ICT in the education of children with special needs

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Abstract. *ICT has already gained its place in all levels of education. There are many research projects that cover the topic of application of ICT in the education. But in the education of children with special needs we have almost no information. Children with special needs defined in the legislation are children with dysfunctions in mental development, blind or weak-sighted, deaf or partially deaf, children with speaking dysfunctions, motive obstructed children, long-time ill children, children with deficit on some learning fields and children with emotional or behaviour disturbance. Ministry of higher education, science and technology of Republic Slovenia ordered the research though. Project "Analysis of state and needs about computer and other IC technologies in educational institutions for persons with special needs" was conducted during the year 2007 and finished in January 2008. In this project we gained significant insight to the application of ICT in the education of children with special needs. In our research we have found out that special institutions have almost no textbooks or other teaching tools, they also lack of specialised ICT solutions but those little they do have proves to be indispensable. In the article we will present detailed results of our research and suggest improvements that will be introduced to the education of children with special needs in the future.*

Keywords. ICT, education, children with special needs

1 Introduction

Nowadays children with special needs [1] are not anymore a topic from the edge of society [2,3]. Those are people, which have in their physical or psychical evolution some deficiencies, dysfunctions or hindrances. They may be innate or acquired. Different kind and stage of mentally or physically handicap can affect in very complex way the psychosocial development of the child. But people believe that children are easily confronted with mentioned disadvantages. In fact, this is not true. Especially those children that have some kind of innate handicap have difficult psychosocial development.

In Slovenia (and similar in neighbour countries) is present in the school system a special solution for education of children with special needs. In cases of some smaller dysfunctions the pupils are included in classical school educational system, in opposite case they are attending special educational programs, so called "Elementary schools with special educational curriculum". Experiences of teacher in such institutions are telling us that success of development is increasing if we use at school specialised tools, helping to surmount an obstacle [4].

Today there exist some classical, and more important, new Information and Communication Technology (ICT) tools to help pupils and teachers at school. Problem was that there ware no collected Data about the situation of the equipment in specialised institutions. Ministry of higher education, science and technology of Republic Slovenia wonted to have an overview of the situation over equipment and frequency of use of this helping material in elementary schools with special educational curriculum. It is necessary to have whole picture before the next step of making additional arrangements. We ware involved in the project "Analysis of state and needs about computer and other IC technologies in educational institutions for persons with special needs" [2] during 2007 and the work finished in January 2008. Main results of this research will be presented in continuation.

Presentation of main comprehensions of the projects "Analysis of state and needs about computer and

other IC technologies in educational institutions for persons with special needs":

Based on opinion of teacher are Elementary schools with special educational curriculum actually unwell equipped with teaching tools, especially ICT teaching tools [2,3]. Consequently are only some teachers well qualified for proper use of those materials. ICT in specialised schools is not only a good choice of teaching material but also rehabilitation device [5]. It plays at the same time also the role of helping tool for teachers and other professional workers in school. In particular is ICT important as a rehabilitation device, i.e. for blind or weak-sighted children there is so called Braille-keyboard, enlarger or voice synthetisation [5]. There are additional specialised rehabilitation devices for other groups as deaf or partially deaf, children with motorical dysfunctions, deficit of concentration etc. In order to collect all-embracing information about the situation of ICT equipment and of the state of knowledge of teachers we organized E-questionnaire (Fig. 1) and invited all 45 Primary schools for children with special needs, finally there are 27 involved in analysis (60 % covering).
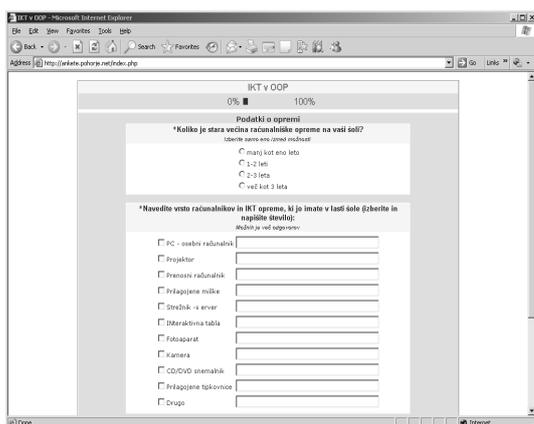

Figure 1. A sample window of E-questionnaire.

