Requires to teachers for using interactive whiteboards in creating moduls for ODL-process

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Requires to teachers for using interactive whiteboards in creating moduls for ODL-process: *The virtual learning environment has been created using Moodle software platform and has been applied in Technical College of Yambol. The multimedia courses have been created. In our paper we gave the assessments of the requirements for the teachers regarding implementation of high quality open and distance learning process. Using interactive whiteboards and possibilities teachers to record their instruction and post the material on-line is the good opportunity for realizing ODL-process. The paper presents possibilities of the use of the interactive whiteboards as an educational mean and their application. The experience and perspectives of their use in education of the students at Technical College of Yambol is shown.*

Key words: *ODL process, virtual learning environment, interactive whiteboards, requirements to teachers.*

INTRODUCTION

The term open and distance learning (ODL) and its definition are relatively new in the field of education, having gained prominence only in the past 15 to 20 years. The language and termused to describe distance learning activities can still be confusing, and geographical differences in usage - for example, between North America and Europe - can add to the confusion. Among the more commonly used terms related to open and distance learning are the following: correspondence education, home study, independent study, external studies, continuing education, distance teaching, self-instruction, adult education, technology-based or mediated education, learner-centred education, open learning, open access, flexible learning and distributed learning [6].

The development of the informational and communicational technologies in latest years and their introduction in the higher education in Bulgaria is shown in many documents – strategies, programs and decrees. The main purposes the directions of education and learning in the national program of accelerated development of the e-society in Bulgaria, which was passed in 2008 and formulated in national strategic documents till 2013, are reaching of the average European levels of the use of informational and communicational technologies, and modernization and optimization of informational and communicational infrastructure in high schools and universities.

Training in the modern information society is significantly different from the traditional, new forms and tools are used. On-line and ODL-process are particularly relevant now, whiceliminated a large number of constraints (physical, financial, education and individual) to students [2]. One form of this type of training is interactive video training (including Web - conferencing) as part of the principal means for its implementation can binteractive board.

INTERACTIVE WHITEBOARDS – POSSIBILITIES AND REQUIREMENTS TO THE TEACHERS

A scientific project 'Investigation and Comparative Analysis of Interactive Means and Methods of Education in Technical Subjects' is developed in Technical College of Yambol. The project aim is investigation and comparing of results of the use of interactive methods and means in the student education in different specialties at the college. Two interactive boards are bought in the term of the project realization. Some new IWBs are provided for application in the education of different subjects. Lecturers in every specialty are included in the project team, who cover the more of general technical and special subjects. Every lecturer is with long educational experience and has developed multimedia courses, part of

which are included in the system of e-learning, which is introduced in Technical College in 2004.

In the College activity, Moodle represents VLE design, which is well known in the academic community. The architecture of Moodle is compatible with the hardware and software of Technical College – Yambol. A blended education model with especially multimedia materials and e-learning management system (LMS) are used for many disciplines (http://tk.uni-sz.bg/edutk/). As a result of different project works the foundations of a technical and informational data for future distant learning process took place: virtual library with didactic materials has been created (http://tk.uni-sz.bg/edutk/) – lectures; exercises; multimedia sources; tests; glossaries; links to other web-base on-line resources etc. This system includes over 40 subjects.

WAYS TO USE INTERACTIVE WHITEBOARDS (IWB) IN THE STUDY PROCESS

The interactive whiteboard is well known in West Europe and USA and it finds rising applications in high schools and universities in Bulgaria. The new method has many privileges, which help for the better learning.
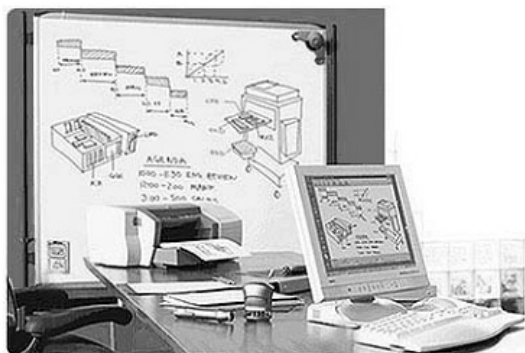

Some of the main ways to use interactive whiteboards in the study process are mentioned as [9]:

Save lessons to present to students who were absent;

Create video files to teach a software application, a lesson, or as a review to be posted to the server or web;

Present presentations created by student or teacher;

Digital storytelling;

Teach whole group to computer or keyboarding skills;

Brainstorming;

Take notes directly into

Fig.1. E-beam interactive whiteboard - way of using

PowerPoint presentations; Desktop, videos and other applications

Reinforce skills by using on-line interactive web sites;

Teaching students how to navigate the Internet;

Diagramming activities;

Teaching steps of solving the problems.

