Summary

POSSIBILITIES OF USING VIRTUAL LEARNING SPACE FOR ORGANIZING AND LEADING PROJECTS

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Projects in sciences are very important. Students learn how to search, select, and evaluate new information in science, environment, and new technologies. Teachers have to spend much time in leading of them. It is easier to do this job using distance learning courses. How it is possible? I use my Moodle course of Organic Chemistry for 11'Th form for project „Petroleum and Alternative Sources of Energy" a few years. There is special forum for discussing themes and problems, which student are ready to solve. First steps doing this project they have to find interesting item for themselves, think about hypothesis, research plan. Distance learning course is good place to give calendar of works, evaluation criteria for students. I use Rubric's for evaluations, which are very popular in America. It is difficult to take a look on all works in lessons. If there are many students it is even impossible. Consulting is effective than teacher have enough time to study what students had done. This is possible if students send works by email or put them in distance learning course. Finally students get advices for their projects at much shorter time, because they don't need time to wait for chemistry lesson. They can ask for help by email or in discussion board. Students can help each other too. Schedule of project helps to plan time and better prepare for presenting their works. In summary all the work is more effective and better organized thanks to distance learning course.

Key words: project, science, distance learning course, alternative energy.

VISUALIZATION OF PHYSICAL PHENOMENON WITH INTERACTIVE (SMART) BOARD

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Abstract

The SMART Board <u>interactive whiteboard</u> is a product of <u>SMART Technologies</u>. It is a large, touch-controlled screen that works with a projector and a computer. The projector puts the computer's desktop image onto the interactive whiteboard, which acts as both a monitor and an input device. Users can write on the interactive whiteboard in digital ink or use a finger to control computer applications by pointing, clicking and dragging, just as with a desktop mouse. Buttons launch a popup keyboard and a rigzt-mouse-click menu for more input options. The interactive whiteboard is usually mounted on a wall or a floor stand and is used in face-to-face or virtual settings in education natural sciences (Wikipedia, 2009).

The article describes opportunities created by SMART Board in teaching an interdisciplinary subject such as natural science. SMART Board's rich educational software, which contains illustrations, photos, films, and animations, makes it possible to integrate the basics of biology, geography, physics, and chemistry.

Introduction

In nowadays students and teachers of various subjects are trained to use interactive boards in teaching natural sciences at primary and secondary schools. SMART Board has an interactive surface, which makes it possible for teachers and students to browse the Internet, make scientific presentations, and travel across the virtual space. SMART Board helps motivate students and enables them to look for answers in a dynamic way, which in turn makes students perceive science as an experiment. The touch screen makes the interactive board operation intuitive; it takes as little as to touch its surface at the point indicating a given menu option or icon. Similarly, taking notes require as little as the use of the user's finger or touch pen (Nodzyńska, Paśko, 2008).

SMART Board fulfills both visual and kinesthetic requirements of the learning process. What students see are big, colorful, and dynamic images. They can also engage themselves with studying materials in an interactive way by moving letters, numbers, words, and pictures on the screen. Disabled students can also spot and interpret information, as well as touch the interactive board's surface, even if they do not have sufficient motoric skills to operate a computer mouse (Nodzyńska, Paśko, 2008).

SMART Board interactive whiteboard technology

SMART introduced the first SMART Board interactive whiteboard in 1991. It was the world's first interactive whiteboard. It was primitive but performed some of the same functions as today's smart boards. It was the first interactive whiteboard to provide touch control of computer applications and annotation over standard Microsoft Windows applications.Today, it is the world's leading interactive whiteboard. Combining the simplicity of a whiteboard with the power of a computer, the SMART Board interactive whiteboard engages students around the world. Currently in its sixth generation, the SMART Board interactive whiteboard line has expanded to include models integrated with projectors and other tools. SMART's focus has expanded to include a variety of supporting hardware, software and content to create complete classroom solutions.

The SMART Board interactive whiteboard operates as part of a system that comprises the interactive whiteboard, a computer and a projector.
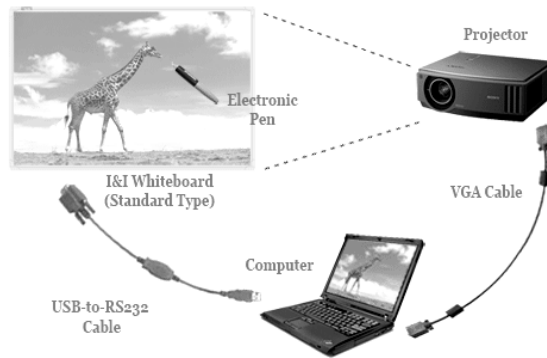
Figure 1. Intelligent & Interactive Whiteboard – Standard Type

The components are connected wirelessly, or via USB or serial cables. A projector connected to the computer projects the computer desktop image onto the interactive whiteboard (*fig.1.*) The interactive whiteboard accepts touch input from a finger or a pen tool, and the SMART Board driver converts contact with the interactive whiteboard into mouse clicks or digital ink. SMART Board interactive whiteboards are available as front-projection, rear-projection and flat-panel display (interactive whiteboards that fit over plasma or LCD display panels) models (Wikipedia, 2009).