We were mostly oriented in next questions:
- available hardware,
- the use of ICT at the school,
- children with special needs and their use of ICT in general,
- categories of children with special needs and their use of special ICT tools,
- what kind of special soft/hardware would be required for children with special needs at schools,
- terrain supply of ICT (special institutions supply other primary schools)
- sources of assurance of ICT,
- share of computers for children with special needs in specialised schools (lesson, activities of interest, free time activities).

Fulfilling of E-questionnaire was organised as a "non anonymous". Each invited institution received a unique password to enter the opinion poll. There was a possibility to re-enter or to change/correct data. We as a organiser could see, which institution answered questions and when. So we could offer constant help for directors of Elementary schools with special educational curriculum, they ware normally those persons who fulfil the E-questionnaire.

2 Results

In continuation we will expose some more interesting and for the topic more relevant results of the mentioned E-questionnaire.

96 % of all analysed answers are telling us that ICT tools are mitigating problems of children with special needs.

Problem is that more then 66 % of all computer and ICT equipment in asked schools is older then 3 years.

49 % of directors says that adequate didactic software is rare.

The answers in percentage on the question: "What kind of ICT tools do you have in your institution?", are given in Fig. 2.
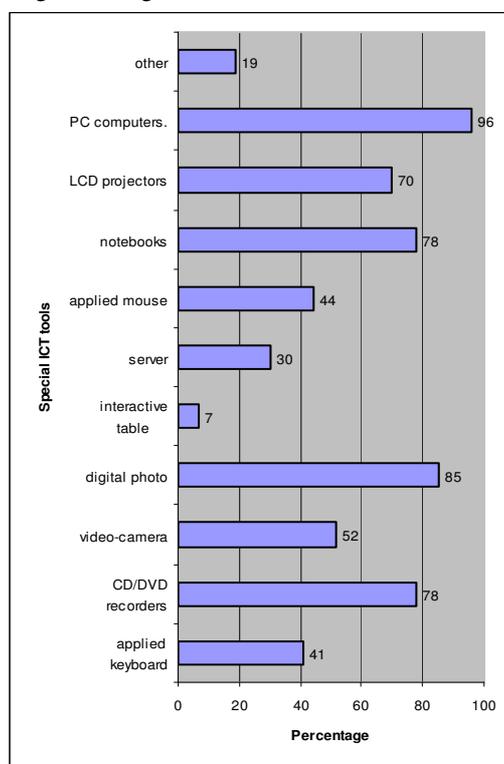

Figure 2. Percentage of answering schools with special ICT tools.

41 % says that most of their classrooms have internet connection.

In answers, what are sources of assurance of ICT, we so that schools are buying software licences, using shareware or freeware, in 30 % teachers them selves are preparing adequate software.

71 % agree that in the case, where would be more adequate ICT equipment, will teachers use of it at school increase.

At home is the level of use of ICT equipment by children with special needs really low.

Only 40 % of children with special needs are rally able for autonomous use of ICT equipment.

Only 11 % of children with special needs use e-mail.

73 % of children with special needs use mobile phone.

It is sad, that the only source of ICT hardware are invitations of Ministry of education.

Teachers involve ICT in lesions mostly at natural sciences and sociology. ICT is present also at some activities of interest. Almost no use of ICT we see at specialised educational subjects in Elementary schools with special educational curriculum.

Another field of our interest was the situation of qualification of teachers and possibilities, where the teaching personal is gaining the necessary proficiency but in this paper we focus mostly on state of equipment in Elementary schools with special educational curriculum.

3 Conclusions

The most important result of the "Analysis of state and needs about computer and other IC technologies in educational institutions for persons with special needs" in the question of ICT equipment is a large agreement that ICT tools are playing an important triple role in Elementary schools with special educational curriculum. First, they are a teaching tool. Second, they are rehabilitation device [5]. And third, they play the role of helping tool for teachers and other professional workers in school. Almost all directors of specialised schools agree that ICT is indispensable and it is necessary to find more different ways how to equip those specialised institutions with ICT tools and adequate knowledge.
Based on answers on E-questionnaire there is a comprehension that for development of specialised software solutions is necessary to build up a group of specialists: teachers with experience in work with children with special needs, specialists in didactics in

fields of use of multimedia, computers and other ICT equipment and specialist for programming software solutions. In frame of the research we investigated also the state of qualification of teachers and suggested different possibilities how teachers could gain the adequate knowledge.

4 Acknowledgments

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