

THE POSSIBILITIES OF UTILIZATION OF EDUCATIONAL CD IN THEMATIC PART “MAN AND ENVIRONMENT”

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Abstract: *This paper is devoted to created educational CD for textbook of nature science (the 4th year-class of basic school) for thematic part “Man and Environment”. By this contribution we followed implementation of educational MS Power-Point presentations into classic lesson and post-confrontation of knowledge level of pupils, who learned this thematic part by educational CD and these, who learned it without using one.*

We prepared 9 MS Power-Point presentations for introduced theme. Presentations were evaluated at the Basic school with kindergarten in Horných Obdokoviach.

As a part of every presentation there are test questions. By their right solving, it can make possible to pupils to continue in exist thematic part. In case of wrong answer to test question pupils will see text which was bad understood by them. After repeated reading over it is hypothesized that pupils will answer the question well. From analyse of results of test, which was written by pupils after taught thematic part “Man and Environment”, follows that, pupils, who worked with educational CD, had results by 6,34 % better than pupils, which did not use educational CD.

Key words: *educational CD, man and environment, didactic test*

Introduction

Nowadays media have major force even to process of enlightenment at schools. Media bring us many information and to know how to orient and use them for own benefit it must be the base competition of a teacher (Lengyelfalusy, 2000). When we want to teach effectively and interestedly, we should include in schooling modern informational technologies. It is valid even for pupils at primary stage of basic school. The computer is modern informative even communication instrument, which can increase professionalism of teacher’s work. It is not only to provide access to technique at schools, there must be clear image, what we want to obtain from computer, how to plan teaching process with new educational programmes.

The advantage of work with computer is possibility to repeat interpretation in

case of need. The programmes can also have emphatic motivational character – graphic, colour, tone, didactic plays and clearness and by these pupils can be rope in even less attractive subject matter. Work with educational CD on lessons of nature science is one of possibilities how to improve the quality of schooling process.

Meaning of informative-communicational technologies in educational process.

Informative and communicational technologies do not undertake only a function of supporter of new way of teaching; they change present form but not methodology of teaching. New technologies are not devoted only to this to help and minimize it what is made by teachers. They must help with turning point of existing process. This change has two demands for informative-communicational technologies. It means to create motivate atmosphere and availability of information.

Satisfaction of both requirements can make possible to interested persons about education to obtain available information and to change it into knowledge. The creation of available information and setting up of motivate background is task for all pedagogical workers not only for teachers (Šimková, 2006).

In the connection with informative competences we get use to utilize two notions: **informative literacy and computer literacy.**

In context of established methods and means of electronic education into educational process, there can be showed falling of classic importance of school during data acquisition. In this respect there is needed to adopt ways, find and mainly work into information, which is demanded to make safe already at the basic level of computer literacy.

Work with IKT evolves visualization better than only using textbook. In preparation of introduced educational programmes we go out also from knowledge, which is mentioned in textbook nature science for the 4th year-class of basic schools written by Stanko, Stanková (1998). This textbook is suitable duplicate, instrumental, repeating and pro-educational learning facilitation. Simultaneously utilization of textbook and educational programme make safe quicker and more complex acquirement of curriculum, good retroaction and also serve for examination of fixed piece of knowledge. As a classic black board for using ITK we can understand monitor of computer, which allows besides redistributing, piling up and complementing figures, transparent covering and insertion of clips (Dytrtová, Sandanusová, 2005).

The more large space is for pupil, the higher is individuation of school teaching. If pupil has possibility to advance by own way, there is bigger supposition, that he or she will learn more. Own confidence will be also increasing because risk of failure is less (Kosová, 1998).

The aims of work

The main aim was to show new possibilities of ITK using in the 4th year-class at basic school in subject Nature science, in thematic part “Man and Environment”. There were created 9 MS Power-Point presentation on themes: Environment of man, Impor-

tance of air for man, Importance of water for man – excrete of fluid waste, Importance of food for man – digestion, Reproduction, Parents’ care of child after birth, Changing of development in period of puberty, Securing of basic conditions of human’s life, Health care.

