Author's Description of Doctoral (PhD) Dissertation and its Official Review

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Possibilities and Expected Effects of Created Knowledge Centres and Developing their New Community Learning Systems

author's description of doctoral (PhD) dissertation and its official review (THESIS)

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1. ACTUALITY AND EXPLANATION OF THE THEME SELEC-TION

On February 5th 2019, the Hungarian Minister of Defence (MoD) Tibor Benkő declared at his Annual Evaluation Meeting that the Zrínyi 2026 Defence and Army Development Program (Z2026 DADP) is currently undergoing the largest-scale, comprehensive military development of Hungarian Defence Forces (HDF) of the past half century provided by maximum financial and moral support of government (Benkő, 2019). He emphasized that structural transformation, armament and technical development alone did not ensure to creation of a capable army committed to Hungary. In addition to ideological and material recognition of soldiers, **the career development is very important because modern armed forces are unimaginable** without up-to-date training and education. The HDF can only compete with other nations' armed forces and become a determining force of our region if the military development focuses on the soldier.

Considering the worldwide changing security environment, budget constraints and technical advances of nowadays, the defence and law enforcement forces are looking for new, non-traditional follow-on and other training and learning methods and forms, taking into account the principles of modern HR and organizational development procedures. In addition to cost avoidance they can also provide preparation and practice opportunities for highly-trained staff by creating e-learning environment supported by virtual and collaborative learning methods. Their effectiveness - based on researches - can be measured not only by the learning outcomes, but also by the reduction of the efforts invested in learning. They also provide opportunities for targeted staff training in such situations where real circumstances were too dangerous for soldiers, or it would be impossible or inadvisable to provide real environment.

During the military education and training – beside preserving a part of traditional trainings - it is not advisable to neglect the atypical learning methods (gamification, simulation, web 2.0, blended learning, e-Learning 2.0, mobile apps and applications, MOOC, etc.). These methods are well-managed and presented already in the military and civil R&D sectors of other countries which are at the same developmental level as (or even more advanced than) Hungary.

All the challenges of the Industrial Revolution 4.0, the digital social transformation efforts, the development of digital education of the Ministry Human Capacities (MoHC) and the performance-oriented higher education of government, moreover the national and foreign researches, developments and best practices encourage us to move towards this approach.

The research results concerning atypical learning methods are still not always known /acknowledged by many of those people who are affected by this topic; they consider Prussian-based teaching methods, traditions and its socializing effect in the military training much more effective than any other method.

They ignore - among other things - the new, altered trends in the learning habits of Y, Z and future Alpha generations. These generations are not only adapting to the changing environment, but they are also trying to transform it with creativity and efficiency. Therefore, if the current approach in the military education and training does not change, the needs of these generations and the training requirements will get far away from each other. Hence the future military personnel may be involved only with difficulties into traditional teaching-learning processes relating to the Lifelong Learning processes, and therefore it may increase the risk of attrition, leaving military service. If we consider the established and well-prosperous NUPS as the unified knowledge centre, we must extend the development experience of the past years, the technology available and the possibility of acquiring knowledge to the neglected military sector, and ensure the paradigm shift trough success of the Z2026 DADP, i.e. the development of the current analogue soldier into a digital soldier.

With the help of this, the military staff can acquire such digital competencies which can facilitate the traditional learning paths, the development of competencies on individual (mainly digital) learning paths, and thereby the acquirement of new skills and qualifications.

2. DEFINING THE PROBLEM AND ITS BACKGROUND

The main problem the research focuses on is the fact that in recent years the rate of people leaving the HDF is remarkably high, although the MoD's HR strategy has been trying to deal with the problem since 2011.

The traditional tools of military education and training – regarding to high fluctuation - is not suitable for retention, for replacing the quitting soldiers and for providing appropriate outplacement for them. Both military education and training institutions primarily want to manage the training needs of the customer's MoD and HDF, who have so far clung to traditional training forms.

However, in the context of reorganization, the modernization armament and technology outlined in the already ongoing Z2026 DADP, as well as the 20% increase of the foreign missionary efforts, the workload of staff will probably increase in the next period which – despite the financial compensation – may have a negative effect on the already high fluctuation.

As the public service - including military - knowledge centre, the Faculty of Military Science and Officer Training of National University of Public Service (FMSOT of NPUS) and the military educational institutions and training organizations of HDF are expected to manage the already existing but soon increasing numbers of training needs. However, these organizations do not have an unified community learning system covering all public service spheres, including law enforcement and defence as well. It is not just a framework-level problem, because (at least in the defensive sphere) there is a lack of highly trained operative staff to manage, to elaborate and to prepare the work; moreover the teachers and lecturers have very different teaching and curriculum development practices.

