ICT in teaching children aged 6-9 years. The Polish approach. (Ist educational stage)

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Abstract

We discuss the problems of introducing ICT to the teaching and learning process in first stage of a school education. We describe the main points of a new polish core curriculum for this first educational stage, which assume the application of ICT to this stage.

In main part we describe educational packages, which were created by OEIIZK for the order of Polish Ministry of Education under the project "The use of modern technologies at the stage of early childhood education". The packages are dealing with the following subjects:

- We start work at the computer with the young children
- Preparation of teaching aids for the youngest children
- Logo in teaching the youngest children
- Working with graphics, film, sound
- The safety of the youngest children while using a computer

The aim of this packages is to inspire the teachers to rational and useful work with the youngest pupils and to the use of modern technology during the lessons. Finally we discuss the feedback of the created packages.

Figure 1. Educational packages DVD

Keywords

Early childhood education, didactic microworlds, educational movies, safety work with computer, teaching aids, Logo.

Introduction

The reform of the Polish educational system, launched in the 2009/2010 school year reduces school age from 7 to 6 years (In the most EU countries, children start school at age 6) [1].

Now we are under transitional period in which it is not mandatory targeting 6-year olds in schools. The parents are the one who decide whether their children will learn in school at age 6 or 7 years. However the first step teachers must reckon with the presence of the 6 year old pupils, and adapt to them the way of conducting lessons.

At the same time since the beginning of the 2009/2010 school year, a new course called "Computer Classes" has been introduced into primary school curriculum. This new subject is introduced in the first two cycles of education (from 6 to 12 years) [2].

For the first time the youngest pupils from grades I-III are obliged to use computers in their learning process.

That is why there is the need of proper preparation of the first step teachers, to use ICT during teaching and learning process.

It seems to be very important to propose the teachers not only a number of the well prepared materials, which they can use during the computer classes with the youngest children. It is important to encourage teachers to generate their own materials.

These objectives are included in the educational packages implemented by OEIiZK for the Polish Ministry of Education under the project "The use of modern technologies at the stage of early childhood education."

Prepared materials are related to the such important issues as: start working on the computer, preparing teaching aids, learning through fun, safety during the work with computer [3].

ICT in the new core curriculum – I[st] educational stage

The new core curriculum includes the following skills for the student terminating the first grade [1, 2]:

1. He/She uses the computer on the basic level: runs the programs, use the mouse and the keyboard,
2. He/She knows how to use the computer, in the way to not endanger his/her own health,
3. He/She follows to the restrictions of the computer use.

The skills of the student at the end of the third grade, are:

1. He/She knows how to operate with the computer:
   a. how to use the mouse and the keyboard,
   b. how to correctly name the main elements of the computer system unit;
2. He/She knows how to operate the selected programs or educational games, developing his/her interests, uses the options in the programs;
3. He/She can search for the information and knows how to use it:
   a. browsing web pages which were selected by the teacher (for example the web of his/her school),
   b. recognizes the active elements on the website, navigates the pages in a specified range.
   c. runs animations and multimedia presentations;
4. He/She creates text and drawings:
   a. enters with the keyboard letters, numbers and other characters, words and sentences,
   b. creates the drawings using the selected graphics editor, e.g. using ready done geometrical figures;

5. He/She knows the risks arising from the use of computer, Internet and multimedia:
   a. knows that the work on the computer is tiring for the eyes, can cause spine strain, limit social contacts,
   b. is aware of the dangers arising from the anonymity of contacts and giving his/her address to the others,
   c. follows to the restrictions of the computer, Internet and multimedia use.

Working with computers is a particularly difficult task for teachers teaching young pupils. They should introduce themselves to the school use of modern technology in such a way as not to disrupt the harmonious development of their students.

ICT should be used to support teaching and learning, it is not an end - a separate course that focuses only on employing computers in isolation from other activities.

It becomes necessary to gain by the teacher who works with children in grades I-III, a broad knowledge of the methods of using the computers, Internet and multimedia teaching aids.

Educational packages developed within the project "The use of modern technologies at the stage of early childhood education"

In the autumn 2009 Methodical Center for Psychological and Pedagogical Support (CMPPP) carried out on the behalf of the Polish Ministry of Education project "The use of modern technologies at the stage of early childhood education".

