

DISTANCE LEARNING VIA INTERNET IN MATHS AND SCIENCE FOR PRIMARY AND LOWER SECONDARY SCHOOLS PUPILS

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ABSTRACT

The paper describes experiences with distance education in Maths and Science organised by the student teachers for Primary and Lower Secondary School Pupils who cannot attend school education because they stay a long time in a hospital for illness. Study materials for Maths and Science Education are developed in a standard educational environment used for on-line learning (LearningSpace). It is enough to have a Web page browser (like Internet Explorer or Netscape) to have an access to learn study materials. Beside that a video-conferencing system serves for communication among pupils and their teachers.

KEYWORDS

on-line learning, video-conference, Internet, LearningSpace, distance education, Primary/Lower Secondary Education in Maths and Science, university teacher training in ICT

1 INTRODUCTION

At the Faculty of Education in Prague for more than 2 years videoconferencing has been used as a regular teacher training technique in ICT. The student teachers propose a set of interactive tasks on different themes (from Czech Education, Maths, Art, Languages, Science etc.) for Primary/Secondary School Students. The video-conferencing activities are based on technological ways of communicating and to exchange information to partners (sound, chat, sharing application, image). Each video-conferencing activity has been analysed from a didactic point of view together with student teachers to see the educational effect of teaching based on a videoconferencing.

Beside that, the student teachers have gained experiences with on-line teaching. We use LearningSpace to develop study materials (<http://chaos.pedf.cuni.cz>) and to open a space for collaboration and communication as an on-line support to face-to-face seminars (fig.1 and 2).

In a few compulsory ICT subjects (Didactics of Information Education, ICT in Education, Internet as an Educational Environment, etc.) the student teachers do a final exam via the Internet. They can do it at their home or from anywhere they have a computer connected to the Internet and a WWW browser. This exam forms a compulsory part of on-line courses developed as a support to teach these subjects.

2 AIMS AND PLANS FOR TEACHING LONG-TERM HOSPITALISED PUPILS AT DISTANCE

In the Czech Republic some hospitals are equipped with computers and are connected to the Internet. Thanks to the enthusiasm of a group of young people there was born a very interesting and helpful Project named Majaky that was created as a magic Webworld for long-term hospitalised children.

We decided to apply the idea to support the educational activities of long-term hospitalised children. It could be very interesting for our student teachers to be responsible for teaching at a distance. The headmaster of the Hospital Motol in Prague was contacted to explain a plan for teach at a distance by applying the Internet connectivity for study programme in Maths and Science.

The main reason for developing the programme for teaching children in the hospital school was to give a chance to our student teachers to lead distance education in subject of interest by using totally new teaching methods based on ICT. The distance teaching will be a combination of video-conferencing for consultation problems, to give support for interactive activities to children, to control children on which level they achieve the educational goals, to have a "human" contact with "distance" pupils.

Nowadays we plan this model of distance education for long-term hospitalised children in the hospital Motol.

The student teachers will be responsible for:

- α a choosing a theme (Maths/Science Education)
- α development of on-line study materials including self-tests and tests to exam pupils knowledge
- α tutoring on-line courses via the Internet
- α a proposal of videoconferencing activities to support pupils learning
- α assessment of pupils study results
- α a pedagogical communication with the pupils.

The student teachers could collaborate and consult unexpected situations concerned with pupil behaviour with a pedagogical staff of the hospital school in Motol.

It will be necessary to introduce the student teacher to be able to propose and to develop on-line materials in a digital multimedia formats.

To prepare a model for the distance education needs:

- to get some data about pupils and technical background at the hospital (age of children, time-table of children in the hospital, a level of skills to use the Internet and to manipulate with a computer)
- to introduce and to explain to children how to work with on-line study materials via the Internet
- to introduce children how to work with a system for a videoconferencing.

The distance teaching for children in the hospital Motol will be tested on the spring 2001 from March to April not more than 8 weeks.

3 CONCLUSION

It is expected the distance education of Maths and Science will contribute to student teacher abilities to use ICT for education and to help student teachers to identify differences between everyday face-to-face teaching practice and teaching at a distance using technologies in a/synchronous communication.

