SCREEN RECORDER SOFTWARE OPPORTUNITIES FOR LEARNING MATERIALS DEVELOPMENT

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Abstract: *Screen recorder software is a program that captures the user desktop activities and records anything on the computer screen, including the entire desktop, windows, menus, cursor, and video with sound. Screen recorder software allows creating video for learning or demonstration of computer software. Available freeware products are Freez Screen Video Capture, Camstudio and others. Examples of commercial software are Camtasia Studio, All Capture, Instant Demo Screen Recorder BB Flash Back, BSR Screen Recorder4, etc. Using these programs it is possible to create training materials that can be used by anyone without of on-site training session attendance. To easier understand the study material, it is possible to use various forms of data presentation and interactive multimedia materials. From the one side, such material preparation requires considerable time, as well as specific skills, but from the other side, it allows to show practical examples in a better manner. It is possible to place materials developed with screen recording software for a particular course in the e-learning system of Latvia University of Agriculture. Many of the study courses in Faculty of Information Technology (Latvia University of Agriculture) are associated with teaching of application software. Therefore in this study screen recorder software Blueberry Flash Back Pro is discussed for use to create video training materials for open source program GIMP (GNU Image Manipulation Program) learning, also interactive training material developed for the course "Computer graphics" with Blueberry Flash Back Pro software is tested.*

Keywords: software, learning, materials.

Introduction

Increasing importance of new forms of learning such as self-study and distance learning is emerging in recent years. These forms of learning are characterized with limited or non-existent communication with a teacher. Consequently, this way of learning increases the role of Internet, CD-ROMs and other auxiliary materials to enhance knowledge acquiring through the content of study course. Distance learning materials also promote information sharing and students self-learning. In the 19th century, German scientist H. Ebbinghaus investigated human memory and effectiveness of different teaching approaches. He discovered that studied materials most rapidly are forgotten right after learning occurs, and this process slows down over time. One of the H. Ebbinghaus finding shows that a person forget more than half of the study material in an hour after study without using any tools or techniques to support information acquisition (Fig. 1).
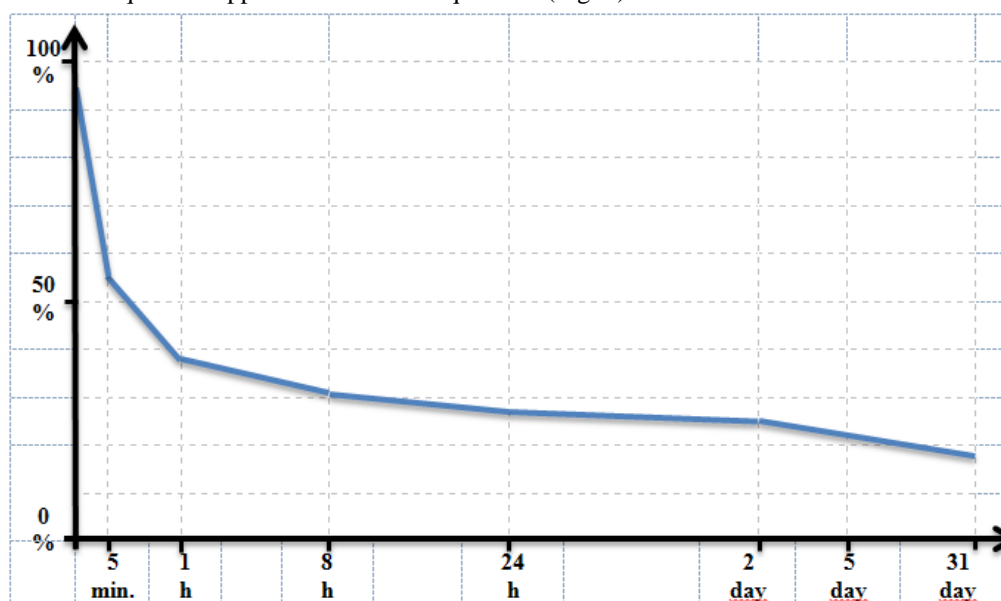

Fig. 1. **Memory of the quantity of residual information against time** (Urdze T., 2010)

