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A résumé of PhD thesis

THE EVALUATION OF THE IMPLEMENTATION AND APPLICATION OF MULTIMEDIA-BASED EDUCATIONAL TECHNOLOGIES IN MILITARY ENGLISH TEACHING

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AN OUTLINE OF THE SCIENTIFIC PROBLEM

The research project presented in the following dissertation intends to support military language teaching at the Zrínyi Miklós National Defence University, and aims to help to improve language teaching efficiency. The dissertation narrows the research to the investigation of military English teaching, and within, it focuses on the development of multimedia based e-learning solutions. The research concentrates on how the special expectations and requirements of the intensive language courses and adult education at the Language Institute of the Zrínyi Miklós National Defence University can be fulfilled, and how the language competencies of the professional and contract military personnel as well as of the civil servants can be developed, reinforced and consolidated in the future.

Two tendencies underpin my doctoral research. On the one hand, in the 21st century the integration of multimedia-based language packages applying information technological innovations in education cannot be avoided in the teaching of English for Specific Purposes. The penetration of information technologies in education brought about the introduction and the use of multimedia-based learning packages offered in CD ROMs and DVDs in the teaching of military English. However, with the use of the partly domestically developed military English teaching programs in other NATO member states, that is in other cultures, certain criteria emerge that can hinder or, to the contrary, can even advance the efficient use of these programs. On the other hand, online learning systems, accessible from remote places, are taking ground, consequently, their development and integration in the educational structure put a challenge to the tutors as well.

In the Information Society, military English teaching cannot lag behind and keep merely to the conventional classroom based education. The proliferation and advance development of multimedia and modern educational technologies, as well as the distance education "boom" raise the question of the justifiable existence of dynamic databased, military English courses with remote access, and, in parallel, of the importance of the multimedia lab-based language courses. As a result, the research of the mixture of the two, i.e. the research of the efficiency of blended learning is well underpinned.

RESEARCH OBJECTIVES

Pedagogy and language teaching were not always capable of following the incredibly fast and revolutionary developments in technical and information sciences in such big steps. History showed that changes and revolutionary approaches in language teaching methodologies compelled an improvement in computer assisted language teaching prompting and stimulating more and more advanced methodological developments. The challenges of the Information Society at present, however, make the supervision and investigation of existing language teaching methodologies necessary.

The problems and challenges drawn above necessitate the search and elaboration of new solutions. The abovementioned requirements outline a new research project with its aims and objectives that are summarised in the following:

1. To prove a relationship between the usage habits of online learning materials and cultural features based on relevant literature, theoretical reasoning and examination of cultural aspects and criteria to be given in order to develop more efficient multimedia language teaching materials;

2. To give a critical analysis of the existing and used multimedia applications, tools and methods, and to conduct research in the field of internet-based language teaching and outline its possibilities and potentials;

3. On the basis of my research, to design the plan and to introduce an online, interactive, multimedia-based language teaching system with dynamic data- and knowledge- base that supports e-learning in the field of military English teaching;

4. Based on the outlined concept to realise the military English language teaching system, to develop and upload the learning material into the system, and to implement the programme within the framework of a pilot project at the Zrínyi Miklós National Defence University;

5. Through achieving my objectives, during the pilot project to gather all the data on the server, to examine and analyse with mathematical statistical methods the information about the monitoring of the individual learning habits, the usage of the system, the students' learning styles and other data gathered on the server. Furthermore, to examine the success of the system, to analyse the features of the active learners special attention to the learning habits, the internet usage, and the experience gained with various multimedia learning materials.

Research Methodology

The dissertation was elaborated backed by the results of a several year research project. Several articles and studies were written about the partial results, which were published in various scientific journals, conference proceedings both in English and Hungarian. When selecting the research methodology I strove to create the unity of the form and content and to build a logical structure in and through the chapters.

During my doctoral project I used a wide range of primary research methods, observations, qualitative and quantitative analyses in order to provide a solid ground for conclusions and proposals. Data were gathered from questionnaires, and databases linked to the programme running on the server. Mathematical quantitative methods were used for evaluation and assessment.

My research project also included the disclosure and processing of printed and electronic international and Hungarian special literature. I used the historic comparative method in the review and analysis of the development of computer assisted language teaching and multimedia teaching programmes.