It is hoped thanks the experiences gained with enhance the education of children who spend long periods in a hospital to demonstrate that the Internet can be used not only for games, surfing interesting information, entertainment, and communication with friends, but also for management and distribution of (regular) education on a relatively high level.

At the end of the project for distance education managed for hospitalised pupils in Motol a thorough analysis of the effect of such model of teaching will be undertaken. Pupil opinion will be mapped, student teachers feelings and experiences will be summarised for types of barriers and real advantageous of teaching at a distance and on-line learning via the Internet.

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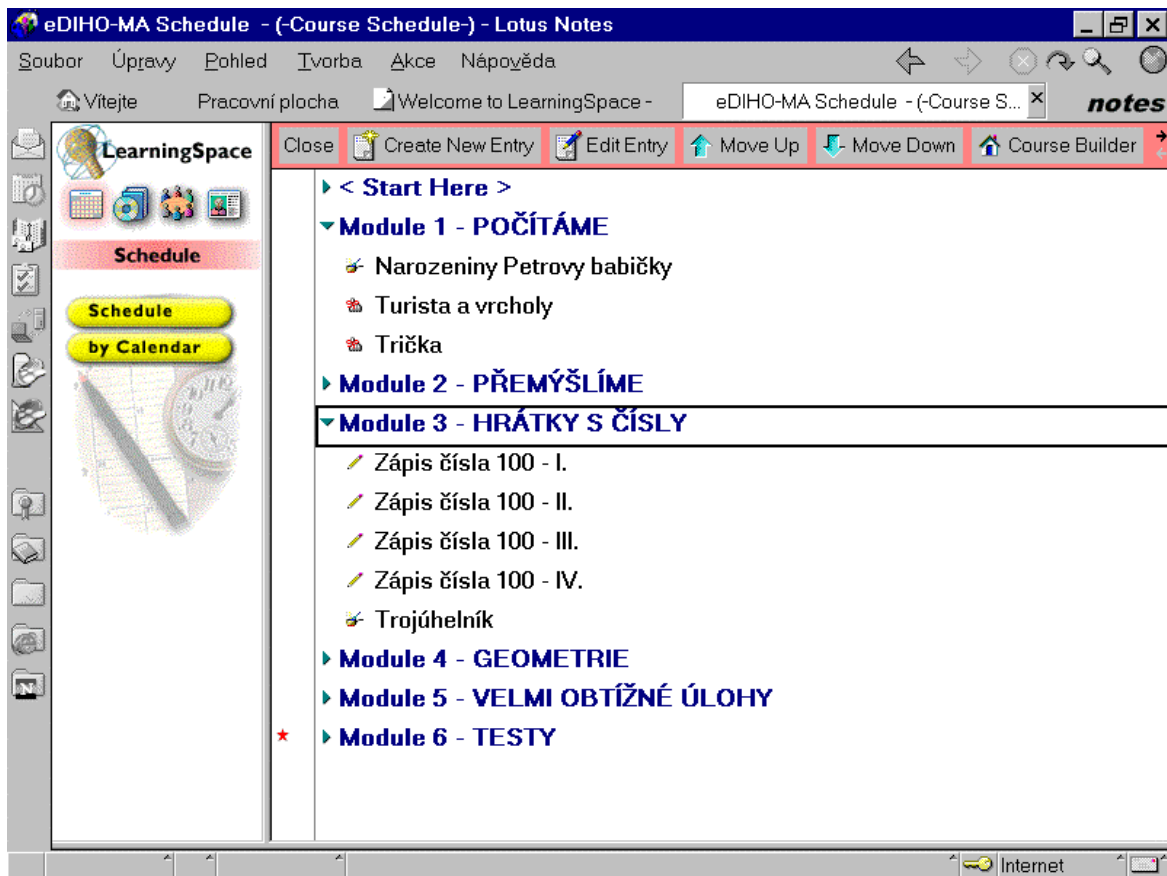


Fig.1



Fig.2