The touch-sensitive display connects to your computer and digital projector to show your computer image of physical phenomena. You can then control computer applications directly from the display, write notes in digital ink and save your work to share later.

Best of all, the full-featured SMART Board interactive whiteboard is incredibly easy to use. If you can use a computer, you can use a SMART Board interactive whiteboard (Krons, 2007).
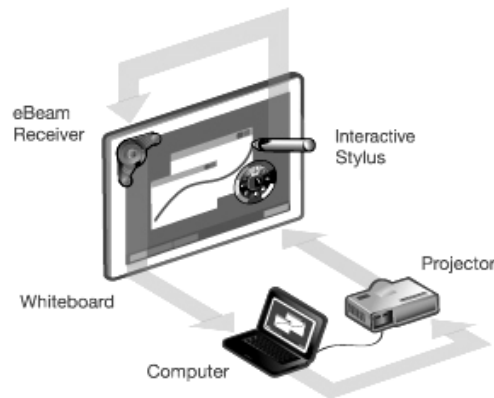

Figure 2. The features of a SMART Board

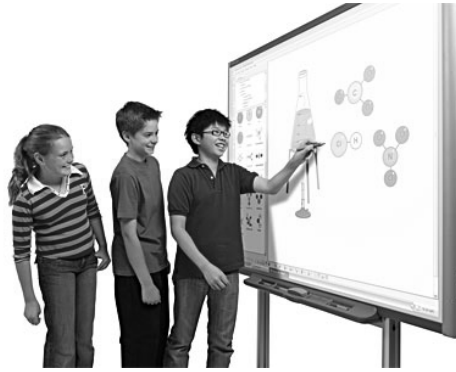**2. Interactive SMART Board and it's advantages**

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Figure 3. Interactive board at learning process

Teachers choose the SMART Board interactive whiteboard because it helps energize presentations and motivate learners.

The SMART Board is an interactive, electronic whiteboard which can enhance instruction and learning. The SMART Notebook software makes it possible for teachers to create content rich, dynamic lessons which address specific student skills. The SMART Board interactive whiteboard transforms your space into an interactive working, training, and learning environment also. With the combined power of a projector, computer and whiteboard you can do everything you do on your computer – and more. Simply touch the SMART Board interactive whiteboard to highlight key points, access applications and Web sites, and write notes in electronic ink. Then, save all your work to one file that you can print, e–mail or post to a Web site (Krons, 2007).
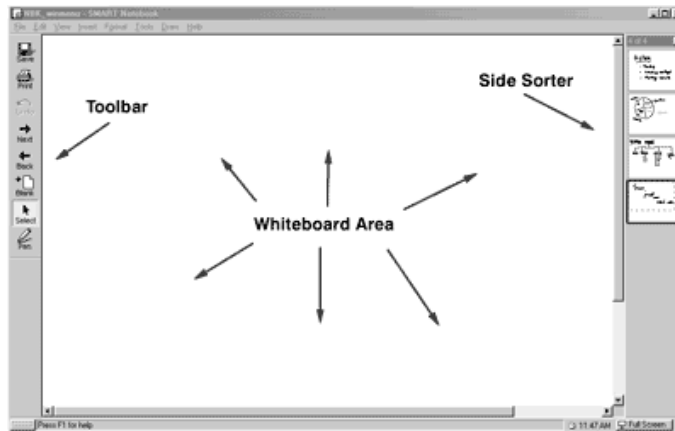

Figure 4. SMART Notebook lets you save, print and e-mail your notes, diagrams and ideas.

SMART Board characteristics:

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- the touch system allows SMART Board users to save and delete files thanks to the mouse emulator, touch pen and eraser, and the user's finger;
- when the user picks up the pen or eraser from the panel, SMART Board automatically detects the selected tool. Buttons start the on-screen keyboard, as well as the functions of right-click button and help;
- once the user creates an application, it can be saved by SMART Board as a screen dump which may be further edited; apart from that, notes can be saved directly as several software applications, including the Windows® versions of Microsoft® PowerPoint®, Word and Excel, as well as AutoCAD®;

The software:

NotebookTM software allows users to:
- save images and notes in a single presentable file;
- convert handwriting into typewritten text;
- save all on-screen activities as audiovisual files;
- save notes and images directly as several software applications;
- SMART Board tools allow users to:
- write using on-screen touch keyboard;
- overwrite digital video files;
- save presentations as board files convertible into various formats (SMARTBoard Software, 2009).