I thoroughly investigated the gathered special literature by the analytical method, then after systematisation of the data and theory, I used synthesis. During the disclosure and processing of the literature I deployed inductive and deductive approaches as well.

Due to the interdisciplinary feature of my doctoral research, the investigation through the eyes of other related sciences played an important role. Such sciences are sociology, psychology, socio-psychology, history of culture, linguistics and communication culture for example. All these sciences helped me carry out my research.

THE STRUCTURE OF THE DISSERTATION

Introduction provides justification for the topic, its topicality, outline research methodology, the aims and objectives, and the proposals.

Chapter 1 following the introduction gives the theoretical foundation and outlines the history and development of computer assisted language teaching, its tendencies, directions and future potentials. The chapter focuses on the appearance and the big boom of multimedia, and examines its integration potentials in the language teaching process. I analyse the teaching-learning process and environment in the 21st century. Furthermore, I highlight the challenges of the altered teaching-learning environment and I present the opportunities the internet technology can provide to multimedia-based language teaching for specific purposes. I point out, backed by facts and arguments, that with the help of internet technology the existing static multimedia language teaching programmes can be developed into modern, up-to-date teaching packages meeting the requirements of the 21st century.

Chapter 2 deals with multiculturalism as fundamental influencing factor in multimedia-based language teaching. The aspects and challenges of multiculturalism raise certain requirements that teaching material developers must fulfill, and as such, the consideration of these criteria eases and makes the global introduction of multimedia language teaching programmes more successful. I also highlight the significance and importance of multiculturalism in the efficient use of internet-based learning material, and point out that so far this aspect has not been considered as important as it is in the developing phase. With the access of culture-independent language programmes, developed by taking the cultural aspects into account, the professional and contract military personnel of the National Defence Forces or even the non-native ones of other NATO member states can more efficiently improve and reinforce their language competencies.

The subsequent two chapters present and analyse the empirical research I conducted and the final chapter assesses the findings.

Chapter 3 presents the elaboration and implementation phases of the online multimedia-supported military English teaching system. This chapter overviews the available learning management systems, the aspects and criteria of its selection, and the e-learning standard and LMS[1] systems used in NATO. This chapter presents the development of the MILES – Military English Learning System - , which was available for the students in the frame of a five-month pilot project in the second semester of the 2007/2008 Academic year.

Chapter 4 evaluates the usage of the military English learning system based on personal interviews, questionnaires, statistical analyses and critical evaluations. Using the results of the methods mentioned beforehand I evaluate how students judge an online multimedia-supported teaching package, and

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[1] Learning Management System

what the tutors' and their approach and attitude are like. I wished to justify these programs' grounds, their usefulness and importance with facts and arguments.

The **Conclusion** summarises the research results and the new scientific findings, based on which I draw conclusions and make statements. I evaluate the applied research methods and present the theses. Finally, I make proposals and give recommendations regarding the potential utilization of accomplished PhD thesis work. Ultimately, the dissertation closes with the publications of the author and the bibliography.

SUMMARY OF FINDINGS

After having thoroughly investigated the literature it can be stated that there is no such networked multimedia-based military English language teaching system with a dynamic database that enables identification, and data gathering, and would enable synchronous and asynchronous communication, and thus could more efficiently contribute to the language for specific purposes training of the military personnel. This justifies a new research direction, namely, the development of an online multimedia-based military English teaching system with dynamic database and monitoring tool, while the evaluation of its deployment and usage is a must.

Given a widescope examination of the relationship between the usage of language learning packages and multiculturalism, I disclosed that there exists an interaction between multiculturalism, intercultural communication and multimedia-based language for specific purposes teaching packages. On the one hand, multiculturalism and intercultural communication play an important role in the development of multimedia-based language for specific purposes learning materials, and, on the other hand, regarding the student's side, the cultural background and the student's learnt or born language learning habits and styles unambiguously influence the use of such online packages and systems. It can be argued that the direct (without changes) introduction of multimedia packages from foreign as well as from other cultures very rarely fulfill its goal and lead to immediate success. In order to achieve substantial success, these learning materials must be customised to the given culture based on the criteria given in the dissertation.

