning, regulation-autoregulation of the learning/educational activity” (Cristea, 1998).	p. 469
3.	Adăscăliței Adrian	“Pedagogical/educational software is a computer program, specifically designed to solve didactic/educational tasks or problems by exploiting technologies specific to computer-assisted instruction, which provides: data storage; data organization in files; file management; learning stimulation; learning achievement; formative assessment of learning; control, regulation/self-regulation and self-monitoring of learning/educational activity” (Adăscăliței, 2007).	p. 45
4.	Cucoș Constantin	“Educational software - software specially designed to teach specific topics” (Cucoș, 2006).	p. 225
5.	Vlădoiu Daniela	“Educational software is a computer program, specifically designed to solve didactic/educational tasks or problems by exploiting specific IAC technologies that ensure: storage, organization of data in files, file management, learning simulation, learning realization, formative evaluation of learning, control, regulation/self-regulation and self-monitoring of learning/educational activity” (Vlădoiu, 2005).	p. 22

Computer use in early childhood education. Integration of educational software in interactive activity" aims to identify the degree to which the use of new information and communication technologies in the framework of instructional-educational activities in kindergarten influences the children's ability to acquire knowledge and their psycho-behavioral development. Advancing learning through the use of information and communication technologies in work with pre-school children - discusses the positive impact that the use of information and communication technologies can have on the instructional and educational process of pre-school children.

Multimedia can stimulate the mental functions that support this process, thus supporting the preschooler during the course of educational activities. Through optimal use, in line with the curricular bases and the psycho-individual level of development of pre-school children, these multimedia tools can facilitate and optimize the educational process.

2. Problem Statement

Since computers are increasingly used from pre-school children onwards, updating educational content, training teachers and linking educational activities to the current and future needs of the labor market and equipping educational institutions with modern equipment are becoming an urgent necessity. There is very little scientific research on this age group, which led me to conduct research on a small sample of pre-schoolers with whom I work on a daily basis and which will be supplemented in the future with specific research on the technological impact.

3. Research Questions

- i. What is the contribution of educational software to the work of pre-schoolers?
- ii. What effects does educational software have on the intellectual capacity of pre-schoolers?
- iii. What is/are the method(s) in which ICT will be used to achieve the objectives?

4. Purpose of the Study

The purpose of this experimental research is to determine whether preschoolers' learning and skills, in particular, can be improved by using special educational software for pre-schoolers in interactive activity. Based on the formulated purpose we proposed the following research objectives:

O1 Identify the formative values and assess the efficiency of using new technologies, namely computers and educational software, in the activities carried out in pre-school education.

O2 Validate the pedagogical conditions of learning using new technologies. .

5. Research Methods

A quantitative/qualitative research on the impact on pre-school training by implementing digital learning technology in pre-school groups (advantages and disadvantages) was carried out. We conducted the research in parallel for the same level of preschool study, the large group (5-6 years old) in two groups of kindergarten no.23 in Bucharest, a period of 4 weeks of the thematic project „Winter Welcome!" in 2022.

Methods, techniques and tools used:

- i. Psycho-educational experiment
- ii. Tests
- iii. Educational software
- iv. Data measurement and interpretation
- v. Parallel batch technique

The independent variables are the experimental factors manipulated or controlled by the introduction of educational software used in the teaching activity.

Dependent variables are the effects and results found after the introduction of the independent variable.

Research steps

- i. Pre-experimental stage/Pretest
- ii. Experimental stage/ Formative experiment
- iii. Post-experimental phase/post-test
- iv. Pre-experimental/pre-test stage - in this stage, the same teaching activities were carried out with the two groups of samples by applying identical evaluation samples, which were used to establish the level existing at the time the experiment began.
- v. Experimental stage/training experiment - the experimental group was introduced to the independent variable, i.e. the computer and educational software in carrying out the teaching activity. Therefore, the design of didactic activities, their implementation, evaluation and adjustment of the activity in the experimental sample was carried out from the perspective of the introduced modification.
- vi. Post-experimental stage/Pretest - in this stage the same activities were carried out with the two samples, experimental and control, at the end of which two identical final evaluation tests were administered.

6. Findings

After the application of the final evaluation tests, we analyzed the results obtained by the two groups of subjects and we found a clear detachment of the preschoolers in the experimental group from those in the control set. In the didactic games in which we introduced the computer and educational software, preschoolers in the experimental group acquired the ability to understand and use knowledge more quickly than their peers who worked traditionally. They also became more familiar with the content, strengthened their ability to recognize, name and use geometric shapes, developed logical thinking, observation, visual memory and voluntary attention. At the same time, by working with the computer and using educational software, the children in the experimental group developed their computer skills as well as their ability to use the information received through educational software. In terms of civilized behavior skills, there is a strengthening of these skills, and in terms of socialization and relationships with others, the feedback was positive. According to the results obtained at the final evaluation, we have drawn up a plan of improvement measures for children whose behaviour was developing, planning activities with them in the following period in the framework of educational games, we have identified certain advantages and disadvantages (Table 2), which I will list as follows:

Table 2. Advantages and disadvantages of using educational software

Advantages of using educational software	Disadvantages of educational software
-software is a preferred learning medium for children because it is interactive, it seems animated, alive; -it stimulates the child's active involvement in learning, independence in solving tasks and seeking solutions, interest, curiosity; -develops insight, creativity, concentration, logical thinking, specific skills; -allows both the mind and the mind to "play" until the	-working at a computer involves a static position, putting strain on the spine and causing poor posture; -incorrect response is sometimes rated in terms of detail rather than substance; -introduces more direction in the learning process.

solution is found, this, play” leading to a small creative act that unfolds from instinct and imagination, or from playful pleasure.

