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Multimedia Applications – Efficient Tool for Students and Teachers

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Abstract

The contribution aims at showing the current state and planned innovations concerning multimedia applications in teaching English for Science and Technology at the Slovak University of Technology (STU), Faculty of Materials Science and Technology (MTF).

English language training at the STU MTF, Department of Professional Language Communication is being carried out according to the syllabus based on a thorough analysis and is continuously innovated to improve the graduates' skills, while satisfying also the demands of industrial practice.

Teachers with the Department of Languages continuously prepare STU MTF students for e-learning via various tools, such as Academic Information System which is not only recording the study results and providing study materials but also a useful means to prepare, distribute and evaluate numerous methodology ideas, share presentations, animations, videos; or e-learning interactive study materials. One of the biggest advantages the Department utilizes is online testing system where the Department has customized the test to the needs of appropriate placement of students. Moreover, the Department is currently planning to build a new digital multimedia classroom enabling to work with e-learning materials. The Department teachers and students also experienced on-line net meetings within the International Student Collaboration project with Purdue University in Kokomo, USA. The Department has also started its own webpage where all necessary outcomes of either under/postgraduates are displayed.

Virtual reality is another interesting multimedia application presented to the user in such a way that it appears and feels real. A virtual laboratory has been successfully created within the project of preparing a multimedia textbook for secondary school students at the STU MTF. Nevertheless, the multimedia applications provide a great help for teachers themselves in project collaboration namely with the Department of Applied Informatics and Automation in Industry.

1. Introduction

When referring to multimedia, we generally mean the combination of two or more continuous media played during some time, usually with some user interaction. In practice, the two media are normally audio and video. Integrating these media in a computer allows the use of existing computing power to represent information interactively, enabling thus a wide range of new applications which are of central significance for users of multimedia systems wanting to interact with multimedia data [4]. Needless to say, they are utilized efficiently both by students and teachers.

2. Language teaching facilities at STU MTF

Foreign language training at the Slovak University of Technology (hereinafter referred as STU), the Faculty of Materials Science and Technology (MTF) is being carried out according to the syllabus based on a thorough analysis of the Faculty's students and graduates' needs on the one hand, and the demands of practice and employers on the other hand. Moreover, it is continuously innovated to correspond with current requirements of the region and its job market.

As far as ICT experience of students entering the university study is concerned, this is commonly on quite high level. Nevertheless, we have to admit these secondary school students have no or minimum e-learning experience, they therefore have to get acquainted with e-learning environment and be introduced into e-learning techniques, as the major part of study materials for the Faculty of Materials Science and Technology students is currently being published in an electronic way, frequently as interactive materials.

The Faculty puts great emphasis on the innovation of all teaching rooms, lecture halls or theatres, online multimedia computer laboratories, language laboratories and computer pools so that they can be employed in faculty e-learning. By the implementation of the Centre of Knowledge Organization of Intellectual Property project a lecture hall at the T-pavilion and several other seminary rooms of the faculty campus have been reconstructed. They meet all the attributes of modern multimedia teaching environment. For instance, the hall has a capacity of 50 seats and is equipped by fifty laptops, a projector, a screen, a printer and a copier. By the infrastructure the lecture hall is connected to the Internet. It is intended to be an expert and teaching workplace for the transfer of knowledge gained from the information sources in all subjects not only languages.

As far as the foreign languages education at the Faculty is concerned, it is obvious they are taught more easily with the support of modern ICT forms delivering thus great efficiency, rather than as being essential [1]. The Department utilizes a classical analogy language laboratory which is simple but commonly used by teachers to support effective teaching, first for its operating simplicity. Some teachers still prefer a classical CD player even though it can be replaced by a computer in a digital language laboratory. The second advantage is its simple maintenance – e.g. no antivirus programs installations are needed. The decision to teach in a language laboratory depends essentially on the integration of work in the class with activity in the laboratory. In the nearest future, we plan to reconstruct this laboratory and equip it with a digital system with simple operating – a system that will provide an entire control of teaching in a class and in connection with optional modules and language software will create a professional language laboratory. It will enable us to work more dynamically in explaining, monitoring or helping undergraduates and organising a group or assessing individual tasks.