Examining Hungary it seems obvious that the transition in the economy brought about changes in both the cultural features of the society and the learning environment. Values and attitudes to learning have been continuously changing; the earlier collectivist country is turning into a sound individualistic one, determining the roles of tutotrs and learners in and outside the classroom as well. IIn parallel, multimedia-based learning materials spread, fostering individual and autonomous learning. In case of students brought up and socialised in Hungary, the high score of uncertainty avoidance explains why both tutors and students still remain sceptical of the value of computer assisted multimedia-based language learning, and why the tutors' role is still of primary importance in the process of language learning. Regarding the context of information and time orientation, Hungary is slowly aheading a lower context, monochronic type of culture. It means that group dynamics and group cohesion are still determining factors in the process of language learning. Students prefer high context authentic video extracts, and instead of drills they welcome various and different tasks and activities in online multimedia-based language teaching packages. Thanks to the freedom in these web-accessible learning packages, students click on different pages, units and tasks randomly thus sustaining their interest and motivation.

In my opinion, tutors will play a crucial role in creating harmony in such a teaching-learning environment where individualism couples with high uncertainty avoidance, while high context communication is carried out in polichronic environment. Therefore, the high integration of interactive multimedia teaching programmes in the language learning process can be carried out with success.

Interpersonal relations and empathy means such a feedback to the student, which help to improve his/her language and communication competencies. The exclusive use of multimedia language courses offered via computers will definitely not reach the fundamental goals of language learning.

Today's military personnel are motivated to improve and reinforce their language competencies, however, their education cannot, by all means, be carried out in conventional classroom environment. They must be offered courses that can be accessed any time a day from any where uploaded with the always up-to-date learning material. Multimedia-based online military language teaching programmes, which enable the development of dynamic learning material, the monitoring of student progress, data gathering and feedback as well as the execution of analysis, contributes also to a great extent to the further education of foreign and national professional and contract military personnel who have already completed courses at the Language Institute of the Zrínyi Miklós National Defence University.

The benefit of the designed networked multimedia-supported system is that it enables such data gathering that are linked to the learning style and progress of the system users. These data can be evaluated by mathematical statistical methods thus contributing to the further development and tailoring of the system, and, furthermore, to efficiency increase. The development of the MILES – Military English Learning System – proves that the static, stand-alone CD-ROM or DVD learning packages can be developed − by offering it through LMS, adding further video and multimedia components, and by requiring student identification and authentication − into dynamic, extendable and web-access language for specific purposes learning systems. I presented the concept and realisation of the designed, user friendly interactive online system that meet the requirements of our century.

The examination proved that on the one hand, the continously monitored multimedia-based networked language learning form, which is partly offered for free time activities, can, from the aspect of motivation and efficiency, influence military language training in a positive way. It helps the development of a well operating dynamic language for specific purposes framework. Based on the examination of the cultural features and the result of a questionnaire I proved that blended learning has a solid ground in military language learning, i.e. tutorial feedback and (self)check are required.

On the other hand, I proved that the challenges of the information society, the digital technology as well as the proliferation of the virtual learning environment both influence the teaching-learning process in adult education. The above described dynamic, online course, which can be easily altered,

complies better with real life tendencies and can better adapt to the students' demand in this accelerated world.

From the tutorial side, apart from the change in the tutor's role, tutors who can develope electronic learning materials should be trained.

The conclusion of the detailed research is that comparative analysis can be carried out only partially, since the CD ROM selected for comparison cannot enable such an analysis. Therefore, it can be stated only to a certain extent that student motivation is higher and/or the online system contributes with higher efficiency to the language improvement and consolidation of the professional and contract military personnel and civil servants.

On the other hand, I proved that student monitoring and check increases the use and usability of online multimedia-based military English teaching packages. Contrary to the stand-alone multimedia language learning materials the students could be motivated to complete the offered course. The web-access military English course that provided monitoring and (self)checking functions unambiguously raised student motivation thus the learner's language knowledge and competencies improved or could be sustained.

THESES – NEW SCIENTIFIC FINDINGS

1. I analysed how an online, multimedia military English language teaching programme can be integrated into the present educational structure at the Zrínyi Miklós National Defence University.

