

ZRÍNYI MIKLÓS NATIONAL DEFENCE UNIVERSITY
MILITARY SCIENCE PHD SCHOOL

A résumé of PhD thesis

**Some Requirements, Principles, and Methods for IT Support to Distance
Learning in Military Education and Further Training**

Written by

Major Imre Négyesi (eng.)

Consultant mentor:

Colonel Sándor Munk (eng.) PhD
university teacher CSc

BUDAPEST

2006

AN OUTLINE OF THE SCIENTIFIC PROBLEM

Nowadays the question is obvious: are we supposed to stick to conventional teaching and learning methods or are there any challenges and options that make it dramatically a new system. This question is naturally put in relation with teaching military related knowledge too. There are many of those who deal with interpreting notions of “distance learning” and “life-long-learning” and with their practical use but it can be seen that the status of this field of research is in a rather liquid. The Swedish principles and practice are regarded as a model by several experts although distance learning/teaching has a long history in other countries such as the USA, Canada, or Australia too.

Distance learning/teaching has currently become one of the most important pedagogical problems. Traditional forms of training are based on the “long-term” concept of school system. Previously, for example, university level training (medical doctors, engineers, lawyers) provided mainly knowledge which prepared students for properly cultivating their professions until retirement age without any significant learning. In the 21st century these conditions cannot be entirely fulfilled. Therefore one of the most important principles of professional training will be to prepare experts capable until retirement instead of training professionals capable for eternity thus establishing the need and capacity of life-long learning. Both professional and contract military personnel needs continuous learning since valid promotion system is based on this.

At the same time, however, it should be seen that the personnel of the Hungarian Defence Forces – in accordance with current policy and challenges – is permanently shrinking. Consequently the utilization of distance learning methodology – even if it does not include every field of studies – necessarily applies to military education as well including the training activities conducted by the Zrínyi Miklós National Defence University. The actual promotion system requires a continuous learning from the entire military personnel, which should be based on the continuously shrinking teaching staff of the ZMNDU. This fact predicts another one: new methodology should be introduced in training in order to maintain efficiency. However, this new methodology cannot involve a regular “withdrawal” of trainee

officers or contract personnel from their jobs. Only a training conducted simultaneously with active service can be viable in the future.

RESEARCH OBJECTIVES

1. On the basis of my research I disclose, demonstrate, and define what EU regulations should be applied in introducing distance learning into various training structures at the ZMNDU, what methodology and conditions should be used in teaching military or defence subjects through distance learning thus allowing the modernization of training and retraining system of professional and contract personnel at the ZMNDU.
2. Through achieving my research objectives I prove that distance learning/teaching methodology can be adapted to the structure of training conducted at the National Defence University with regard to the special conditions of military education.
3. I prove, structure, and define what technological means the ZMNDU should possess in order to conduct distance teaching and to develop electronic-based teaching materials.
4. I prove, structure, and propose on needs for human resource in training and further training through distance learning/teaching at the ZMNDU.
5. I prove that distance learning/teaching at the ZMNDU can be used as a basic method for retraining and further training of professional and contract military personnel.

RESEARCH METHODOLOGY

In order to achieve the stated objectives the following research methodology was used during the development of the thesis work::

— through analyzing studies, articles and lectures I disclosed, and processed both international and Hungarian special literature;

— by using various sources in special literature I made analyses in order to provide solid ground for conclusions and proposals;

- I participated in a number of professional consultations, meetings, conferences, and used the experience by its processing and evaluation in my research work;
- through comparative analyses I disclosed all the opportunities which distance learning/ teaching can provide in the field of military training and further training system of the ZMNDU;
- I did courses at various levels where I learned the tasks of distance tutors and the rules and opportunities of developing special teaching materials for distance education.

A BRIEF DESCRIPTION OF RESEARCH

In concert with research objectives I regarded the general system of distance learning/teaching definitions as a starting point for my thesis work. After defining the basic notions I examined the links between training and education conducted at the ZMNDU and the regulations by the European Union and the role of the latter in the Hungarian Information Society Strategy. The next step was to change perspectives and from general analysis to look into the specific military aspects of the EU education strategy. In the following parts of my thesis work I examined what EU requirements the ZMNDU distance learning/teaching e-materials should meet and what IT means or human resources are required for their development. Therefore my thesis work is divided into the following major units:

Introduction provides justification for the topic, its topicality, outlines research methodology and the potential options of utilization of findings.

Chapter 1 examines the basics of distance learning/teaching and analyses the specific requirements and conditions of military use of the methodology, systematizes the application of the EU regulations, principles and methodology in the training system of the ZMNDU, and also analyses the relation of this regulation with the Hungarian Information Society Strategy.

