Learning through the implementation of a Multimedia Software for Mathematics and Language Arts subjects in fifth and sixth grade at Jose de la Cruz Mena primary school, Jinotepe, Carazo

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Abstract

This investigation concerns the proper use of teaching and learning strategies in the implementation of a multimedia software in Mathematics and Language Arts subjects in fifth and sixth grade at Jose de la Cruz Mena primary school in Jinotepe-Carazo. According to the research characteristics it has a qualitative approach. The information was obtained through: key informants, observation and focus group, it is a descriptive and a cross-sectional study.

The software was designed by students from the Facultad Regional Multidisciplinaria in Carazo, available resources to be installed and to be used in primary school, starting in the school object of study, and then, extend the project to primary schools from Jinotepe with ICT classrooms.

It was found that teachers in study have some difficulties with the use of technology, such as, little knowledge of computers and internet, they have no e-mail and are therefore it is a disadvantage with their students. Teachers do not have a clear definition of teaching-learning strategies in the use of educational software so that the appropriate use of available resources is difficult.

It is recommended to strengthen the teaching-learning process, methodological strategies that allow the development of competences must be facilitated to teachers in the use of ICTs when implementing the educative software.

Introduction

"Things must not be studied in the systems that make them run, but in the manner in which they are applied and the results they produce. Teaching, who does not know? It is primarily a work of infinite love" **José Martí.**

This research refers to the proper use of teaching and learning strategies in the implementation of an educational software in Mathematics and Language Arts subjects with children in fifth and sixth grade.

It is noteworthy to clarify that the multimedia software has been designed by students from the Facultad Regional Multidisciplinaria de Carazo in coordination with the Ministry of Education in Jinotepe. For the design, development and implementation of this multimedia Software, the contents of the official Curriculum and the Curriculum were taken into account.

Nowadays, the use of computers in the classroom implies a higher degree of abstraction of behaviors, an awareness and anticipation of what often becomes "automatically"; however, its use should be made in the education and training field through educational software in teaching and learning processes to give a better value; however, we face a problem and it is that ICT classrooms are rarely visited by teachers from the different subjects, in this case Mathematic, Language and Arts, due to little knowledge of computers and even of strategies to develop an educational software efficiently.

J. Sanchez, defines the generic concept of educational software like, any computer program which structural and functional characteristics serves to support the process of teaching, learning and management.

This research will provide the necessary tools to orient teachers toward an education that promotes the application of an information technology culture in all educative processes taking into account the implementation of teaching strategies for the development of an educative software.

The report provides an introduction , then the goals that guided the research, then the theoretical framework of the investigation, after that, the results of the research that guided the findings are shown and finally the recommendations and references.

General Objective

- Analyze the proper use of teaching and learning strategies in the implementation of a Multimedia Software in the subjects of mathematics and language in fifth and sixth grade at Jose de la Cruz Mena primary school in Jinotepe-Carazo.

Specific objectives

- Implement the use of multimedia software in the process of teaching and learning of Mathematics in children in sixth grade.

- Implement the use of multimedia software in the process of teaching and learning of Language and Arts in children of fifth grade.

- Identify the teaching-learning strategies the teachers know to implement a multimedia software in the subjects of Mathematic and Language Arts with children in fifth and sixth grade.

- Assess the teaching-learning strategy used by teachers to implement the multimedia software in the subjects of Mathematic and Language Arts with children in fifth and sixth grade.

Theoretical Framework

This section provides an overview of the theoretical foundations that support this research.

The school in our days

Fuentes (1999, quoted by Hernández, 2011) points out that the school has been overtaken by reality, what it is taught is not related to life. Adds that the phenomena of disarticulation of the younger generation, in relation to society, the loss of reference, violence in various forms, are today as the biggest challenge of education systems, cultural appliances and societies.

For UNESCO (Schalk Quintana, 2010) the school we know was intended for other times, therefore, it is necessary that ICT change this reality. He concludes that technology is here to stay. For the use of the computer to be productive in the classroom, teachers should be trained taking into account the reality of each country and school, which allows the teacher to be above the student with regard to technological knowledge.