Gathering of information comes to people through visual, acoustic and tactile channels. Various studies have shown that a person perceive and remember 10 % of information by reading, 20 % by listening or watching, 30 % by listening and watching, 50 % by discussion and almost 75 % by doing practical exercises (Fig. 2).
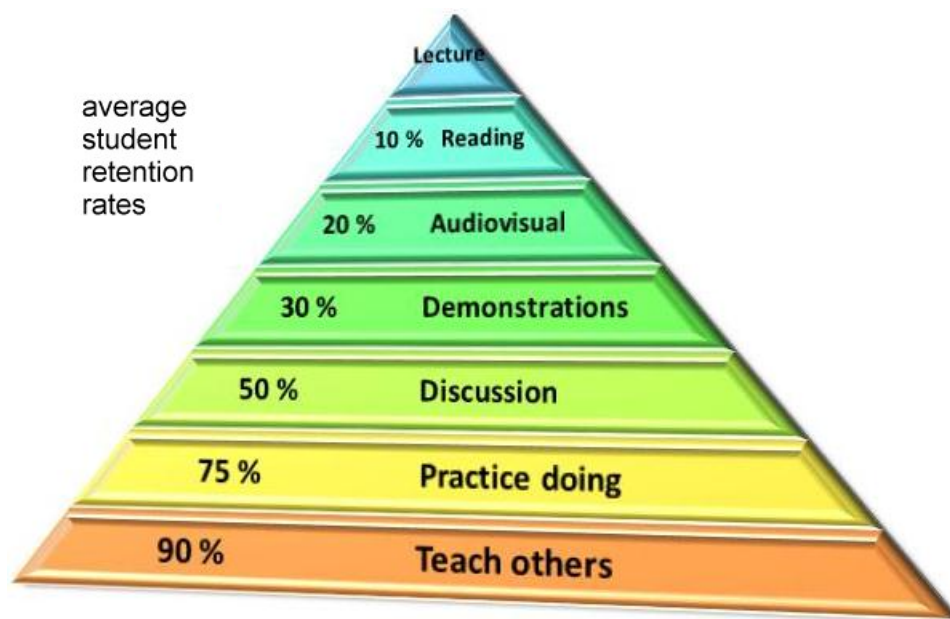
Fig. 2. **Learning Pyramid** (National Training Laboratories, Bethel, Maine)

The use of information technology tools significantly enhances the acquiring of teaching material, and it becomes possible to increase the complexity of the tasks given to students. Screen recording software is valuable for preparation of digital learning materials. By using this software, it is possible to record every screen activity on a computer monitor and save them in image, audio, video, and animation formats. Special effects, offered by software developers, can be valuable to fix user's attention to the particular locations, as well as to form explanations with text or voice comments. There is a wide range of screen recording software available: ranging from free (mostly open source) packages (Freez Screen Video Capture, CamStudio etc.) to partly free, shareware and fully commercial packages (Camtasia Studio, All Capture, Instant Demo Screen Recorder, BB Flash Back, BSR Screen Recorder 4 etc.). These programs help to create learning materials that can be used by anyone without the attendance of on-site training session.

Latvia University of Agriculture (LUA) has the e-learning system. This system is recommended as highly suitable for students who are studying individually; therefore it becomes essential to develop visually attractive training materials for easy caching. Using screen recording software, existing training materials in the different kinds of presentation format can be supplemented with video material. Such type of learning material in LUA is not widely accessible because its preparation requires considerable time as well as specific skills. However, these materials are considered as favourable to originate or improve knowledge by watching excellent demonstration of practical examples during learning.

Materials and methods

The first studies of screen recording software in the Department of Computer systems, Faculty of Information Technology (LUA) was done in 2009 during computer science bachelor thesis framework with objective to develop practical examples that can be used in Adobe Photoshop teaching (Kikiņova, 2009). In 2010, another thesis was written with the aim to provide teaching staff with details about screen recording software for preparing of digital learning materials (Čugurovs, 2010). During the research, both free and commercial software were analyzed. The software analysis was guided by seven criteria: complexity of recording, possibilities of intuitive editing, possibilities to use special effects, the existence of the interactive area, information export options, audio, sound and video quality. Results of the research showed that the most appropriate program for video tutorials and other educational material development could be Blueberry Software Professional company product Flash Back. Flash Back was practically used in other bachelor work (Kūliņš, 2011) to develop training materials for the study course "Computer graphics".