There are many websites on the net that starts to offer educational resources which work well on interactive whiteboards in the classroom. The resources are organised by subject, age group and category to make them easy for used. The team constantly updated the web sites to ensure that they are current [8]. The visualization of the educational material gives a better possibility of perception of the educational contents and more time for discussions. It is undoubted fact that the visual memory is many time powerful and it allows a man easier and quicker learns the material.

The IWBs distributors offer the boards with e-lessons sets for student from 5 to 15 classes in "Mathematics", "Physics", "Chemistry", "Biology", etc., and come subject for 1-4 classes in some subjects as for example "The human and the nature". There are information about the use of the boards in education in other subjects like "Domestic technique and economics", "Fine arts", IT, "Foreign languages", "Bulgarian language"', "Music", "Geography". IWBs are used in professional training in some professional high schools in Bulgaria.

The IWB is already used in education of the students in Technical College of Yambol. Lectures and exercises of some subjects in specialty of "Automatics, Informational and

Managing Technique" have been demonstrated. The IWB Wiimote, which is developed by Johnny Chung Lee, is used in education of the subject of "CAD systems". The IWB gave some faults, which prevented further use. The problems are: the slow speedy of tracking and creating of the images and actions on the board; low resolution; low reliability; non-stop pressing of the button by the work; lack of the right button and corresponding possibility for activation of concrete menu; special requirement for the light; etc.

The results of the use of the IWB in education in specialty of "Automatics, Informational and Managing Technique" show increasing interest of students to the new innovative mean for presentation of the educational contents. Some students presented their projects about the solution of the concrete problem with the use of the IWB.

REQUIREMENTS TO THE TEACHER FOR USING WHITEBOARDS (IWBS) AND CREATING ODL-MODULES

The most used brands of interactive whiteboards in Bulgaria are e-Beam, ONfinity CM2 MAX, Mimio, InterWrite, Clasus 9000B and an interactive board which is realized on the base of the game of Nintendo Wii (Wiimote).

Abilities to use the relevant hardware: 1. Skills for working with computer; 2. Skills for working with projector; 3. Skills for working with interactive whiteboard.

The first two abilities are already proficient for all teachers and professors in universities. For the last one the teacher shall take respectively training. Best way is training for a particular board that has been purchased, taken into account the installation and using the hardware.

Ability to work with interactive whiteboard There are peculiarities in the use of portable models Wiimote and ONfinity CM2 MAX that concern the location of receivers. The teacher must be familiar with the requirements of the position. It consumes time to install them before class. It can be placed on stands respectively;

ONfinity CM2 MAX can be place on the ceiling, but then we lose their mobility. Working with the portable models Wiimote and ONfinity CM2 MAX teacher must comply with the position of the hands and body. The connection with the receiver can disconnect. The CLASUS 9000B and InterWrite DualBoard models overcome this problem. There are no receivers. They are on electromagnetic principle. But they lack mobility, except in the version "board on wheels." In e-Beam and Mimio the receivers are placed on the board. They can be completely fixed (USB cable and receiver) or partial (only the cables are installed, the receiver worn by the teacher) – that ensure better mobility in the second case; there is no need to buy boards for each room. These boards have and cordless models, i.e. a wireless connection with the computer, which is much more convenient option for teacher.

Ability to use a stylus. Most stylus models have two buttons and some of them have additional buttons for management of palette of tools or scrolling. ONfinity CM2 MAX has extendable stylus pointer which creates handiness in pointing and obviate the problem with the teacher's shadow. Some models have additional rubber for erasing and colour electron markers. Representing cylinders, in which can put an ordinary colour markers. When the marker is placed in the device it turns on a transmitter, which gave a signal to the receiver. The created image can be "capture" by the software to the board and saved in appropriate file format. The teacher must have the ability to work with them.

Ability to use the necessary software : 1. Ability to work with the used system and application software: OS Windows or other.

IWB's can work with other operation systems too. Also the teacher must have basic skills to work with mouse and keyboard, copy, move objects (drag & drop), use windows and menus and more. Using MS Office or others package applications, necessary educational or vocational training (e.g. CAD systems), Adobe Reader, Internet browser, etc..

2. Installation and setup the software to the board. It is performed once on a single computer, which will be connected to the board. This can be implemented by the teacher, if has the appropriate training. It is desirable to install the same software on more computers, on which the materials/lessons (presentations) can be prepared. If Bluetooth is used for connecting to the computer, which is not embedded in respective computer, the drivers for Bluetooth shall be installed. During the installation of the IWB's software there are possible problems with compatibility of software with other computer applications.

3. Calibration. After installation of hardware and software, it is required to calibrate the board. Each board before use must be calibrated to determine the amount of "place" to identify actions with "pen". Calibration is not done once but every time when start the interactive board. It is performed on all boards. If calibration fails the position of the receiver must be corrected.

4. Ability to use basic modes of operation of the software. Regime "Design Material" and application notes, annotations, additions on the image (Projection), which can be stored. Stylus functions of the mouse on the board/projection screen. Regime "Ordinary whiteboard" (Whiteboard) – electronic colour markers are used and created by their image is "capture" by the respective software. The second mode can be implemented by stylus (Fig. 2).