I analysed the teaching-learning environment in the 21th century, the student's and tutor's changed roles and the opportunities of the integration of internet technological solutions in military English teaching. I have outlined and gave the critical analysis of the traditional computer assisted and multimedia supported language teaching systems. I have pointed out the drawbacks of the existing computer assisted solutions and the necessity of the introduction of an online, multimedia military English teaching programme that would give possibilities for statistical analysis as well.

2. I gave the theoretical proof of the fact that language learning styles and strategies of professional and contract military personnel and civil servants with different cultural background and of different mother tongue are influenced to a great extent by their home culture.

I have proved the relation between the cultural attitude to and the usage habits of modern online, multimedia learning packages. I have introduced the cultural aspects and features, known and applied in business life research, into the research of language teaching and learning process. Moreover, I have developed the profile and attitude of a language learner to the online, multimedia language teaching packages, who was brought up in the Hungarian culture.

3. I developed an user friendly, dynamic online learning package from a static CD-based multimedia military English teaching programme, which fulfils the requirements of our century and I put it in an adequately selected learning management system.

The development of the learning system presented in the dissertation proves that a static, stand-alone CD ROM- or DVD- based language for specific purposes programme can be developed − by its integration into a learning management system, by embedding video and multimedia components as well as by requiring student identification and authorization

− into a dynamic, extendable language package that can be accessed via the web.

4. I elaborated a questionnaire and I gave an evaluative analysis that the usage and usability of online, multimedia military English language packages are to a great extent increased by the available monitoring and controlling of student activates. The web accessible, language for specific purposes teaching packages, that include both tutorial and self testing and controlling, enhance student motivation and thus strengthen and make language competencies consolidation possible.

I proved that with the help of data gathered in the online system the usage and usability of a system can be objectively analysed and evaluated contrary to the examination of a CD-ROM based course, where only subjective measuring possibilities are available. In case of learning material that cannot be tested and controlled, student progress cannot be monitored and checked, and thus the results given by the already used, but static military language teaching programmes lag well behind the expectations.

5. I proved with facts that Hungarian students prefer blended learning in case of the use of multimedia-based language learning packages.

Consequently, I recommend that instead of developing multimedia learning materials for exclusively individual and autonomous learning, the development of online multimedia language teaching materials to support and supplement classroom-based tasks in military English teaching should be supported.

Proposals of and suggestions for the application of the MILES teaching package

The developed MILES online ESP[2] learning package provides further possibilities and developmental potentials and can be the starting milestone for further research directions. Further STANAG 2 and 3 courses can be developed by the use of the HTML frame, and additional development of the present STANAG 1 course gives a future programming task (listening and reading comprehension) to the course designers and developers. Extra tests and tasks of the existing course can be worked out and new test types can be developed in order to measure the students' knowledge and monitor their progress in language learning. Next to the use of the system in the five-month intensive language courses, its introduction in other language courses of the University, either to supplement the learning material in the course or to test and monitor student progress during the course that is to use it for leveling or assessment, is again a future task. The fast testing and assessment possibilities of the system can brilliantly be used for the fast assessing of the group's command of English, the seminar testing of the students at the Zrínyi Miklós National Defence University.

In my opinion, beyond the above mentioned aspects, the online multimedia military English teaching system with its virtual space (forums, chats, message exchange etc.) created by the system offers an excellent opportunity to help and enrich the communication between the university and its students (present and alumni) and, furthermore, supports the alumni programmes, and enables the realisation and sustenance of a lax networking system. Therefore, it contributes to the coordination of the alumni and the career support programmes and enables the university to follow how graduated students and those in adult education succeed in their professional lives.

The further examination of the cultural background and language learners with different mother tongue can contribute to a great extent to the successful development and application of future online multimedia ESP developments.

On the basis of all this, I recommend that instead of developing multimedia learning materials for exclusively individual and autonomous learning, the development of online multimedia language teaching materials to support and supplement the classroom based tasks in military English teaching should be supported.

The application of the results of my research would expectedly contribute to the improvement of the foreign language knowledge and language competencies of the future professional and contract military personnel, non-commissioned officers and civil servants.

