Creation of virtual laboratories used in distance learning

Serbanescu, Luminita

University of Pitesti, Romania

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CREATION OF VIRTUAL LABORATORIES USED IN DISTANCE LEARNING

Şerbănescu Luminita

University of Piteşti, luminitaserb@yahoo.com

Abstract: The present article presents the modality of creation, administration and utilization of the virtual laboratories, showing many illustrative examples. The WinkPortable application is presented, which gathers close together films made in Flash aiming to create a complete and interactive laboratory. The virtual laboratories are inserted in the platform of distance learning where there are two sections: for creation and administration (the teachers' module), and for utilization and visualization (the students' module).

Keywords: virtual laboratory, WinkPortable, multimedia film.

Virtual laboratories represent an indispensable component for a complete approach of the field of the distance learning, the reason being the same with the one which doesn't allow the exclusion of the practical activities in laboratories from the "classical" educational processes. Using the present multimedia techniques, "laboratory guidance" can be realized, which can present clearly and intuitively different practical operations at low costs. With the help of these methods, the approached topics are understood and assimilated much easier. These multimedia films can be seen on any computer which has installed an Internet browser. Also, these films are created and exist as files *.swf* and *.pdf*, which can be watched on any computer, on any platform.

Virtual laboratories are inserted into the platform for distance learning where there are two sections:

> for creation and administration (the teachers' module), and
> for utilization and visualization (the students' module).

1. Teachers' module.

Using the present multimedia techniques, "laboratory guidance" can be realized, which can present clearly and intuitively different practical operations at low costs.

For example, the course of "Fundaments of Informatics" existing at the University from Pitesti, the Faculty of Accountancy and Administrative Data contains many examples which are linked to the practical side of learning and using the most important programs from the applications set Microsoft Office. Thus, the necessity to present the practical elements of this course into a manner as easy as possible can be seen. For this presentation we have chosen the topic: "The creation of documents in Microsoft Word application". This operation doesn't suppose special efforts, just a line of clicks in very specific places, which are easy to follow on the screen because they use the free software product "WinkPortable".

The software product "WinkPortable" helps creating audio - visual films, and they show how the systems and soft applications function. It can be used in different fields, among which:

> demonstration of functioning of the soft applications;
> marketing presentations;
> the realization of materials for training, etc.
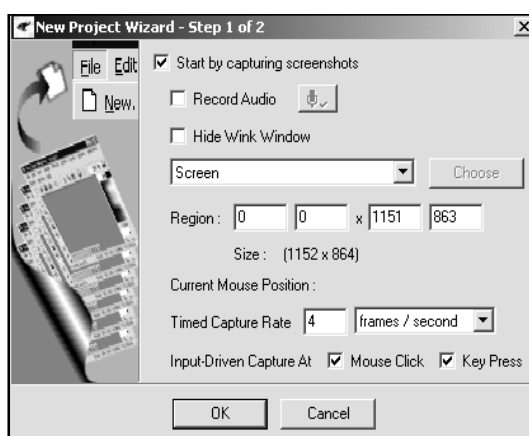
Fig. 1.1. Teachers' module – Creation of a virtual laboratory with the help of WinkPortable application.

Among the product's facilities we mention:

> It is available on different operating systems (Windows, Linux, Solaris),
> It allows "captures" from the screen, whose dimension can be set,
> It contains a "toolbar", which can be modified according to the active operation,

It allows the administration of a page presentation: establishing time for pages presentation, import and export of a text, administration of the cursor's positioning, import of audio files and images,

As exits, we can choose between the files Flash 5 or Flash 6, operable files, archived files, pdf files or images.

After the images were captured they can be deleted, doubled or processed.

For the images' processing presentation we can use the following elements presented in fig. 1.2:

Fig.1.2 Teachers' module – Utilized elements for images' processing
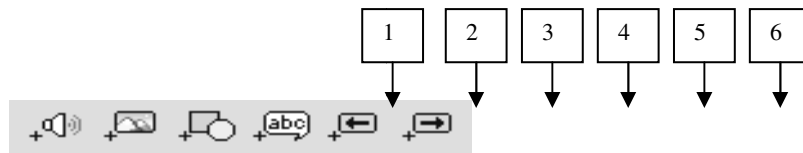

where:

1. adding audio files;
2. adding images;
3. creating geometrical shapes;
4. creating suggestions boxes;
5. adding circulation arrow for the previous page;
6. adding circulation arrow for the next page;unde:

