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Make it, then play on your computer and musical instrument

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1. PC in the classroom

The computer in Serbian classrooms is a rare sight, especially from the first to the fourth grades of elementary schools. Lots of reasons have attributed greatly to such poor performance, the omnipresent economic crisis mostly, crises and reforms in education, the latter actually never happened, the shortage of qualitative software (…) but inertness, conformism and the absence of the will and readiness among teachers to exploit the available scarce resources. The long list does not end here, we should join to it the (groundless) fear (read: vanity) of teachers which is caused by the fact that scores of pupils are far better „knowledgeable" in IT technology compared to their teachers, in that way the teachers` integrity and their pictures of „omniscient experts" would be greatly a hazardous, risky thing to do. And teachers are not very happy about it, it is not a permissible situation for them.

The software we have created was not made in a day. It came to life during a lengthy few years` work in elementary schools and with its contents is intended to pupils and teachers in lower grades (first to fourth) of elementary school.

Due to this targeted group and the above mentioned reasons, the use of our software is simplified as much as possible (but its use is not a banality) so as to be handy, easy to use even to the greatest informatics illiterate person/pupil. The second condition/reason in developing the software was that a lot of tasks can be realized by using just one single computer (…). Through direct contacts with colleagues, while promoting the software, we were trying to bring closer the simplicity of its usage and express its vast range of its application and the enormous freedom you have when you use it during classroom work. It enables teachers to be creative and innovative which is a radical change in classroom methodology.

For applying a developed software the main rule is: „minimal informatics knowledge – maximum of didactic and methodological freedom". This concept attracted a great number of teachers in getting the educational software and use it in the classroom work.

2. The classroom in the PC

We were taught that a picture is worth a thousand words. But, empirically we have been ensured that a single animation is worth more than a thousand pictures for thousands of pictures, shown one after another in series at great speed, is a living picture, it becomes alive: a film, a video, an illusion (…). If that animation is accompanied by the sound (speech) we achieve an incomparable effect onto the teaching and learning processes. If we give the pupil an animation together with the sound and the possibility of first-hand (immediate) practical work, the results of such an obvious mode of teaching are not comparable. Our knowledge, obtained in practice, has proved this statement. In the light of those facts and knowledge we created the educational software with over a thousand animations and sound effects [Hilchenko 2009].

This educational software has more than 220 problems, logic, situational and practical (manipulative) tasks, divided into 7 fields (units) as follows: maths, language, the world around us (science), music, art, puzzles and practical assignments whereas the tasks, some of them, have a few levels, ranging from easier to harder ones. From that abundance we have chosen just one task which will illustrate how the „classroom in the PC" can be applied during a music lesson.

3. The didactic and methodological conception of teaching on the example of a music lesson realized by the help of a PC

How will the pupils using software gain and check their knowledge, abilities and skills, encourage the development of complex psychical processes and manipulative dexterity and nimbleness of hand and fingers (even the coordination of legs and feet) through practical work and activities in a series of situational and problem tasks, the software package includes, but demands as well a greater number of external didactic materials [Hilchenko 2009].

A day beforehand to the music lesson in the third grade of elementary school, the teacher gives his pupils printed material (picture 1) where all the necessary things are shown. They are all needed to make a children's musical instrument, wooden xylophone with nails of metal. The pupils will bring only tempera paints, brushes, scissors and glue. The rest of the material, wooden frames, nails, self-sticking sponge ribbon and knockers, they will get at school.

3.1. The course of the first music lesson

Third grade

(20–25 pupils)

Unit: **We are making and playing music on the musical instrument** *(a new unit, introductory and working out).*

Introduction:

– *listening to a piece of music* **The Play of a Dead Man** *by* Camille Saint-Saëns *where the xylophone is heard, conversation on the musical instrument, its kinds and the following task.*

Main part:

– *making a children's xylophone. The class is divided into group of 5 pupils (each group has one PC), pupils follow the given rules from the educational software, color the nails to be of the adequate colour (= the sign of the tonal height, altitude and finally put together the xylophone made of nails) (pictures 2–6),*