To take advantage of this resource in schools, teachers must be available not only to integrate these technologies into their classrooms but to have the right attitude toward them. Sánchez (2013) tells us that teachers should be upgraded to the same technological development because if you do not know how to learn, how is the teacher going to teach children and adolescents to learn? The use of technology should help teachers to understand that teaching and learning are two sides of the same coin; because if the teacher only teaches what he or she knows and only gives what he or she has and does not have the initiative and attitude to learn, the teacher cannot have an adequate performance for the development of society in its various aspects.

This clear states that it is the duty of teachers and the educational system to integrate technology into lesson plans and about this Sánchez refers that the integration of technology into teaching and learning process should not be a fad, a proposal promoted by technology manufacturers or as a fad. The use of technology, by itself, does not solve the problems of education, although its use can contribute to show them to look for alternatives and foster new teaching-learning situations. By integrating the technology process, this process would change. Technology should be a source of knowledge and access to research and to practice in the educational community. Technology integration will allow the student to successfully confront his or her academic, professional and personal life.

The educational software as a teaching tool

According to Novoa (2013), teaching aids are mediating teaching and learning tools used by teachers and students, which contribute, on the object of knowledge to both individual and collective active participation process. The media should not only be used by teachers, but must also be of real value to students to develop interaction and specific skills.

Educational software is characterized by being highly interactive, effective use of media resources, such as, videos, sounds photos, specialized dictionaries, exercises and educational games; which help with assessment and diagnosis. The aim is to exchange more efficiently to increase satisfaction, reduce frustration and, ultimately, do tasks that have to deal with more productive student, hence: What advantages or benefits does work with educational software? Some of them:

- Allows interactivity with students, providing feedback and evaluating learning. Through that, the problem can be demonstrated as it is.

- Affects the development of skills through exercise.

- Reduce the available time to impart great deal of knowledge, introducing the student to work with computerized means.

- Transmits large volume of information in less time, in a pleasant and regulated way by the teacher.

- Facilitates individual work and at the same time, an individual treatment of differences corresponding to the assessment of students.

- Develop logical thought processes, imagination, creativity and memory.

The teacher's use of the software provides advantages, including:

- Enrich the field of education by incorporating technology that revolutionize the methods of teaching and learning.

- It is a new, attractive, dynamic and rich source of knowledge.

- You can adapt the software to the characteristics and needs of your group given the diagnosis in the teaching-learning process, allowing to raise standards.

- Controls teaching tasks individually or collectively.

Methodological Design

The population of this research consists of two groups of the school described, for a total of seventy-five students, forty from sixth grade and thirty-five from fifth grade.

As criteria for the selection of the sample, we used a purposeful sampling type (as Tamayo, 1996). In this sampling the representative elements according to the investigator are selected; which it requires prior knowledge of the entire population. The sample was composed of ten students in each grade, taking into account gender equality: Being them five men and five women in each grade. Their ages range from eleven to twelve years.

The research is characterized by having a qualitative approach, it was not used statistical data for the collection of information; we base our research on the unique experiences of our sample group. It is a descriptive research because it describes teaching strategies used by teachers. For the author (Hernández Sampieri, 2006), descriptive studies "measure, evaluate and collect data on various concepts (variables), aspects, dimensions or components of the phenomenon under investigation." We affirm that is transversal because data was collected at a single time.

Data were collected through the application of educational software, observation to students using the software run by the teacher later, in free labor, observation was made of the teaching-learning strategies implemented by the teachers and interviews the teachers on strategies known in educational software. To complement the information a focus group was conducted with students from both, fifth and sixth grade.

A descriptors matrix was made, in which the question guidelines and tools that were used to collect information is presented. Processing and analysis of information provided by teachers and students, a matrix containing the question asked and the contributions by each of those involved, this, in order to make an initial analysis and understanding of the results was developed.

Once the information was selected, organized and reflected in the corresponding matrix, we proceeded to the analysis of results. This was accomplished by objectives; each had their respective indicators and some indicators with different informants.

Results

"Every time we exercise self-criticism, every time we test our ideas against the outside world we are making science" **Carl Sagan**.