Chapter 2 overviews both the opportunities and methodology of developing teaching materials for military training and education, which are conform to EU requirements.

Chapter 3 examines military aspects of educational and IT strategies of the EU and the current status of distance learning/teaching in the training structure of the ZMNDU.

Chapter 4 describes the IT means and human resources required for the development of distance learning/teaching e-materials to be used in the ZMNDU and the process of teaching materials development.

In the Conclusion I outline the new scientific findings and make proposals regarding the potential utilization of accomplished PhD thesis work.

SUMMARY OF FINDINGS

In summary therefore I can state that taking into consideration and meeting the challenges of our century distance learning/teaching can be used as one of the ways of training and further training conducted at the ZMNDU. At the same time it is fairly possible that distance learning/teaching will primarily be used as a fundamental method in the system of further training courses. A further analysis of the potential advantages and disadvantages disclosed in my thesis may allow to make distance learning/teaching optimal, to increase further training at the ZMNDU, and to further enlarge the further training system. However, it should not be forgotten that distance learning/teaching is not a one-size-fits-all method and cannot be used for teaching every academic subject therefore a delicate balance has to be found and maintained through which our values and achievements can be preserved and all challenges can be met.

Taking into consideration the documents of the EU and the current achievements it can be stated that as early as the establishing of Hungarian Information Strategy the EU's principles were fulfilled. At the same time I wish to highlight that the authors of Hungarian Information Society Strategy paid special attention to the role played by education, including higher education. The most significant (both for the thesis and in general) of the training-related findings is that distance learning/teaching could be given an exceptional role both in accredited higher education and in other further training courses. One of the most important tools in this regard is e-learning networks. Life-long learning as a guiding principle

which is present in all of the analysed documents can be accomplished only through the use of IT tools. The continuous development of these tools requires financial support based on the National Development Plan. If the point laid out in the two documents can be accomplished the objectives and priorities set by the EU and aimed at the medium-term development of public education can be achieved. In the field of military training and further training at the ZMNDU, examined in my thesis also these principles laid out in the above documents should play a guiding role. A further basis for these training structures can be provided by the EU education information strategy.

Due to the continuous changes I do not give a detailed introduction of the IT systems of the ZMNDU. At the same time, however, it is obvious from the above points that no European level has been achieved at the ZMNDU as for the hardware and software means are concerned. The foreign and Hungarian education institutions examined in the thesis are in different positions than the ZMNDU with its special features and its exceptional situation. However, from the special features it also comes that the global trend that every academic subject can be taught through distance learning/teaching does not apply to certain military subjects. The reprocessing of curricula of theoretical subjects into ones teachable by distance learning/teaching methodology is done on a continuous basis. Other necessary reprocessing, such as developing teaching materials, preparation of teachers, etc. however is not smooth although there have been significant achievements in this field. In the case of teaching practice-based subjects (e.g. tactics) the situation is not so clear. There are differing opinions among the teachers too on these subjects. A potential alternative could be, a little like in correspondence courses, the training in theoretical subjects through distance learning/teaching while the practice-based part of training could be conducted in the framework of contact hours/classes through conventional methods.

The presented EU rules, recommendations, and various standards that have to be taken into consideration during the preparation of our e-training materials generate a significant need in the field of tools and human resources. The minimum of tools (hardware, software), which I outline, necessary for the development of e-training materials at an increasingly high level requires significant financial

investments even under the current dire financial conditions. An increasingly efficient utilization of the capacities of a constantly decreasing teaching staff may allow meeting requests in the field of human resources.

Considering the actual financial options I regard it reasonable to provide a decentralized management to the e-training materials to be developed in the framework of Hungarian Defence Forces from the very beginnings. This means that unlike in the current strictly centralized framework systems, different tasks should be dealt with in a different way, allowing the involvement of the existing technology and tools of other organizations, units, of course, preserving the leading role of the ZMNDU. A similar decentralized structure can be applied in the case of human resource management too. It would be rather unwise to exclude those experts who have a direct contact with the target population of training. Naturally this fact brings about another problem to resolve. In this case geographic distance should also be taken into consideration but by elaborating a proper cooperation system this situation can be managed and experts serving in remote garrisons can also be involved.