– *in order to make the frames harder (more solid), let the colour and glue dry while pupils play music on PCs. The called over pupils try to play a piece of two offered pieces of music on the PC but they are allowed to hear it just once. They should play it independently and without a single mistake on the computer's interactive xylophone. This task is very demanding and can be performed only by pupils who have got the perfect sense of hearing. Other pupils need a lot of practice to play the piece of music well enough (pictures 7–10).*

Final part:

– *pupils get note, music papers according to which they have to practice playing the musical piece on the computer (picture 11);*

– then we go onto the following web page:
   http://www.flashmusicgames.com/kids/kids_ksilofon.html;

– *the pieces of the future xylophone are taken home by the pupils, they will finish them there and bring to school for the next music lesson when they will have to demonstrate the knowledge of playing musical pieces on the instrument they made all by themselves. Of course, they have to practice at home.*

Teaching aids: *PCs* (5 + 1)*, loudspeakers, a beam projector, a printer, printed didactic materials, tempera paints, brushes, scissors, some glue, wooden frames, nails, self-sticking sponge ribbon and knockers.*

Methods of work: *verbal-textual, illustrative and demonstrative, the method of guessing and making mistakes.*

Ways of classroom work: *frontal, group and individual.*

Aims/Out-comes:

– *correlation with the subject From a toy to the PC (unit: Mouse);*

– *get the pupils know and become familiar with music making and musical production of various composers, develop the need for independent musical research, rousing the development of the fine, minute muscles of hand, fingers and arms (mouse) and manipulative skillfulness of pupils' hands and arms through practical work and playing music on children's musical instruments;*

– *be able to reproduce a piece of music just by listening to it, be able to use the given instructions in making various didactic materials; be able to use the mouse precisely as well as different tools and utensils, to get to know the computer much better.*

3.2. The course of the second music lesson

Third grade

(20–25 pupils)

Unit: **We are playing music on the xylophone** *(strengthening the gained knowledge).*

Introduction:

– *pupils demonstrate how they did their homework – made a wooden xylophone.*

Main part:

– *pupils, one by one, come to the teacher's PC (with a beam projector) and play their first learnt piece of music on the interactive xylophone and get the mark for doing so,*

– *pupils play the other piece of music on their wooden, handmade xylophone, one by one, and get their marks for that.*

Final part:

– *pupils are given a new task for homework, they have to write music on the following theme:* **The Spring Has Arrived** *and also to learn how to play it on their musical instruments.*

Teaching aids: *a PC* (1), *loudspeakers, a beam projector, a wooden xylophone and knockers.*

Methods of work*: verbal, textual, illustrative, demonstrative, the method of guessing and making mistakes.*

Ways of work: *frontal, individual.*

Aims/Out-comes:

– *correlation with the subject The World Around Us (unit: Spring),*

– *get the pupils know the multi medial possibilities of the computer, develop their need for musical creativity, and the manipulative skillfulness of pupils' hands and arms,*