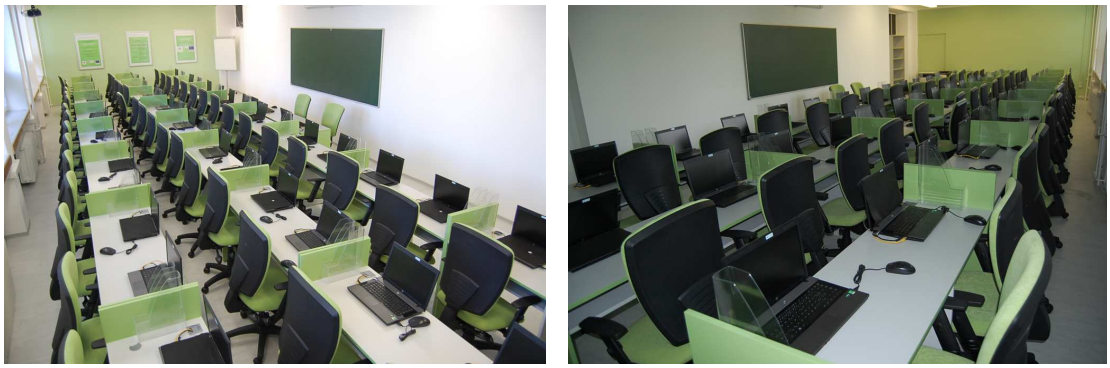

Fig. 1 a, b Example of reconstructed multimedia teaching room

3. E-tools at STU MTF

3.1 The Academic information system

The academic information system (AIS) of the University is restricted to its employees and under/postgraduates and allows the academic community and university staff to access/exchange/download a wide range of information. The system is probably very similar to information systems of other universities in Slovakia or even in Europe, e.g. Personal administration section of the AIS contains twelve parts: three out of twelve are connected with teaching – My

teaching (My lectures), E-learning (e-Learning projects, Tests and examinations) and Personal management (Mail box, Document server, Discussion platforms).

The staff logs in the AIS every day to get in touch with students, provide electronic consultations and as well as they enter e-Learning projects applications used to register, produce and distribute materials or instructions for the e-learning courses. In corresponding subjects under/postgraduates find necessary and useful material they have to study, process, complete assignments and send to their teachers.

Moreover, the AIS enable both students and teachers to enter a discussion, chat and other interactive activities at a convenient place and time. Selected messages are usually then a basis for further discussion in class or for 'frequently asked questions'.

3.2 E-learning at STU MTF

The Faculty utilizes e-learning as a potential to enhance both learning and teaching. The key goal is that under/postgraduates are active learners; this places a greater emphasis on staff facilitating learning through participative and interactive e-learning methods.

E-learning is embedded as a key element of teaching and learning in e-Learning Policy. It is learning facilitated and supported through the use of ICT and it occurs as blended learning. It is integrated with traditional media and methods depending on the course content, level and under/postgraduates and supports learning through provision of resources and also on-line learning where students are engaged in interactive learning activities. It enables on-line communication between students and staff, facilitates discussion forums as well.

A group of objects merged under the common name of e-learning found in the AIS is one of the parts teachers work with when producing new study materials. E-learning projects consist of e-learning support, testing and other parts.

3.2.1 Testing

Experienced teachers realize that producing e-learning material and making it available for students without feedback is only half the job. The verification of material quality, the level of understanding and the extent of acquired knowledge constitutes the second half. Therefore, the component part of an e-learning module is the part devoted to preparing and writing the tests. Tests administered in the e-learning module perform different tasks. On the one hand, teachers use them as an electronic form of testing students to verify the knowledge acquired, on the other hand, students can use them for self-access testing to verify their knowledge and skills acquired in the subject matter [2].