Method of work

After teaching thematic part “Man and Environment” pupils wrote didactic test, which aim was to find their knowledge and compare it with results, which was obtained in test by pupils, who learned this thematic part without using of MS Power-Point presentations.

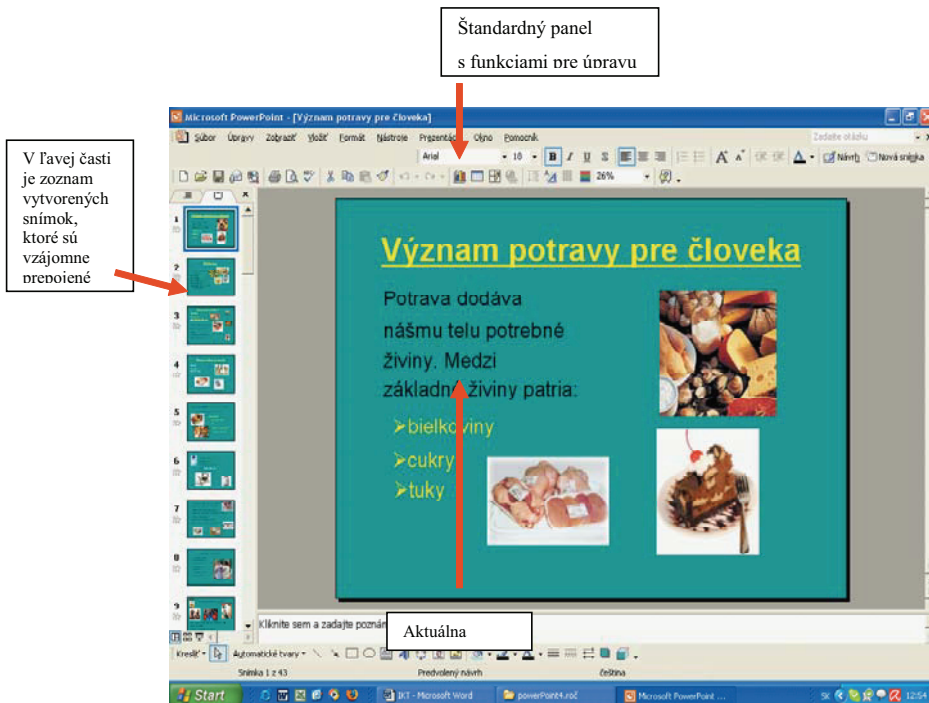
We supposed that, pupils, which are working with introduced presentations have possibility to come back to learning more times, have at their disposal more pictures and continuously can test right understanding of text, will write didactic test with better effects.

During formation of multimedia presentation we held to according to curriculum and educational standards.