In images' processing it is indicated to use circulation buttons (5 and 6) instead of a presentation with pre-established development time because each student assimilates information at his/ her own pace. Thus, the student is the one who decides to move on, onto the next page
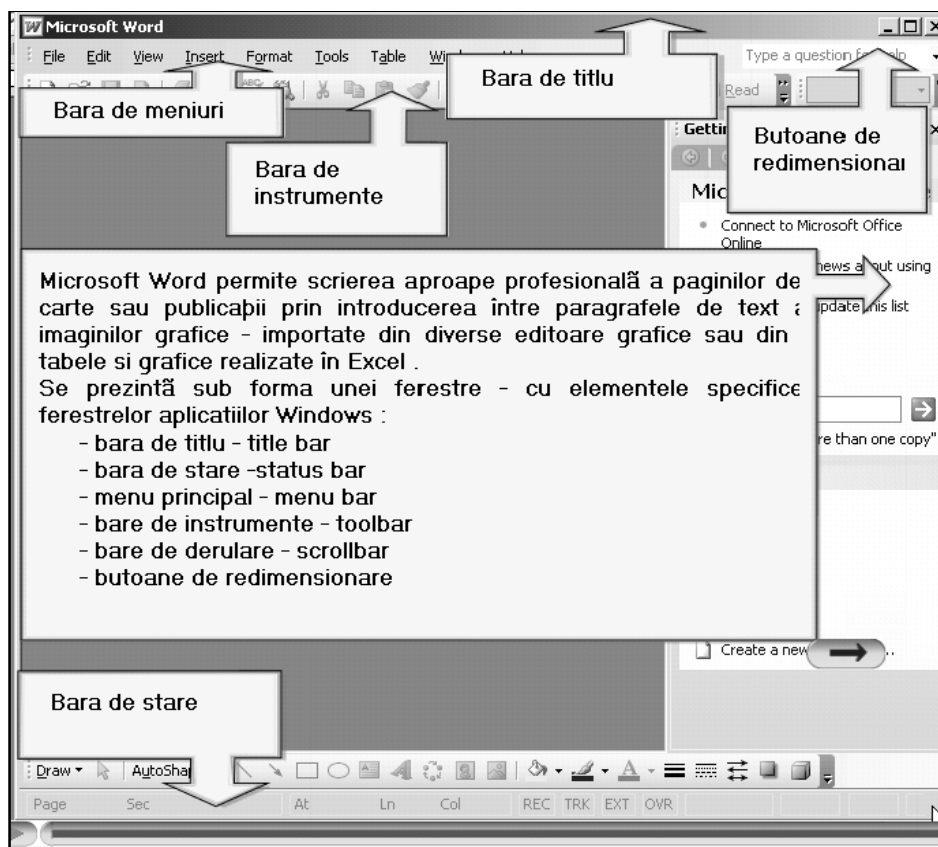
2. Students' module.

For the school subjects where there are laboratories in the traditional school education, the student regimented in the distance learning can have access to the virtual laboratories. He/she can access both presentations made with specialized programs (WinkPortable – for the Informatics labs, LabView – for the Physics labs) and files in *.pdf* format which contain images with presentations and which can be saved in the personal computer (see fig. 2.1).

Buna A!

Prezentare WinkPortable   Prezentare PDF

Laborator 1   Laborator 1
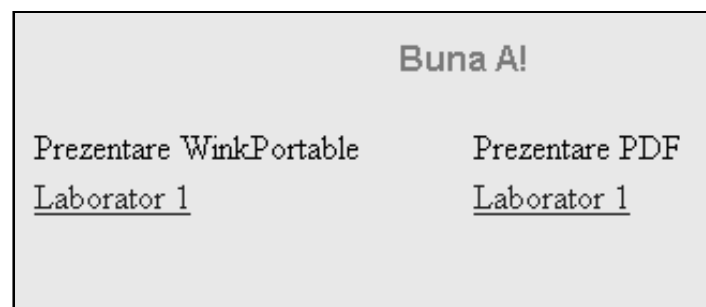
Fig. 2.1 Students' module - access to the virtual labs

For example, for an Informatics lab made with the WinkPortable application, student will have access to the following presentation:

Fig. 2.1 Students' module – Presentation of a lesson for creating a Word document

There can be seen the circulation buttons from one page to another of the presentation and also the fact that the film has a navigation bar added, which allows both the quicker development and the pause at desired moments or simply the developing of the film back and forward.

The many facilities which WinkPortable application has allow for the development of virtual labs with different degrees of complexity. .

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