During the multidirectional search of the topic there are issues to be solved. I found the following problems:

- There is no experience about what kind of role the new comprehensive public service system could play in the outplacement of professional and contract staff leaving the organization.
- No particular studies have been conducted about how the changes of MoD's HR strategies relating to education and training have affected the staff's reconversion.
- Decision-makers do not have an overall knowledge about international (especially French and Polish) best practices of reconversion, hence they are also unaware of the fact how it could be adapted to national conditions.
- Decision-makers have not studied comprehensively the national and international (law enforcement and defence) experiences, examples about the use, development and results of atypical learning methods.
- It is still unknown what kind of role the need of introducing atypical learning methods as know-how plays or how conscious its development and support hap-

pens from the side of the leaders of NPUS FMSOT's and Hungarian Defense Forces Non-commissioned Officers Academy's (HDF NCOA). It is also unclear what kind of existing skills, opportunities, researches, experiences and resources the system has in connection with the referred topic that could facilitate the development within the confines of a unified system.

- It has not been investigated yet what kind of factors could influence the attitudes, habits, practices and expectations of military institutions' students, teachers and co-workers about the application of atypical learning methods.
- It is unknown what kind of steps, trainings, or organisational development and other programs are needed to evolve and consolidate the comprehensive education and training systems of NPUS FMSOT and of HDF based on atypical learning methods, and what kind of role they could play in point of certain trainings.

Among other things, through the above-mentioned problems the proper functions of HR development can be provided, and thereby the followings can also be assured: increasing organizational efficiency - in accordance with the new career model -, strengthening employee motivation, keeping soldiers and other employees in the system, or in case of their exit – regarding their acquired competencies and qualifications gained in the new system - ensuring the right outplacement, primarily in the public sphere or outside it.

3. AIMS OF THE RESEARCH

The aim of my research is twofold, because on the one hand I highlight the causeand-effect relationships in my work, but I also would like give the whole dissertation a discovery character in some respects. The partial and summarized objectives of my research are the followings:

- 1. With the method of critical analysis I would like to examine how the public administration systems of Hungary (especially the personnel and cadre policy) and the requirements relating to public servants' education, competencies and others have changed, and what kind of impact these changes had on soldiers' career path and outplacement.
- 2. I would like to explore the concept and **system of the reconversion** (described by the civil wording outplacement) **of certain NATO member states** and its so-

cial effects and I would like to compare them with the similar practice of Hungary.

- 3. With the method of critical analysis I would like to examine the implementation of the **military HR strategies of recent decades and their impact on HR de-velopment and prevention of career abandonment**.
- 4. I would like to explore by critical analysing method and to highlight **the best practices of some atypical (mainly e-, social media) learning methods** through presenting dozen of foreign and domestic military and law enforce courses which are used by NATO and our external partners, which are used often more efficient and cost-effective than traditional teaching methods to develop attitudes, professional and other competencies of staff preparing to serve, serving or prepare to leave armed forces.
- 5. I would like to measure with empirical oriented methods what kind of opportunities, attitudes, experiences, practice and expectations the teachers, training organizers, IT system operators and students of NPUS FMSOT and HDF NCOA (existing as knowledge centres since 1st January 2012, and 15th November 2011) have on the field of application and development of atypical community learning systems.

I want to analyse (in the background of 1-5 aims) whether the employment and re-training opportunities of officers' and NCOS' who attained the above mentioned knowledge-centres have increased. Another aim is to examine whether the currently serving and future soldiers have a demand for generating a competency-developing, community-based learning system which provides such individual learning paths that respond the challenges of civil life, facilitate the completion of a military career, but also ensure a proper reconversion to the public service or to the private sector in case of leaving armed forces whether it is forced or voluntary.

I would like to make suggestions about the development of atypical, communitybased learning methods, its organizational framework, application and use in the HR development of the defence sphere and in the training of military institutes, hence to help the NPUS to move forward in the international ranking (CHE EX-CELLNCE Ranking). Moreover, I hope that based on these suggestions the military educational institutions and their maintainers / founders will present and maintain the material and personal terms of digital technologies and innovative teaching methods among their strategic goals.

4. RESEARCH HYPOTHESES

4.1 THEORETICAL HYPOTHESES

H1: In its legal subsystem of the Hungarian public career service system theoretically supports the further career of soldiers leaving the HDF's staff either because of their own or because of organizational decision. However, in many cases the outplacement of soldiers - in addition to their underestimated social recognition - can be greatly influenced by the lack of competencies and qualifications related to various public service and civil jobs, which affect their further career in the public service or outside it. The MoD's HR strategy and reconversion practice based on traditional methods follows the international best practices only partially and pays minimal attention to the effective acquisition of new competencies, qualifications and degrees (especially through e-learning) to ensure appropriate outplacement. The system does not have any mechanisms to allow the transformation (transforming, matching, completing deficits) of competences acquired in the defence sphere into civilian jobs.