Taking into account the results of the experiment, the advantages and disadvantages presented above, some practical considerations are necessary, which should be taken into account when carrying out activities in kindergarten using educational software:

- i. the educator should carefully select the software used in the teaching activity, studying its information in full;
- ii. In order to take full advantage of the potential offered by these computer systems, it is necessary for the teacher to ensure constant control over the time spent on the computer, an appropriate pace of work, a diversification of exercises according to the children's results, the use of the computer should not take away from other activities, but should complement them;
- iii. computer play should be a form of play which children can discover and learn in a planned way, a priority action in the educational process;
- iv. the educator must make an effort to use the power of the computer to give an impetus to the development of each child's skills and abilities;
- v. the simple use of educational software in the pre-school learning process does not guarantee success in learning; it must be carefully selected, adapted to the age and individual characteristics of the children, introduced at the right time in the pre-school child's activity, without excess, and, above all, for educational purposes.

7. Conclusions

From what has been presented in this paper, some conclusions can be drawn about the effectiveness of using computers and educational software in the teaching-use practices of pre-schoolers. The use of educational software in kindergarten activities, it proves to be an effective learning tool, which leads to the emergence of significant changes in the acquisition of knowledge and attitude to learning of children. Children prefer to learn through educational software rather than through traditional methods and with traditional means, and it contributes to the development of positive attitudes towards learning and to the quality of learning outcomes. In the course of carrying out the activities for the purpose of this research, we observed that the attitude of pre-schoolers to tasks with a creative character is surprising, children do not feel overburdened by them, they expect and demand them, they also work with enthusiasm, they show increased interest in the categories of educational games and have a particular inclination for what requires more effort, therefore for actions in which they can try their possibilities and in which they manage to assert themselves. Play and learning are inextricably linked, with computers and educational software becoming partners and friends of children. The use of the computer is synonymous with play, because the child has to follow certain rules, both in the handling of the machine and in communication, which is based on a specific language. The activity in kindergarten is centred on play and for this reason the computer is for children first a toy and then a tool that helps them to inform and educate themselves. The harmonious combination of learning and play ensures that pre-schoolers do not feel tired at the end of their activities, keeps them optimistic, learning with pleasure, increasing the quality

of their knowledge and competitive spirit. I believe that for the achievement of the goal proposed in this paper, very important is the degree of training of the educator, the digital competence, the pedagogical tact she shows, the love and dedication with which she does her job, the material endowment of the unit with computers, but the most important is the relationship she establishes with the children. By integrating the use of computers and educational software in the instructional-educational process in kindergarten, we found an increase in the children's interest in the activities. This type of activities changes the way of relating of some children, so the shy ones become more voluble, more active, more courageous, gain more confidence in their own strengths, more confidence and tenacity. The children learn quite easily from each other, so by cooperating in front of the computer they solve the proposed tasks much more easily, they are willing to help each other and to receive instructions from their peers, not only from the teacher. The knowledge of the age peculiarities of the children is a basic requirement in adapting the teaching strategies used in the mathematical activities in which we have integrated the computer. The planning of mathematical activities must be carried out in such a way that the children gradually and without jumps acquire the mathematical knowledge provided by the school curriculum. The general and operational objectives should be set according to the specific intellectual development of the children and the subject of the mathematical activity. The methods and procedures used in mathematical activities with the computer should be chosen in such a way as to capture the children's attention and arouse their interest in the activity. I mention that the didactic games presented in the experiment have been adapted, modified by me and carried out according to the didactic methodology, ensuring a full correlation between the specific structural elements: aim, objectives, methods, content, didactic task, rules and game action. Knowing the children's performance through continuous, objective evaluation, allows to approach them, to adjust the teaching process according to their needs, ensures good preparation for school. The study by the teachers of all the new didactic and specialized materials contributes to the improvement of the didactic activity. Computer-based activity in kindergarten ensures children's intellectual development and contributes to the gradual transition from concrete intuitive thinking to symbolic, abstract thinking, preparing children for integration into primary school. The arguments for the use of new technologies have proven to be multiple, but all of them are conditioned by the respect of certain didactic principles in the adaptation of digital resources to the age of learners and in the creation of instructional design. Therefore, the use of educational software in kindergarten activities has proved to be an effective learning tool that causes significant changes in the acquisition of knowledge and in the attitude towards learning of children. In order to capitalize on the results of this research, I will carry out in the unit where I work, demonstration lessons in which I will use new technologies in order to encourage the application of such teaching strategies by other teachers.

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