Abstract—The study deals with actual problem, which is implementation of ICT and audiovisual technics to nurseries. It introduces research of preschool facilities equipment in the Czech Republic. It shows on a sample of 224 nurseries concrete equipment with KidSmart computer centre, PC and notebooks, CD and DVD recorders and interactive blackboards. The obtained results indicate that modern technologies penetrate successfully even to pre-school education and prepare preschool children for life in digital society.

Keywords—Audiovisual technics, ICT, Kidsmart, preschool education, utilization of computers in education.

I. INTRODUCTION

Knowledge in the world of global economics becomes decisive factor, if economics of the country or region is to be successful or not. Governments of the states all over the world admit that reaching higher level of education is a base for obtaining and maintaining of occupation and for securing of competition on international scale.

A lot of children of preschool age live in a surrounding full of information and this environment can teach even small children to new forms of creativity, communication and cooperation. Just these skills are the key forms for education and work in the environment of well-informed society.

Mankind could not imagine its life without everyday use of computer and means of audiovisual techniques. Therefore it is necessary to create and offer to children appropriate opportunities since babyhood from small age) to form firm relation and base for the work with modern information sources, which will lead to gradual fulfilment of key competences.

Our contribution is aimed at preschool education, but it is appropriate to remind that nowadays education in ICT area is realised not only for small children, but also for the adults and seniors, how Žumárová states [1].

Framework educational programme for preschool education [4] represents these key competences:

1. competence for learning
2. competence for problem solving
3. commutative competence
4. social and personal competence
5. activities and citizenship competence

Work with audiovisual technics (AVT) and computer is in framework educational programme for preschool education mentioned in the chapter key competences, specifically in communication competences. RVP PV supposes that completing of preschool education for a child could be reached in communication competence, apart from other things, following level: to know how to utilize information and communication means, with which the child currently meets (books, encyclopaedias, computers, AVT, phones, etc.)

The authors Kolláriková, Pupala [5] name work with communication means as technical education. in nurseries, where it plays the main role in development of perception, imagination and thinking of the child. Practical use of computers and AVT by children of preschool age is developed by their “spontaneous literacy” or “preliteracy” [6] and in this way are founded the first bases for future forming of nationwide system of education and its providing is according to the law on schools a public service, thanks to the school law Act No. 561/2004 of Law Digest on preschool, basic, secondary and higher professional and other education [2].

Methods and forms of the work must be adjusted to specificities of the age of preschool children, physiological, cognitive, social and emotion needs of children must be respected. An offer of on-coming, stimulating educational environment with rich content is necessary. In such surrounding the children will feel safe, joyful and satisfied.

“Already in preschool age of child fundamentals for key competences could be formed, no doubt the elementary ones, but important and significant not only from the viewpoint of preparation of child for the start of systematic education, but at the same time for its further life stages and lifelong learning. Good and sufficient bases of key competences, set in preschool age could be a fundamental promise of further favourable development and education of child, insufficient bases on the other hand could be an obstruction, which could discriminate the child at the beginning of its life and educational way. It is reason, why preschool education should attempt about them” [3].

II. THEORETICAL STARTING POINT

Preschool education is a concept, which includes education, upbringing and care about children of preschool age, which is realised institutionally in nurseries, usually for children from 3 to 6 years of age.

Legislatively the preschool education became a lawful part of nationwide system of education and its providing is according to the law on schools a public service, thanks to the school law Act No. 561/2004 of Law Digest on preschool, basic, secondary and higher professional and other education [2].
computer, medial, communication and further literacy.

“AVT and personal computer have their positive participation in developing of practical activities, improve child’s reflexes and thinking methods, help to master impulses, increase positive attitude to technical innovation and enable to child to experience in contact with this technic”[5].

Object of mastering and deepening of communication competence in nursery is not AVT equipment service, writing and mailing SMS message, video recording, taking snapshots, tuning of wire set or film projecting. The child should obtain knowledge about these means, know that they exist, know their name, know their purpose, know that he/she must switch them on and after finish switch off, or dial the number when phoning, after finishing the call to ring off, etc. Obtain knowledge what is camera; know about its outputs, how photos look out, or the record from children party.