The action during creation of multimedia presentation

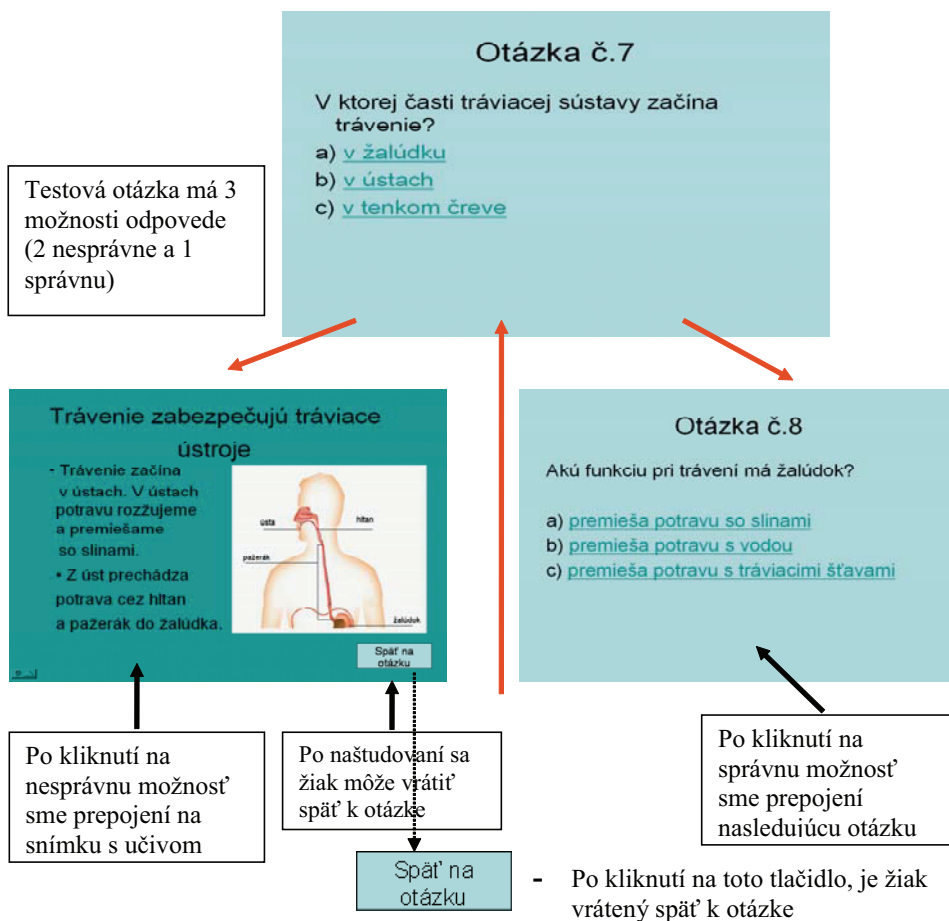
Multimedia presentation is made in programme MS Power-Point. It is divided into more pictures, which are mutually interconnected by hyper lines, what can make possible to pupil independent move in presentation without help of teacher (picture 2). Our presentation was split in expository part and test one. Pupil after passed explanation can evaluate obtained knowledge in test part. Presentation is intended for pupil, its graphic form has motivated task. Window of programme MS Power-Point is divided without usual boards into possibilities along edges for three main parts and each of them is focused on something different (**miniatures of pictures** or **outline and pictures** – Picture 1).

Picture 1: The possibilities of programme MS Power-Point



notices - under pictures in the bottom of screen

Picture 2: Principle of interconnection in presentation



The qualitative and quantitative analysis of results of pupils' work in testing of knowledge level

Pupils in the 4th year-class of Basic school in Horné Obdokovce worked out test with 10 questions from thematic part “Man and Environment”. The questions were evaluated from 1 to 7 points, what resulted from difficultness of task. Test was elaborated by 23 pupils, before this all used educational CD.

Maximum of points, which could be got by pupil, was 24 ones. From possible 552 points pupils obtained 523, which is 94,55 %, the average per pupil is 22,74 points. Spread of got points introduced value 3,84 and deviation from average was 1,96 points. Standard error in test reached value 8,62. The same test was solved also by pupils in the 4th year-class at Basic School in Ludanice, but pupils learned this theme without using IKT. Results are showed at tables 1 and 2.

Total number of points was 488, it means for 35 points fewer than in class with IKT. The averages were therefore 22,74, or more precisely 21,22. Index of fruitfulness of all pupils from whole tasks was 94,75 at school with IKT, while at school without IKT index was 88,41 %.

Significances of spread in number of points from particular test tasks were at school, where teaching was not by form of multimedia presentation, greater in all tasks. It means that there was greater disparity in number of got points. At school, where teaching was by form of multimedia presentation, significances of spread were from the same reason smaller. Standard error reached at school without IKT 0,55 and variation coefficient up to 12,47 %.

Apparently from results at school with IKT (table 3 and 4) and from results at school without IKT (table 1 and 2), results are in all directions better at school, where pupils used informative and communicative technologies during learning.

Conclusion

The results of our research show, that education by multimedia presentation excites greater interest in pupils as classic lesson. Also many pictures, animations and objective schemes make easier for pupils to understand subject matter. Impression in effectiveness of educational process has even fact, that pupil can use presentation a number of time consecutive. Own knowledge is tested by testing tasks, problems questions too (ČÍŽKOVÁ, 2002), continuously. These tasks can motivate even feeble pupil to get the best results. We believe, that similar educational CD will be used on lessons of nature science more often and variegated educational process.