Blueberry Flash Back

Blueberry (BB) Flash Back is a leading screen recording program for Windows, but it is a commercial product that costs 200 USD (BB Flash Back Online Store). After registration, thirty days trial version is available. There are 3 editions of BB Flash Back: Express, Standard and Professional.

Express edition allows to record screen, sound and webcam, share recordings online and save them as AVI and Flash movies. Standard edition adds annotation and Windows Media and QuickTime exporting. Professional edition includes all options from other editions, adds audio and video editing, executable file export, zoom and pan effects. The software has user friendly interface and easily editable video and audio tracks with a time scale (Fig. 3). It is possible to record commentary while the screen is recording or after that, as well as to add text, images and sounds to annotate the movie.
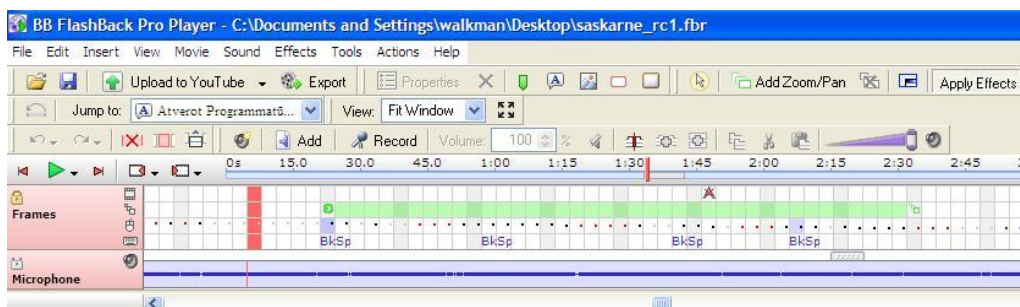

Fig. 3. **BB Flash Back Pro video processing**

BB Flash Back Pro is compatible with the latest operating systems like Windows Vista and Windows 7. Minimum requirements of the system are:

- Processor: 500 Mhz required, 1Ghz recommended.
- Memory: 256 Mb required, 512Mb recommended.
- Display: 800x600.
- Video Card: 8 Mb memory required, 64 Mb recommended.
- Approximately 50MB of hard disk space for application files.

Video recording

BB Flash Back Pro software provide high-quality video recording, without significant affecting of the computer performance. Video recordings could be supplemented with comments on what is happening on the screen by using a microphone or other audio equipment. The software provides extensive support for file size and quality selection, and export of files in different video formats: Flash, QuickTime, AVI and Windows Media Video.

Video Editing

Screen records can be improved by creating text boxes with comments, making certain fields brighter, inserting images and interactive buttons. Comments can be customized according to specific requirements for message managing and imposing fade-in / out effects (Fig. 4).

Fig. 4. **Text boxes with comments**

The possibilities of zooming allow to user make focus on any particular part of learning material (Fig. 5).

Fig. 5. **Possibilities of zooming**

Processing of records includes a feature, which correct errors occurred during screen recording. It is the possibility to insert or remove pauses at a particular moment. During the processing of video, user is able to safely do experiments because undo / redo features allow cancelling of activity.

Interactive learning material

The study course "Computer graphics" includes learning of freeware GIMP (GNU Image Manipulation Program). In order to improve training materials of the study course, videos were created by using screen recording software Flash Back Professional. Beside to traditional learning materials, students were provided with interactive tutorials. For evaluation of study material students were asked to use grading scale from 1 (lowest value) to 5 (highest value). Survey sample size involved 42 students of 2010/2011 and 2011/2012 academic year. The main questions in checklist were:

- Is the study material suitable for self-study?
- Is the study material understandable?
- Is the study material easy to use?