IBM initiative is KidSmart Early Learning Programme. Its aim is provide for children in preschool age tools, which they need for learning to be prepared, when entering the basic school, for learning [7]. They try to show the computer as a tool of child’s development – as a specific educational aid. This project represents, free of charge, installation of special computer workplace equipped with teaching programme for nurseries. A part of the programme equipment is a set of printed documents and special courses for teachers.

Computer centre KidSmart is formed by built in monitor, working board, which contains children mouse. An efficient computer is placed in resealed box. Teaching software is adjusted for children of preschool age mostly on development of creativity, logic thinking, base of mathematics etc. It could be further exploited for developing of children cooperation in groups, for over crossing the difference of children with special educational needs, etc. Programme equipment consists of 6 parts – Millie’s house of mathematics, Hanna’s house of place and time, Sam’s scientific house and Brainbreaks 1-3 [8]. At present this project is realised in more than 50 countries [9].

III. METHODS OF WORK

The research is of descriptive character. Investigation aimed at ICT use in education of teachers for pre-school education was realised at the Faculty of Education, University of Hradec Králové in the academic year 2008/2009 in the frame of larger research investigation[10].

A. Goal of research

The aim was to find out, if nurseries have or have not and if they use or do not use computers and further technologies for their work as didactic mean and as partial tool for development of communication competence of preschool child.

We concentrated at the following equipment and technologies:

- KidSmart computer centre
- Independent computer for teaching
- Notebook for teaching
- CD recorder
- DVD recorder
- Camera
- Movie camera
- Interactive board

B. Research instruments

Research tool was unstandardized questionnaire of our own construction, containing 23 dichotomic questions [11]. The questionnaire was submitted before administration to pre-research and on its base was adjusted [12].

C. Research sample

The questionnaire was distributed by electronic mail to 590 nursery schools in total. Rate of return represented 38 %. Data from questionnaire investigation mapped 224 nursery schools from the view of completion with modern technologies. State, church and special nursery schools respond to questionnaire (Fig. 1).

![Fig 1 Number of nursery schools in investigation according to the type](image)

It could be seen from the graph that the highest representation among respondents have public nursery schools, which form 88 % of all evaluated answers. This condition fully corresponds with spreading of nursery schools in the Czech Republic.

IV. RESULTS OF THE RESEARCH

Our attention was in the first line concentrated on school equipment with KidSmart centres (Fig. 2), which was a sponsor present from IBM firm. The highest completion from the viewpoint of KidSmart centres show state nursery schools (5 %), private nursery schools have at their disposal this centre in 4 %, none of the church nursery schools, followed by us, mentioned that they have for their disposal this centre. In the followed sample of nursery schools furnishing with KidSmart centres represented 9 % in total.
Modern technologies penetrate even to preschool education. Evidence of it is furnishing of nursery schools with computers and notebooks, which serve for children’s education, not for administration activities connected with the operation of nursery schools.

More than a half of nursery schools (54%) use in work with children desk?? Computer. It is interesting that even to these faculties penetrate mobil technologies [13] as notebooks, which use 16% of nursery schools.

CD and DVD recorders belong already to standard equipments. More than two thirds (70%) of questioned nursery schools have for their disposal CD recorders and 61% DVD recorders.

Interactive boards belong among the technologies, which gradually penetrate to educational (school) system, and are favoured both by pupils and teachers.

V. CONCLUSION

The aim was to find out if nursery schools have or have not and if use or do not use computers and further technologies as a didactic mean and as a particular tool for development of communication competence of preschool child in their work.

The data found by us help to show the situation in furnishing of nursery schools in the Czech Republic. The results correspond and complete before realised research e.g. [14] and help to submit more plastic picture about situation in nursery schools.

It shows out that situation in nursery schools is not so bad and that the equipment corresponds with present trends, which require use of ICT and audiovisual technic in work with children.

If we compare the obtained results with what introduces in her publication Maněnová [15], who offers also a view into history, we find out that in furnishing of nursery schools occurred significant shift, not only progress concerning the quantity of equipment, but above all with regard to the quality and utilization of it in work with children and for preparation of educational activities.

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