Another advantage of SMART Board is its rich gallery containing sample backgrounds, pictures, audio files, films, games, and animations. Educational resources are divided into particular subjects, which in turn facilitates browsing through them. Each of the subjects is additionally subdivided into:
– images and backgrounds;
– interactive components and multimedia;
– Notebook TM files and pages (Nodzyńska, Paśko, 2008).

Physics teachers will find here such diversified teaching aids as a model of the Solar system, Moon Phases, diagrams of physical phenomenon, film presentations, as well as an animations allowing students to perform interactive measurements, experiments and labworks.

Teachers of physics will be able also to construct compound models, simulate experiments, discuss physical apparatus diagrams, illustrate various phenomenon with animations, or test students' knowledge of different physical phenomenon.

Already tremendously popular in Great Britain and the USA, interactive boards have also recently gained recognition in Europe. One model of interactive board is capable of combining teachers' and students' activities. This new type of teaching aid makes it possible to blend traditional lectures with multimedia presentations available to teachers (Nodzyńska, Paśko, 2008).

It is therefore crucial to teachers to raise their qualifications and get themselves acquainted with latest technological achievements.

Conclusions

1. With a projector, a PC (not necessary for the basic type), and an electronic pen, the interactive Whiteboard let you directly control PC applications from a large touch-screen display: draw pictures, write notes, manipulate any PC software, save/print/distribute your information.

2. You can enhance the interactivity of your teaching with a lot of featured tools: highlight, spotlight, zoom, curtain, color spray, screen capture, record and replay.

3. Makes your training/presentation more attractive and impressive.

4. SMART interactive whiteboard with its software can help transform your classroom into a dynamic learning environment.

5. It helps educators create, organize, and implement interactive lessons using the SMART Board interactive whiteboard. The Gallery keyword search helps teachers quickly find content. Content including images, audio, video, Macromedia Flash and Notebook files can be organized and stored in the Gallery. The Gallery has expanded to include My Content, which is a personal workspace; SMART Gallery content, which can be shared on a school network; and an online resource section, allowing teachers to make the most of Internet resources, either their own or SMART's.

6. SMART Board software offers teachers more digital resources and a number of user– friendly new features. Enhancements to the world's most widely used interactive whiteboard software make it easier for educators to create and manage all their digital learning materials within one easy-to-use content platform.

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Summary

**VISUALIZATION PHYSICAL PHENOMENON WITH
INTERACTIVE (SMART) BOARD**

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Tasks and assignments, which employ interactive board, help teachers emphasize students' analytical activities, independence in gaining new knowledge, and its utilization in spotting problems, and in formulating and verifying hypotheses. At the same time, the teaching of nature should involve educational aspects in order to guide students' activities. The employed teaching methods should be selected so as to integrate natural sciences within a given subject, unify the description and interpretation of nature, and teach students how to explore it to synthesize their knowledge.

The interactive board provides teachers with a powerful tool enabling them make the whole group of students pay attention to the subject. Teachers can come up with lesson plans and save them on their computers before conducting these lessons. The board's software comprises a special set of graphic elements and templates useful while studying natural sciences. While teaching the lesson, the teacher can engage students in work, give them feedback, take down all the necessary information step by step. Thanks to SMART Board, teachers can save time and improve the quality of their work in relation to each student.

Key words: interactive whiteboard, natural sciences, physics teaching, learning.

GAMTAMOKSLINIO UGDYMO PROBLEMATIKA: RETROSPEKTYVINĖ IR PERSPEKTYVINĖ ANALIZĖ

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Gamtamokslinio ugdymo problematika ir toliau išlieka intensyvių diskusijų objektas ne tik mokslinėje, bet ir pedagoginėje bendruomenėje. Pastebimas aktyvus domėjimasis įvairių tarptautinių tyrimų rezultatais, kurie Lietuvai nėra palankūs. Išsivysčiusiose ir vadinamosiose besivystančiose šalyse stebimos absoliučiai priešingos tendencijos. Kaip parodė ROSE tyrimas, besivystančių šalių penkiolikmečiai moksleiviai yra itin susidomėję gamtos mokslais ir technologijomis, savo ateitį dauguma jų sieja būtent su šiomis sritimis (Rose, 2009). Visai kita situacija daugelyje Europos šalių. Čia didžioji dalis penkiolikmečių moksleivių yra nepatenkinti mokykloje dėstomomis gamtos mokslų disciplinomis.