Results and discussion

Data summarizing from questionnaires shows that 43 % of respondents consider prepared interactive training material as well suited for self-study (value 4). 29 % of respondents consider this material as medium suitable for self-study (value 3), while 21 % of respondents find it remarkably suited for self-study (highest ranking value 5). Only 7 % of respondents are not satisfied (value 2) with the study material. None of respondents selects the lowest-rated response (Fig. 6).
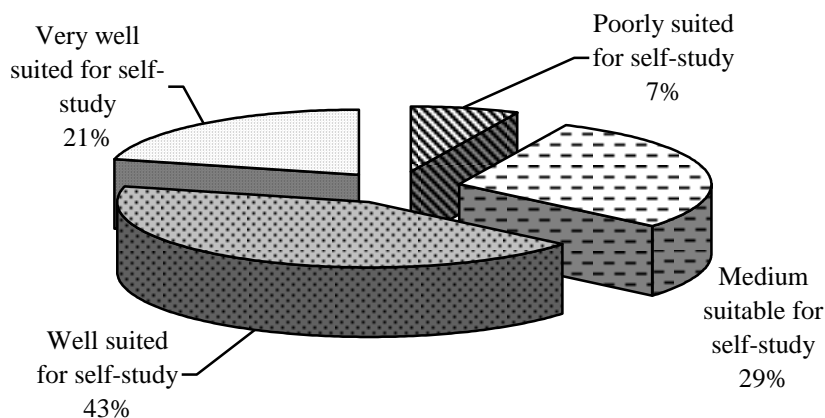

Fig. 6. **The training material suitability for self-study**

Responses to question about how easy is to use the interactive learning material show that 50 % of respondents rate it as easy to use (value 4), while 29 % of respondents rate it as particularly easy to use (value 5). 21 % of respondents believe that training material is moderate friendly (value 3) to user. None of the respondents selects lowest rating values as 1 or 2 (Fig. 7).
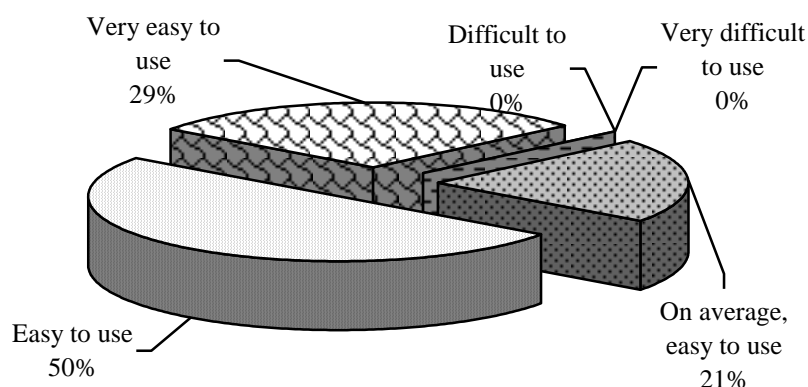

Fig. 7**. Simplicity to use the learning material**

Personal interest is one of the most powerful driving forces in cognitive processes. Therefore, survey includes question to find out if the learning process with interactive tools application is attractive for students. Remarkable proportion of respondents describe interactive training process as particularly interesting or

interesting, respectively 36 % of respondents select value 5 and 36 % of respondents select value 4. 14 % of respondents believe that the training process is moderately interesting (value 3), and the same number of respondents answer that such learning process is not interesting for them (value 2). None of the respondents selects the lowest rating value (Fig. 8).
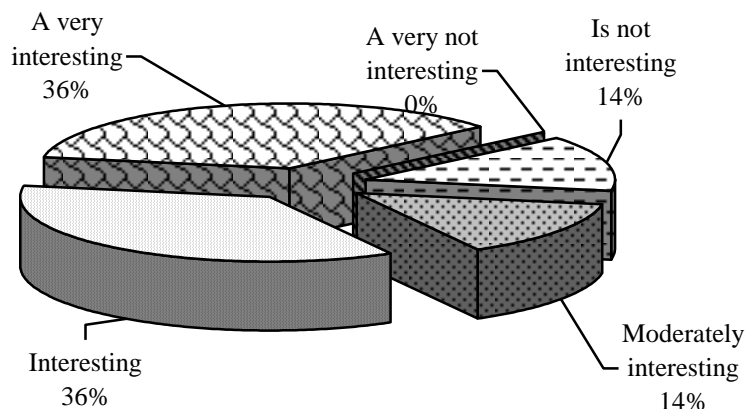
Fig. 8. **Student's personal interest in the study process**