In this section the results of each of the instruments that were applied to gather information are described. First, interview results are presented to teachers who teach the grades that were studied; after the class observation with educational software is described, and finally the information obtained

through focus group to be applied to children in fifth and sixth grade is presented. The results are being described and analyzed to give response to each specific objective.

Results of the interviewed teachers

The interview consisted of four open questions that induce the expression of opinions, based on the experience of teachers, on strategies for teaching-learning as well as in the implementation of multimedia software in the subjects of Mathematics and Language Arts with children in fifth and sixth grade.

According to the informants, the strategies most used in the development of their classes are within the classification of teaching strategies according to the time of application either before, during or after the process. That the methodology applied in the ICT classroom is completely different from a traditional classroom, that is, the teacher is the only active element and therefore transmitter of information and students are only recipients of information. The furniture in the class is organized in a traditional way, ie, all the desks are facing the board and the teacher's desk is right in front of them which does not favor the participation of students. The materials used are basically the textbook and teacher explanations. They also expressed textually that "the truth is that we are not yet able to handle the advantages offered by new information technologies". The education of our children continues being based on the textbook and in the written word, therefore, the proper use of ICTs bring us great advances in education, with the consequent development of our students.

The teachers agreed to express the educational software should be implemented in most subjects, a way for students to become more interested in different subjects, feel more motivated, work in teams, consolidate and verify the knowledge acquired. We believe that multimedia software is very important because today most students use technology and schools must keep up with ICT. Teachers need to be updated, and also trained since students often know more than teachers about ICTs use.

Results of observation of teaching strategy implemented by teachers

It was found that the teachers integrate the content of education with previous experience before entering the educational software; however corresponding to reinforce learning and the objectives are not fully met, this is because the methodology implemented is the same, very traditional, as if were the regular classroom and not the ICT classroom.

It was also observed that most of the time the teacher is with the students, founding difficult to reduce the number of interventions that reduce the student initiative, without discovering that most children master the technology and they had an active role when using the educational software.

It was detected that the ICT classroom is not well conditioned to work. The space is very small, no air conditioning and there are only 6 computers that can be used although the same ones have no more lifespan.

In regards to the assessment process, teachers did not do it. Students peer-assess somehow and the student who got more knowledge told another classmate if he/she was doing well or not, the same software also allowed them to discover whether the activity was resolved correctly or not.

Results of focus group with students sample

Most children express that in class, Educational software is more fun because they do not have to copy a lot and they can practice what they have not learned very well. That the positive thing is that the same software tells them whether they did well or not. Very few students said they were not interests

in the software, but they are the ones who are not proficient in the use of ICT and have no access to technology.

All students said they would like to work with educational software in all subjects, especially those where they have to copy a lot, such as History, Geography, Science and even Civics, but also the ones we have studied with the software such as Mathematics and Language Arts. Regarding to ICT classroom, students express they need newer computers to do homework more quickly. In this aspect, we coincide with what students say.

Conclusions

1. Teachers identify a variety of teaching and learning strategies to be applied in the classroom, but not in the ICT classroom for educational software.

2. Lack of knowledge about how to use technological resources was observed.

3. The use of educational software in Mathematics and Language Arts classes was a motivating experience, dynamic and creative |for children, at the same time this experience provided them new forms of learning.

4. Lack of conditions in ICT classroom: space very small, few computers that already gave their lifespan, neither have air conditioning in the room.

5. The necessity to develop teaching and learning strategies that enable teachers to use ICT is observed, particularly the proper use of the educational software for working with students.

Recommendations

To FAREM-CARAZO:

1. To Train teachers from school Jose de la Cruz Mena in theoretical and operational skills in the use of technological resources, specifically in educational software.

2. To Provide educational, teaching methodologies that enable teachers to develop skills in the use of innovative strategies when implementing the educational software.

3. To Continue making research to compare students using multimedia software and those who do not use it, to get to know learning outcomes.

To the School administration:

• Integrate into your practice, proper and consistent use of educational software as well as the monitoring and advisory in the proper use of ICT for the proper development of students learning, especially for the less advanced students.

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Pictures Gallery

Boys and girls using multimedia software of Mathematics and Language and Literature