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MOŽNOSTI VYUŽÍVANIA EDUKAČNÉHO CD V TEMATICKOM CELKU „ČLOVEK A JEHO ŽIVOTNÉ PROSTREDIE“

Abstrakt: V príspevku poukazujeme na vytvorenie edukačného CD k učebnici prírodovedy pre 4. ročník ZŠ, k tematickému celku „Človek a jeho životné prostredie“. Prácou sme sledovali implementáciu edukačných power-pointových prezentácií do klasickej vyučovacej hodiny a následné porovnanie vedomostnej úrovne žiakov, ktorí sa tento tematický celok učili pomocou edukačného CD a tých, ktorí sa učili bez použitia edukačného CD.

Vytvorených bolo 9 power-pointových prezentácií k uvedenému tematickému celku. Prezentácie boli overované na Základnej škole s materskou školou v Horných Obdokovciach.

Súčasťou každej prezentácie sú testové otázky. Ich správne riešenie umožní žiakovi pokračovať ďalej v učive daného tematického celku. V prípade nesprávnej odpovede na testovú otázku sa zobrazí text, ktorý žiak nepochopil. Po opakovanom prečítaní je predpoklad, že žiak odpovie na otázku správne. Z analýzy výsledkov testu, ktorý písali žiaci po odučení tematického celku „Človek a jeho životné prostredie“ vyplýva, že žiaci, ktorí pracovali s edukačným CD mali výsledky o 6,34% lepšie, ako boli výsledky v triede, kde edukačné CD nebolo použité.

Kľúčové slová: edukačné CD, človek a životné prostredie, didaktický test

Table 1 Quantitatives analysis of results from test without using IKT

B	A										Σ	I ₁
	question 1 1 point	question 2 3 points	question 3 3 points	question 4 4 points	question 5 2 points	question 6 1 point	question 7 1point	question 8 1point	question 9 1 point	question 10 7 points		
1.	1	3	2	3	2	1	0	1	1	7	21	88
2.	1	3	3	4	2	1	1	1	0	7	23	96
3.	1	2	1	4	1	1	1	1	1	6	19	79
4.	0	1	2	3	1	1	1	0	1	5	15	63
5.	1	3	3	4	2	1	0	1	1	7	23	96
6.	1	3	3	4	2	1	1	0	1	7	23	96
7.	1	2	2	3	0	1	1	1	1	6	18	75
8.	1	3	3	4	2	1	0	1	1	7	23	96
9.	1	3	3	4	2	1	1	0	1	7	23	96
10.	1	3	3	4	2	1	0	1	1	7	23	96
11.	0	2	2	3	2	0	1	1	1	6	18	75
12.	1	3	3	4	0	1	1	1	1	7	22	92
13.	1	3	3	4	2	1	0	1	1	7	23	96
14.	1	3	3	4	2	1	1	1	1	7	24	100
15.	0	2	2	3	2	0	1	0	1	5	16	67
16.	1	3	3	4	1	1	1	1	1	7	23	96
17.	1	3	3	4	2	0	0	1	1	7	22	92
18.	1	3	3	4	2	1	1	1	1	6	23	96
19.	1	2	1	3	0	1	1	0	1	7	17	71
20.	1	3	2	4	2	1	1	1	1	7	23	96
21.	1	1	2	4	2	1	1	1	1	7	21	88
22.	1	3	3	4	2	0	1	1	1	7	23	96
23.	1	3	3	4	1	1	1	1	1	6	22	92

Table 2 Quantitatives analysis of results from test without using IKT

	question	question	question	question	question	question	question	question	question	question	Σ
	1	2	3	4	5	6	7	8	9	10	Σ
Σ_{\max}	23	69	69	92	46	23	23	23	23	161	552
Σ	20	60	58	86	36	19	17	22	18	152	488
R	1	2	2	1	2	1	1	1	1	2	9
x	0,87	2,61	2,52	3,74	1,57	0,83	0,74	0,96	0,78	6,61	21,22
I_2 (%)	86,96	86,96	84,06	93,48	78,26	82,61	73,91	95,65	78,26	94,41	88,41
Mo	1	3	3	4	2	1	1	1	1	7	23
Me	1	3	3	4	2	1	1	1	1	7	23
s^2	0,12	0,43	0,44	0,20	0,53	0,15	0,20	0,04	0,18	0,43	7,00
s	0,34	0,66	0,67	0,45	0,73	0,39	0,45	0,21	0,42	0,66	2,65
V_k (%)	39,60	25,16	26,38	12,01	46,50	46,91	60,74	21,80	53,89	9,93	12,47
SE	0,07	0,14	0,14	0,09	0,15	0,08	0,09	0,04	0,09	0,14	0,55