Respondents were also asked to evaluate how easy is to use the training material. Data analysis results show that 50 % of respondents say the training material as has been understood (value 4), whereas 29 % of respondents describe training material as almost understandable (value 3), but for 21 % of respondents, it is well understandable (value 5). None of the respondents selects lowest rating values as 1 or 2 (Fig. 9).
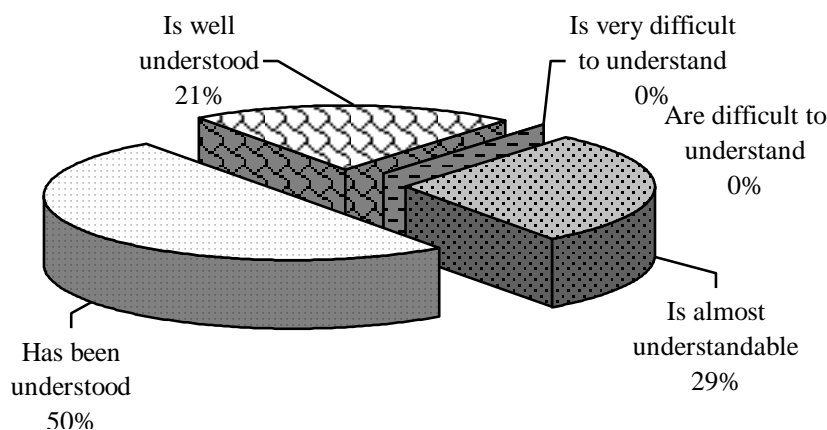
Fig. 9. **Student's understanding of the study material**

Finally, the survey shows the training type opportunities for other software learning. 50 % of respondents prefer interactive learning for other software study. 27 % of respondents give preference to learning with video training. 9 % percent of respondents wish to learn other software by using the text books. 5 % of respondents highlight the audio training opportunities.
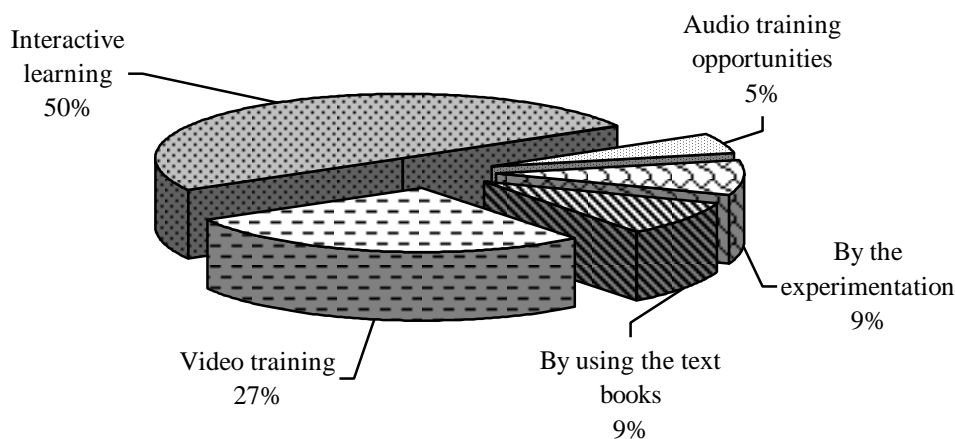
Fig. 10. **Preference of training material type for other software learning**

It is important to note that respondents emphasise exploring of the interactive learning tool for GIMP software learning as interesting process and well suited for self-study. It allows concluding that similar materials could be successfully prepared for other software teaching.

Conclusion

1. Screen recording software BB Flash Back Pro is suitable for Faculty of Information Technology study courses material improvement with videos or interactive video learning materials.
2. BB Flash Back Pro is easy to use software that allows preparing of e-learning materials in more productive manner thanks to user friendly graphical interface.
3. Process of interactive training material preparing with BB Flash Back Pro is time-consuming. Each frame with visual information, as well as areas suitable for effect or interactive element adding should be carefully reviewed.

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