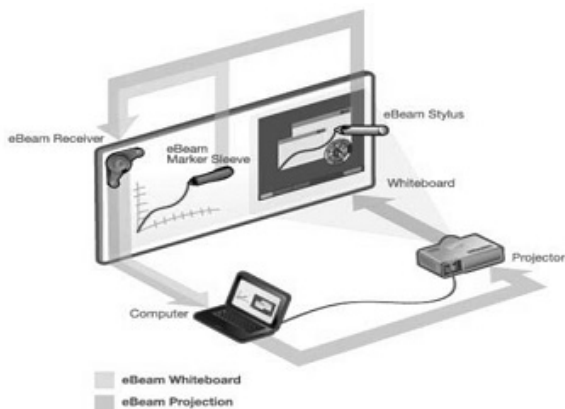5. Ability to work with interactive devices – software's for preparing presentation or

Fig. 2 Regimes of work: e-Beam Whiteboard, e-Beam Proiection

with the software program modules of IWBs for creating interactive lessons (presentations). For example, in IWB e-Beam there are two ways to prepare an interactive lesson. The lesson is developed as a series of fragments. Under a "fragment of a lesson" will understand a sequence of frames/pages, which during the lecture will be presented to students. The fragments are prepared in advance by the teacher and are saved as files. For their creation can be used two programs and therefore have different file extensions: *. esb

- if used "Scrapbook" or *. wbd - working with "Capture". Between working with them there are small differences. If working with "Scrapbook", frames/pages can be viewed as consisting of layers - transparencies, on which various images are displayed. If used "Scrapbook", as elements can be added segments with one and two-way arrows, rectangles, circles. One big advantage of the proposed software is the ability of teachers to work on staff during their projection. These actions can be added to the pre-prepared content and newly shared file to be a good educational experience. If you use "Capture" module for "capture" the image of the board, sound-track can be added and recorded as video file (*. avi). Audio-video files used for training purposes are created by the program modules "hold of" of the image of the board (Capture), which is part of the software on all the boards. This form would mainly use in ODL-process for the creation of video lectures given to students enrolled in a digital information medium (CD, DVD), sent by e-mail, publish with e-learning systems or presented as on-line lectures during the Web

conference [3]. Creating a presentation using software of specific IWB leads to some inconveniences, as the lessons, develop a model for the board generally can not be used on other models. This creates problems in the distribution of teaching materials and organization of training. There are IWBs models that use the same software (e.g. Wiimote and InterWrite) or offer recording in various file formats that can be used by other boards (.pdf).

6. Ability to use a gallery of ready images. All boards have such libraries, which contain maps, geometrical figures, diagrams, photos and other visual aids used in teaching different disciplines.

7. Ability to use a set of interactive tools. IWBs have a set of geometrical instruments, line, triangle, protractor, compasses, which can be plotted, emphasizes, painted with different colours and thick lines, arrows, rubber, magnifying glass, wallpaper (for the closure of part of the screen) , illumination, onscreen keyboard, etc.. Interactive tools are arranged in a submenu, bands, theme (round), which has even special button on the stylus control models (e-Beam). Smart bands/themes tool - change the set of instruments according to mode (started software module on the board).

8. Ability to use the interactive buttons on the board. Using to start the most frequently used applications and tools (for some models Clasus, InterWrite, ActivBoard).

CONCLUSION

The interactive whiteboard offer better visualization of the educational process as well as creating interactive ODL-modules. The IWB is already used in education of the students in lectures and exercises of some subjects in specialty of 'Automatics, Informational and Managing Technique'. The interactive board Wiimote is used for student education of work with MS Excel and other program products in the subject of 'Programming and the use of computers', and C++ in the subject of 'Programming languages and systems in automatics'. For this purpose an investigation of possibilities of e-Beam server in the practical exercises on the course "Computer Networks and Systems".

It is provided the use of the board in other subjects of the specialty of 'Automatics, Informational and Managing Technique', for example 'Microprocessor technique' by learning of modules of concrete processor and introduction and testing of programs in a software for processor simulation, and 'Analysis and synthesis of logical schemes' by the use of simulators of analysis and synthesis of logical schemes, etc.

The IWB is used in the education of the subject "The Road safety" in the specialty "Auto transport and agriculture technique" – the mark of notes on the screen, the time of the projecting of educational movies, which present real traffic situations. Lectures and exercises with the use of the IWB are prepared for the main design and constructional subjects of the specialty "Design, technologies and Management of Fashion Industry".

In the Technical College of Yambol working on creating ODL-modules in the field of "Chemistry", "Microbiology" in the specialty of "Food technology" is planning also. The IWB will be used for general technical subjects like "Technical drawing" and "Machine elements". The experiences of using IWBs in Technical College - Yambol give us reason to continue with introductions of interactive boards in the educational process.

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