Due to different levels in language competence as well as to avoid time-consuming corrections of students' placement tests in winter semesters, a new web application has been introduced by the Department – an online testing system. The tests were prepared in accordance with the Global Scale within the Common European Reference Framework. Students register to be tested at a specific time and their outcomes are evaluated automatically. Then the results are recorded, compared and the groups of students with similar language competence are organized. Students registered can take the test only once to guarantee the required validity, objectivity and practicability, while respecting user-friendliness, time effectiveness and learner autonomy.

3.2.2 E-learning support

In the field of e-learning, study support is represented by an interactive training material available for students of a given course. It is a fully interactive material that may contain not only texts but also

images, video or audio recordings, as well as tests to verify the extent of understanding of a subject matter [2].

Some of more advanced study groups usually majoring in informatics create their own web page to prepare, archive, and distribute their materials.

3.3 Project work and preparing presentations

Project work has been successfully integrated into teaching languages for its effectiveness, authenticity, learner-centredness, student professional development, employment of integrated language skills, and possibility to combine individual talents and knowledge acquired in specific subjects studied within the chosen study programme. Project work involves multi-skill activities, challenging students to work together within a team with developed dynamics and reasonable time management. The implementation of ICT is a must for the completion of the project assignments; students are challenged to use the resources on web, including e-learning materials.

Presentations are one of the obligatory outcomes for under/postgraduate students since we consider the ability to present own ideas either in general or specific fields. Both staff and the students make a great use of one of the most popular custom programs Microsoft Office PowerPoint – a presentation graphics package allowing them to add a professional touch to the materials presented. Undergraduates usually prepare presentations covering simple scientific topics; doctoral students use them for preparing for doctoral examinations, exhibitions or national and international conferences. Students become fast familiar with the basic concepts of creating PowerPoint presentations, from inserting and formatting the text and graphics to changing the slide layout and design, basic animation, linking to other documents, multimedia, creating customised slide shows and saving presentations as image files or to the Web. They frequently create presentations enhanced by soundtrack, transition effects and printing handouts to achieve maximum impact [3].

Student Research Conference is an integral part of the education at the Faculty and the highlight of the Department. The concept, format and conditions have been continuously innovated due to the progress in the field of professional, language and technology development. Student Research Conference simulates real conference conditions and provides the students with the chance to practise presentation skills and public speaking, use the latest presentation, information and communication technology, try working in team, etc. and thus improve their communication and presentation competences within their engineering study programmes.

3.4 Collaboration with other workplaces

The Department teachers and students also experienced on-line net meetings within the International Student Collaboration project with Purdue University in Kokomo, USA executed couple years ago and possible thanks to new communication and information technology. The videoconferences were very popular with students.

Virtual reality is another interesting multimedia application presented to the user in such a way that it appears and feels real. A virtual laboratory has been successfully created within the project of preparing a multimedia textbook for secondary school students at the STU MTF.

The collaboration is very successful especially with the Department of Applied Informatics and Automation in Industry, where the language teachers in particular are helpful by the projects preparation and making the amount of multilingual materials available.

4. Conclusions

The ICT development is currently very progressive and further innovations in using various e-tools pop up day by day. Therefore, the STU MTF teachers aim at helping the graduates successfully perform in their jobs as well in the international research and study environment, and enhancing their e-learning skills and e-tools practice. Needless to say, that this constant practice should be carried out not only by the students, but by the teachers producing e-materials as well.

We suppose that language training provides an ideal space to meet the requirements of continuous development of using e-tools. Language teachers of the STU MTF Department use the tools to stimulate the students' interest in e-learning activities, to develop their e-learning skills and competences, and make use of the e-learning environment at the Faculty or University.

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