As the above points indicate, the development of an e-learning material is not a simple activity. The demonstrated process defines several applicable programs which should be used at a professional level or certain elements of development work will be rather difficult. However, it should also be seen that the usable programs cannot be omnipotent and exclusive. There are several software versions in the market, which can help with problem solving but during selection all factors should be taken into consideration. One of such factors is cost effectiveness which can be achieved by the use of off-the-shelf programs. When choosing a program the content to be presented should also be considered. In the case of military subjects this is even more so since not every document can be managed as “unclassified”. Therefore the use of “classified” materials also requires the knowledge of integrated security system of the used software especially if the teaching materials are to be accessed through the internet too. In the case of attached pictures and video-files another aspect is how these can be kept up-to-date. This requires a continuous link to relevant organizations, and other units as they may have these materials. In most cases the content to be taught can be decisive for defining accessibility and the solution can be a secure intranet.

NEW SCIENTIFIC FINDINGS AND PROPOSALS

When analyzing the military application of distance learning/teaching as a new method I achieved the research objectives set in the introduction of my thesis. On the basis of my PhD thesis based on my scientific research I can lay out the following findings that I suggest should be taken as new scientific findings:

1. **I disclosed and structured** the military-related education and IT strategies of the EU and the EU standards relating to distance teaching conducted by ZMNDU thus **proving** potential adaptation of distance learning/teaching into military education.
2. **I proved**, that distance teaching can be a fundamental method in military career courses and **identified** opportunities and methodology of developing e-teaching materials meeting the requirements of both the EU and the Hungarian Defence Forces.
3. **I defined** the tools necessary for distance teaching at ZMNDU meeting hardware and software requirements.
4. **I defined** the technological tools necessary for developing e-learning materials appropriate for the specific situations at ZMNDU.
5. **I defined and made proposals on** human resource and teacher needs for teaching materials development at ZMNDU.

PROPOSALS AND SUGGESTIONS

In my opinion the material of PhD thesis work can be used in planning, structuring, and conducting distance training courses at the Zrínyi Miklós National Defence University. It can also be used in establishing materials development laboratories hopefully to be established in the future and can also help in planning human resources for the use in distance learning/teaching. As a theme for further research I suggest a comprehensive analysis of cost efficiency of distance training courses conducted at the ZMNDU, the accreditation of new BSc and MSc can be examined separately, and the potential launch of new major subjects in the framework of distance learning/teaching. Taking into consideration the special features of military education another potential direction of research can be an

analysis of switching distance learning into Hungarian and foreign military IT networks – obeying information security rules.

LIST OF PUBLICATIONS OF THE PHD STUDENT

1. Négyesi, Imre: Az információ-gazdálkodás lehetséges területei a Befogadó Nemzeti Támogatás adatbázisainak tervezésekor [Potential Fields of Information/Economics in Planning HN Databases] (in Nemzetvédelmi Egyetemi Közlemények, year 5. /No. 4. pp 121-131);
2. Négyesi, Imre: A közlekedés és a szállítás tervezésének információ-igénye a Befogadó Nemzeti Támogatás adatbázisainak létrehozásakor [IT-requirements of Transport and Movement Planning in Establishing HN Databases] (Katonai Logisztika No. 2002/3, pp. 140-166);
3. Négyesi, Imre: A Befogadó Nemzeti Támogatás és a hadszíntér előkészítés kapcsolata a tervezéshez szükséges információkkal történő gazdálkodás tükrében [A Link between HNS and Theatre Preparation in the Framework of Planning-related Information Management] (Nemzetvédelmi Egyetemi Közlemények, year 6. Issue 1. pp 153-166);
4. Négyesi, Imre: A megyei Védelmi Bizottságok és a civil szervezetek helye, szerepe a Befogadó Nemzeti Támogatás tervezésében és végrehajtásában [The Role of County Defence Committees and NGOs in Planning and Executing HNS] (Kard és Toll, Issue 2002/2 pp. 29-39);
5. Négyesi, Imre: A Befogadó Nemzeti Támogatás és a műszaki csapatok feladatrendszerének kapcsolata a tervezéshez szükséges információkkal történő gazdálkodás tükrében [A Link between HNS and Engineer Support Tasks in the Framework of Planning-related Information Management] (Nemzetvédelmi Egyetemi Közlemények, Year 6. Issue 2. pp. 206-219);
6. Négyesi, Imre: A Befogadó Nemzeti Támogatás és a civil-katonai együttműködés (CIMIC) feladatrendszerének kapcsolata a feladatok végrehajtásához szükséges információk tükrében [A Link between HNS and CIMIC Tasks in the Framework of Planning-related Information Management] (Nemzetvédelmi Egyetemi Közlemények, Year 7 Issue 2. pp. 145-155)