– *teach them to compose melodies on the given themes,*

– *and finally, learn how to work on the computer.*
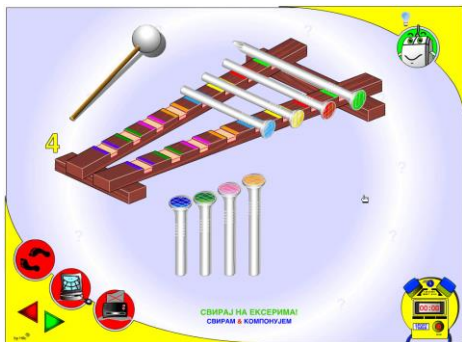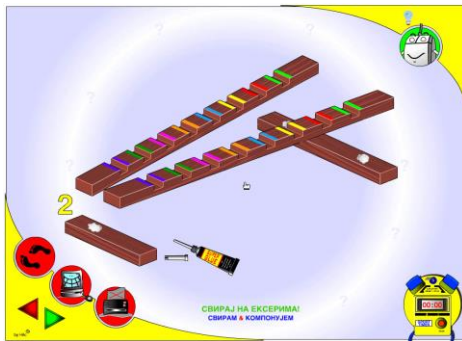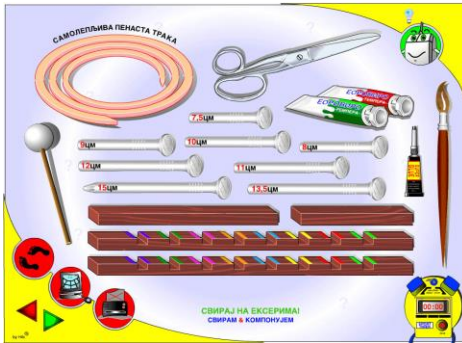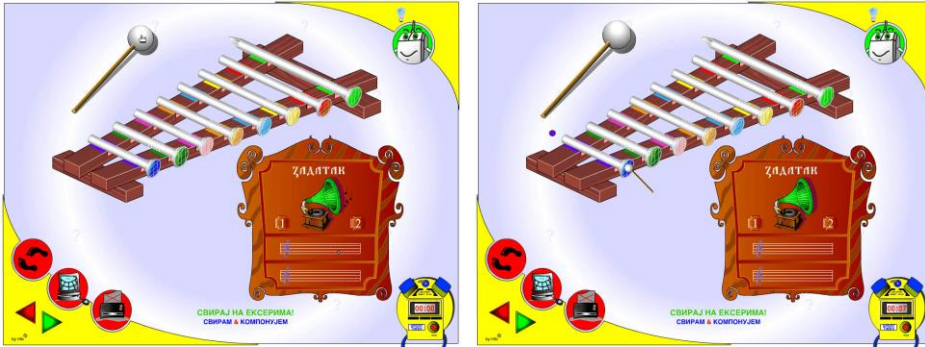
Pictures 1–10. Play music on the nails

Picture 11. The music paper of the piece of music pupils have to learn to play at home as their homework

4. Connotation?

We, who apply computers during educational processes, must accept that theory is very often far away from practice and vice verse. But it is up to our agility, systematic changes, education, seminars and conversations among teachers which can make a big difference and help to make computers more approachable and used in lower grades of elementary schools. Computers in classrooms will never be a massive, most often seen vision, because it depends great-

ly on the **way** and **manners** of pupils of that early age (7–11). Pupils still learn in manipulative-practical mode and they are passing over to creating abstract ways of thinking. Due to the situation, the computer must have more room and usage in upper grades of elementary school (5–8) where it is still a „rare guest". Although that is not an obstacle for the efforts intended to change the situation onto the better one, more favourable for the computer, and such an orientation should be improved and encouraged.

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Abstract

The educational software called „From Toy to Computer", which we have been developing for five years, is our Identity Card. It is meant to be used by pupils in elementary schools from the first to the fourth form (grade, 7 to 11 year olds). Its contents is an inexhaustible well in the terms of didactic and methodical sciences. The chosen examples, from the plenty of offered school subjects and heterogeneous tasks, will illustrate how to combine traditional school, practical handling, modern IT technology (computing science), creativity and talent

and fit in a harmonious integrity and be inspirational, motivational and educational at the same time in teaching and learning music.

Key words: a personal computer, music, practical and handy work, creativity, talent.

Stwórz, potem zagraj na komputerze i instrumencie muzycznym

Streszczenie

Oprogramowanie edukacyjne zwane „From Toy to Komputer" („Od zabawki do komputera"), które nieustannie rozwija się od 5 lat, jest naszym Dowodem Tożsamości. Oznacza to, że może być wykorzystywane przez uczniów szkoły podstawowej, od pierwszej do czwartej klasy (od 7 do 11 roku życia). Jest to pewnego rodzaju studnia bez dna, biorąc pod uwagę dydaktykę i metodykę. Wybrane przykłady z wielu przedmiotów szkolnych, jak również różnorodne ćwiczenia ukazują, jak można połączyć tradycyjną szkołę, praktyczne podejście, nowoczesną technologię IT, kreatywność oraz talent, aby dopasować się do harmonijnej integralności, a w tym samym czasie być motywującym, inspirującym i kształcącym czynnikiem w nauczaniu i uczeniu się muzyki.

Słowa kluczowe: komputer osobisty, muzyka, praca praktyczna i manualna, kreatywność, talent.