- Σ_{\max} the number of points, which pupils could get maximum
- Σ the number of points, which pupils really got in exit task
- I_1 (%) index of fruitfulness of pupil
- I_2 (%) index of fruitfulness of task
- A represent numerical number of question and number of points, which could be get in exist question
- B represent numerical number of pupil
- x arithmetical mean of number of got dots
- R variational extent – extent of maximum and minimum significance of number of got points
- Mo modus – number of points, which pupils got most frequently in factual task
- Me median – medial value of number of points, which pupils got in factual task
- s^2 spread of number of points, which pupils got
- s standard deviation of the got points
- V_k variation coefficient
- SE standard error

Table 3 Quantitatives analysis of results from test with using IKT

B	A										Σ	I ₁
	question 1 1 point	question 2 3 points	question 3 3 points	question 4 4 points	question 5 2 points	question 6 1 point	question 7 1point	question 8 1point	question 9 1 point	question 10 7 points		
1.	1	3	2	3	0	1	1	1	1	6	19	79
2.	1	3	3	4	0	1	1	1	1	7	22	92
3.	1	3	3	4	2	1	1	1	1	7	24	100
4.	1	3	3	4	2	1	1	1	1	7	24	100
5.	1	3	3	4	2	1	1	1	1	7	24	100
6.	1	3	3	4	2	1	1	1	1	7	24	100
7.	1	3	1	4	2	1	1	1	1	7	22	92
8.	1	3	3	4	2	1	1	1	1	7	24	100
9.	1	3	3	4	2	1	1	1	1	7	24	100
10.	1	3	3	4	2	1	1	1	1	7	24	100
11.	1	3	3	3	1	1	1	1	1	7	22	92
12.	1	3	3	4	2	1	1	1	0	7	23	96
13.	1	3	3	4	2	1	1	1	1	7	24	100
14.	1	3	3	4	2	1	1	1	1	7	24	100
15.	1	3	3	4	2	1	1	1	1	7	24	100
16.	1	3	3	4	2	1	1	1	1	7	24	100
17.	1	3	3	4	2	1	1	1	1	7	24	100
18.	1	3	3	4	2	1	1	1	1	6	23	96
19.	1	3	3	4	2	1	1	1	1	7	24	100
20.	1	3	1	4	2	1	1	1	1	7	22	92
21.	1	3	1	4	0	1	1	1	0	7	19	79
22.	1	3	3	3	0	0	1	1	0	5	17	71
23.	1	2	2	4	2	1	1	1	1	7	22	92

Table 4 Quantitatives analysis of results from test with using IKT

	question 1	question 2	question 3	question 4	question 5	question 6	question 7	question 8	question 9	question 10	Σ
Σ_{\max}	23	69	69	92	46	23	23	23	23	161	552
Σ	23	68	61	89	37	22	23	23	20	157	523
R	0	1	2	1	2	1	0	0	1	2	7
x	1,00	2,96	2,65	3,87	1,61	0,96	1,00	1,00	0,87	6,83	22,74
I_2 (%)	100,00	98,55	88,41	96,74	80,43	95,65	100,00	100,00	86,96	97,52	94,75
Mo	1	3	3	4	2	1	1	1	1	7	24
Me	1	3	3	4	2	1	1	1	1	7	24
s^2	0,00	0,04	0,51	0,12	0,61	0,04	0,00	0,00	0,12	0,24	3,84
s	0,00	0,21	0,71	0,34	0,78	0,21	0,00	0,00	0,34	0,49	1,96
V_k (%)	0,00	7,05	26,92	8,90	48,66	21,80	0,00	0,00	39,60	7,19	8,62
Se	0,00	0,04	0,15	0,07	0,16	0,04	0,00	0,00	0,07	0,10	0,41