7. Négyesi, Imre: A befogadó nemzeti támogatási adatbázisok létrehozásának lehetséges irányai [Potential Directions of Creating HNS Databases] (Kard és Toll, Issue 2002/2. pp. 113-121);
8. Négyesi, Imre: A légi közlekedés és a légiszállítás információ-igénye a BNT adatbázisainak létrehozásakor [The Information Need of Air Traffic and Air Transportation During the Establishment of HNS Databases] (Nemzetvédelmi Egyetemi Közlemények, Year 7. Issue 5. pp 134-144)
9. Négyesi, Imre: A Befogadó Nemzeti Támogatás-adatbázis továbbfejlesztésének lehetséges irányai az egészségügyi támogatás területén [Potential Directions of HNS-database in the field of Medical Support] (Nemzetvédelmi Egyetemi Közlemények, Year 8. Issue 3. pp. 170-193)
10. Négyesi, Imre: Az egészségügyi támogatás információ-igényének megjelenése a Befogadó Nemzeti Támogatás-adatbázisában [The Information Need of Medical Support in HNS-database] (Katonai Logisztika, Issue 2004/3. pp. 133-154).
11. Négyesi, Imre: A távoktatás helye és szerepe a felnőttoktatásban a katonai képzés tükrében [The Role and Position of Distance Learning in Adult Education in relation to Military Education] (Nemzetvédelmi Egyetemi Közlemények, Year 9. Issue 1. pp. 151-165).
12. Négyesi, Imre: A távoktatás Európai Unió elképzeléseinek kapcsolata a Magyar Információs Társadalom Stratégiájával [A link between Distance Learning EU Notions and Hungarian Information Society Strategy] (Nemzetvédelmi Egyetemi Közlemények, Year 9. Issue 2. pp. 201-217).
13. Négyesi, Imre: Az Európai Unió oktatási informatikai stratégiájának megjelenése a katonai oktatásban [EU Education and Information Strategy as Reflected by Military Education] (Nemzetvédelmi Egyetemi Közlemények, Year 9. Issue 5. pp. 134-155).
14. Négyesi, Imre: Az Európai Unió követelményrendszerének megfelelő elektronikus tananyagok előállításának lehetőségei, módszerei [Opportunities and Methodology of E-Teaching Materials Development Meeting EU Requirements] (Nemzetvédelmi Egyetemi Közlemények, 20 pages, under publication)
15. Négyesi, Imre: Az elektronikus tananyagok fejlesztésének információ-technológiai eszközrendszere és humán erőforrás szükséglete [IT Tools and

Human Resource Needs for E-teaching Materials Development]
(Nemzetvédelmi Egyetemi Közlemények, 14 pages, under publication)

16. Négyesi, Imre: Az elektronikus tananyagok szöveges-képes
tartalomfejlesztésének technikai kivitelezése [Technological Development of
Illustrative Sections in E-learning Materials] (Nemzetvédelmi Egyetemi
Közlemények, 18 pages, under publication)

17. Négyesi, Imre: The place and the Function of Distant Learning/Teaching in
Adult Education in the Light of Military Training (A távoktatás helye és szerepe
a katonai képzésben) (under publication, Military and Education Management
Magazine, Carol I. National Defence University, Romania)

CURRICULUM VITAE

Name: Négyesi, Imre

Place of birth: Tiszafüred,

Date of birth: 11th October 1962

Mother's maiden name: Fodor Olga

Appointments:

1986-87	Platoon leader in 72 Independent NBC Company 4 Mechanised Division
1987-1992	Company Commander in "Török Ignác" Mechanised Bde
1992-1994	Analyst officer in Dosimetric and Information Centre
1994-1998	Head of Analysis Sub-section in Dosimetric and Information Centre
1998-2002	Assistant Teacher in Zrínyi Miklós National Defence University
2002-	Assistant Professor in Zrínyi Miklós National Defence University egyetemi adjunktus

Promotions:

1986 – 1990	Second Lieutenant
1990 – 1994	First Lieutenant
1994 – 1998	Captain
1998 –	Major

Decorations:

Officer's Service Decoration Third Class (after 10 years of service)	14 March
1995	
Officer's Service Decoration Second Class (after 20 years of service)	20 August
2002	

Training, professional and service career, qualification:

1986	Engineer radiologist
1986	Professional state language examination in Russian "C" type elementary level.
1994-1995	Staff officer course
1996	Intermediate-level firefighting training
1998	ZMNDU qualified tactical-operational officer
1998	Professional state language examination in German "C" type advanced level
1999-2002	Distance learning PhD student at ZMNDU
2003	Absolutorium issued
14 th February 2006	Workshop debate
Budapest, 16 th May 2006	

Maj. Négyesi, Imre eng.