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[2] ESP – English for Specific Purposes – angol szalnyelvoktatás

LIST OF PUBLICATIONS OF THE PHD CANDIDATE

Articles in reviewed international conference proceedings:

1. Tick, A.: Implementation of Modern Technologies in Military English Language Teaching in *the Proceedings of the 12th International Conference on Intelligent Engineering System*, 25-29 February 2008, Miami, Florida

2. Tick, A.: "Use of Problem-based Learning in Teaching Logistics and International Operations" *Proceedings of the International Symposium on Logistics and Industrial Informatics*, LINDI 2007, Wildau, Germany, 13-15 September 2007, pp. 81-85. ISBN 1-4244-1441-5, IEEE Catalog Number: 07EX1864C, Library of Congress: 2007930060

3. Tick, A.: „Application of Problem-Based Learning in Classroom Activities and Multimedia" *Proceedings of the 5th Slovakian – Hungarian Joint Symposium on Applied Machine Intelligence and Informatics, SAMI* 2007, Poprad, Slovakia, 25-26 January 2007, pp. 363-375. ISBN 978 963 7154 56 0

4. Tick, A.: „The Choice of eLearning or Blended Learning in Higher Education" *Proceedings of the 4th Serbian – Hungarian Joint Symposium on Intelligent Systems*, SISY 2006, Subotica, Serbia, 29-30 September 2006, pp. 441-449. ISBN 963 7154 50 7

5. Tick, A.: „A Web-based E-learning Application of Self Study Multimedia Programme in Military English" *Proceedings of the 3rd Romanian – Hungarian Joint Symposium on Applied Computational Intelligence, SACI* 2006, Timisoara, Romania, 25-26 May 2006, pp. 621-633. ISBN 963 7154 46 9

6. Tick, A.: „From Computer Assisted Language Learning to Computer Mediated Language Learning" *Proceedings of the 4rd Slovakian – Hungarian Joint Symposium in Applied Machine Intelligence,* SAMI 2006, Herlany, Slovakia, 20-21 January 2006, pp. 405-413. ISBN 963 7154 44 2

The author was citated in three independent reviewed publications.

Articles in proceedings of Hungarian conferences:

7. Tick, A., „A multikulturalizmus mint kritérium a katonai szaknyelvoktatásban" [Multiculturalism as Criteria in Military Language Teaching] *Nyelv, szaknyelv, katonai szaknyelv – Tudományos konferencia a Magyar Tudomány Napja 2007 tiszteletére*, ZMNE Nyelvi Intézet, 16 November 2007. pp. 73-85.

8. Tick, A., „A problémamegoldó módszerek alkalmazási lehetőségei a tanítási órán és sikere a Külkereskedelmi Főiskolai Kar angol nyelvű képzésén" [Application of Problem-based Learning in Classroom Activities and Its Success at the BBS Faculty of International Management and Business] *Reformok útján – Tudományos konferencia a Magyar Tudomány Napja 2007 tiszteletére*, BBS Budapest, 8-9 November 2007.

9. Tick, A., „Kommunikációkultúra, avagy a multikulturalizmus kihívásai a multimédiás szaknyelvoktatásban" [Communication-culture, or the Challenges of Multiculturalism in Teaching Language for Specific Purposes with Multimedia] *Multimédia az oktatásban 2007.* Budapest, CD Kiadvány, Budapest, 23-24 August 2007. (under publication)

10. Tick, A., „Oktatásmenedzsment keretrendszer kiválasztásának lehetséges szempontjai a felsőoktatásban" [Possible Selection Criteria of Learning Management System in Higher Education] *Multimédia az oktatásban 2006.* Kaposvár, CD Kiadvány, Kaposvár, 25-26 August 2006.   ISBN 963 9639-06-0

11. Tick, A., „A multimédiától a hipermédiáig a szaknyelvoktatásban" [From Multimedia to Hypermedia in Teaching Language for Specific Purposes] *Kandó Konferencia 2006*, XXIII. Nemzetközi Tudományos Űlésszak, BMF-KVK, CD kiadvány, Budapest, 12-13 January 2006. ISBN 963 7154 42 6

Articles in Hungarian reviewed journals:

12. Tick, A., „Problémamegoldó módszerek alkalmazási lehetőségei a tanítási órán" [Application of Problem-based Learning in Classroom Activities] *Új Honvédségi Szemle*, Year LXI. Issue, 5., 2007. May, pp.89-98., Honvédelmi Minisztérium, HU ISSN 1216-7436

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Budapest, 15 November 2008.

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