The project was created to help the teachers to prepare themselves to teach with the computer.

It provides, inter alia, the preparation of five packages for direct use in school while working with children. The aim of the project was also to develop cascade training for preparing to work with the packages - 16-hour training for master trainers and 12 hours for ordinary primary school teacher (classes I-III). The teacher training included also 2-3 weeks of teacher self work using online method.

This training part of the project was carried out by OEIiZK.

Team of consultants and experts from Computer Assisted Education and Information Technology Centre (OEIiZK) has developed for the project the following packages:

1. We start work at the computer with the young children
2. Preparation of teaching aids for the youngest children
3. Logo in teaching the youngest children
4. Working with graphics, film, sound
5. The safety of the youngest children while using a computer

Each of the packages can be used separately. However the contents of the different packages are often linked. For example, the same pictures can be used as illustrations in the application "Words puzzle" (package: Logo in the teaching the youngest children) or for creating a movie from photos (package: Working with graphics, film, sound).

A graphics files needed to complete the exercises can be downloaded from the Internet, but in such cases appears the issue of copyright and Internet security (package: The safety of the youngest children while using a computer).

That is why the allocation of a specific issues should be targeted to the specific situations. The elements of the packages should be used by teachers in accordance with the needs for a particular lessons.

In addition to the educational packages, a syllabus for training trainers and teachers, trainer guide and teacher handbook have been prepared [3]. On the OEIiZK platform of a distance learning (http://szkolenia.oeiizk.waw.pl) additional supporting teacher training course has been placed as well.

A pilot training for the trainers from all over the Poland took place in October 2009 in OEIiZK. This training involved 80 trainers. Next the trainers trained 1200 I[st] stage teachers in their provinces.

Each of the trained teachers received a manual and a DVD with educational packages.

Package: We start work at the computer with the young children

This package covers the specificity and the rules of teaching the youngest pupils with the ICT support.

It contains descriptions and examples of implementation of the valuable educational software (Sebran, Kea Coloring Book, Tux Paint) and suggested interesting websites.

The integral part of the package are detailed scenarios of lessons, along with the supplementary material (student work cards, presentations for use by the teachers, drawings for the exercises, etc.).

The package contains four scenarios: "Getting Started with PC", "Playground", "Proper writing" and "We tell a story". The DVD also contains PDF files, and instructional videos to help teacher to become familiar with the presented educational software.

Figure 2. Kea Coloring Book Software

Package: Preparation of teaching aids for the youngest children

The aim of the materials placed in the second package is to supply teachers with the knowledge and practical skills for the needs of self design the teaching aids using the computer.

They include descriptions how to prepare a simple teaching aids by using office programs such as: PowerPoint, Word and a program to generate a crossword - EclipseCrossword.

The main task of the package is to show the teacher the ability to create valuable teaching tools using publicly available tools (word processor, presentation preparation program), which does not require the expertise or programming skills.

The included DVD contains the examples of teaching aids, which are designed to be an inspiration for the teacher for creating its own ones, relevant to the content they teach young

pupils. The package contains three scenarios: "The first spring flowers", "Animals Protected in Poland" and "Proper writing". In addition to the scenarios, the teacher may use supplementary materials such as demonstrations, exercises for the student in the form of presentations, multimedia, crosswords, etc.

Most of prepared aids does not require to work with the pupil in the computer lab. They can or even should be used while teaching pupils in the regular classroom equipped with one computer and video projector or interactive board.

Students should carry out various exercises under the teacher supervision, and try to solve problems in the group.

Figure 3. The first spring flowers

Package: Logo in the teaching the youngest children

This Logo package does not require any programming skills from students or teachers [4].

It includes ready-made applications – didactic microworlds – using which pupils can develop the ability to identify directions, rotations to the right or to the left, mapping shapes, finding the repeated elements. Students are also trained to add integers, increase their perception and focus attention.

The basic application of the package is "Control the Turtle". Three lesson scenarios use this application: "We start playing with the turtle", "Small and great turtle steps" and "We teach a turtle how to draw smarter".

The set of exercises, and a version of the program which allow the teacher to modify the tasks in order to prepare his own lesson with this application is also included.

The package also contains three other didactic microworlds to work with children: "Alphabet puzzle", "Words puzzle" and "Playing with the memory".

Teachers can prepare their own sets of exercises for these applications, using photos or graphics or pictures done by the pupils.
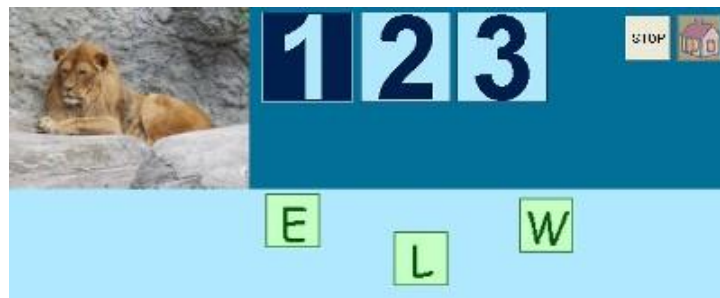
Figure 4. Words puzzle - didactic microworld

Package: Working with graphics, film, sound

In the package "Working with graphics, film, sound" we discuss the ways of creating educational films consisting of a sequence of images – Digital Story Telling. There are described the rules for searching the imagines, the methods for editing them and in detail the process of creating a movie in a Photo Story Application [5].

The teacher may carry out under this package the four following scenarios: "We tell a story", "Digital ZOO", "Where does the honey come from?" and "Digital legends".

Supplementary materials in the form of work sheets, examples of films, film scripts and the images examples which can be use for creating the movie are included with the scenarios.

In addition, teachers receive ideas for the new tasks for students and instructional materials.

Figure 5. Digital ZOO – educational movie

Package: The safety of the youngest children while using a computer

The last of these packages is devoted to the introduction of the issues associated with various hazards which can appear during work with computers, especially when we are using the Internet resources [6].

The classification of the most common hazards for the computer users is presented in a concise manner. The special attention is focused on the youngest students.

We discuss also the ways to prevent hazards and show the examples of the didactic materials covering these matters for the use while working with students.

In the package, there are three scenarios: "Safe work with the computer", "Safe use of the computer – computer lab statute" and "Computer lab statute - video story".

The student may also watch the instructional films showing correct behavior in the lab and the exercises which can be performed during the intervals of using the computer.

Teachers receive the information concerning the preparation of the computer lab in order to work in it with the youngest pupils, safe behaviors during Internet surfing, methods of blocking unwanted content, copyright, etc.

Figure 6. Safe use of the computer – computer lab statute

Summary

The main aim of the materials prepared within the project is to inspire the teachers to rational and useful work with the youngest pupils and to the use of modern technology during the lessons. The materials are not a full multimedia programs, in which students choose several different options, with no reflection to the relevance of actions they take.

Using a computer is not an end aim in itself - the student should assimilate the new knowledge in an constructivist approach: learning by creation.

The prepared packages have met with the great interest. Trainers and teachers participating in the trainings have been expressing a positive opinions about their usefulness.

A quote from the Forum of Trainers:

"I have noticed in other posts, that the participants impression after your trainings are the same as after mine ones. All participants praised the prepared training manuals and materials. I heard from several participants that finally they got a manual, materials and aids that are tailored to children's learning in the classes I to III."

A quote from the Teachers Forum for the package: We start work at the computer with the young children:

"I have examined the scenarios and I can say that I could done them all while working with children in my school. Indeed, each of them in interesting ways (depending on the ongoing lesson theme) teaches pupils specific skills and broaden their knowledge. Children learn the rules for carrying out work on the computer, done the content of the curriculum of early child education (math, polish language and literature, art ....). This contents are correlated and pupils can have a great fun while learning, this is very important in work with this age group."

A quote from the Teachers Forum for the package: Logo in the teaching the youngest children:

"It's a great program that develops logical thinking, but also the three-dimensional imagination and abstract thinking.

Children quite unconsciously improve visually - motor coordination. Learn about the world of mathematics, without being aware of it...”

References

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[5] About Digital Story Telling – *http://www.techteachers.com/digstory/ideas.htm, http://www.storycenter.org*

[6] Computer Hazards – *http://www.cln.org/spam.html*