H2: The diversity of our armed forces' educational and training methodologies (especially in the field of e-applications) is lagging behind not only NATO but also many other countries. However, due to the paradigm shift, institutions are increasingly forced to develop these because of generational learning habits and other challenges.

4.2 EMPIRICAL HYPOTHESES

4.2.1 Empirical hypotheses concerning the organisations

H3: The HDF and the NUPS - neither together nor individually - do not have an education / training strategy with its proper background based on network collaboration and on the use of atypical (primarily e-) learning methods across all faculties, institutes, units, trainings, courses. There are different views and practices regarding the role of the e-Learning environment in education and training as well as the development opportunities for each organization (NPUS faculties, institutes, HDF NCOA and other training institutes).

4.2.2 Empirical hypotheses concerning the students

H4: There is a discrepancy between the students' age groups / trainees, as the learning use of e-applications is more frequent and attractive for the younger age groups pursuing their basic studies. However, in the same age group, the students taking part in the graduate study (BSc) value the utility of atypical learning methods in a given faculty / course more than those who take part in NTR training, and prefer to learn in courses supported by such methods than in the traditional way.

H5: The students' daily practice of using the Internet and valuing the Internet functions differ. Entertainment is in the focus of daily use primarily; however when evaluating features of functions, the value-adding activities have a priority. Learning is one of the preferences, despite the fact that most students have little information about the e-courses available during their studies and about their opportunities to develop the e-Learning environment.

4.2.3 Empirical hypotheses concerning the teachers

H6: Teachers base their daily teaching methods and tools primarily on traditions and established earlier patterns, they prefer the teacher-centred, frontal work-based methods and tools. The application of new methods depends on individual competences and concepts primarily.

H7: According to the majority of the teachers, some forms of atypical learning (mainly e- and blended learning) apart from the frameworks of the school system education are suitable for supporting other military trainings and exams, too (e.g. graduation, qualification, reconversion, reserve preparation and recruitment, etc.).

4.2.4 Empirical hypotheses concerning both students and teachers

H8: There is a low proportion of teachers with special skills in atypical learning methods. Students have more experience with atypical learning methods than educators. However, both students and teachers estimate students' IT competencies to be higher than similar skills of the teachers' group.

H9: Based on the student and teacher evaluations, the perception of the impact of atypical (mainly e-) Learning methods and tools on the own time management differs. Teachers are more sceptical than their students. However, both groups agree in the fact that they are dissatisfied with the ICT conditions provided by the institutions.

H10: Regarding communicational attitudes, there is a large difference between instructors and students in terms of frequency, intensity, and device preferences. Students are more open to use the free communication provided by social media and to apply new atypical learning methods than educators.

5. RESARCH METHODS

The research - by developing methodological triangulation - combines basically the traditional (inductive) methodology and the action (deductive) research. The aspect of research is both general and concrete.

The dissertation primarily bases on educational sociology, its approach is interdisciplinary, and also touches the discipline of defence, andragogy, pedagogy, sociology, psychology, IT and economics, yet avoids the technocratic approach, so it does not want to consider the problems of network and other typologies, programs and applications, **but rather to examine it from a methodological point of view**.

The research was carried out in several phases including the preliminary examination, the planning of research and its concrete realization. The process of research was divided into sub-researches, which included data collection, processing and evaluation, and after their conclusions all sub-researches were closed by publishing the results, to which no feedback was received.

Data collection began with **qualitative and critical discourse analysis** of domestic and international secondary sources (literature; legislation; research results, and data, documents, publications published by different organizations) related to the topic. Data collection was included in a self-financed, **part-time research** work at Polish universities¹. Here, **secondary and primary sources** – for example **unstructured and semi-structured interviews** with some leaders (e.g. the scientific rector of Academy on National Defence and researchers) - helped to gain deeper insight into compiling chapters containing international topics.

The decades of my experience on the field consulted and the conclusions drawn from the different sources mentioned above based a series of questions (structured interview). After a consultation beforehand, these questions were sent to the deans and heads of institutes of NUPS, and also to the HDF NCOA commander in the frame-

¹ Universytet Jagellońsky - Krakków, Akademia Obrony Narodowej – Warszawa.

work of an **action research.** The **undistorted sampling has become distorted** because in most cases (despite the promises made during the personal consultation) the questions asked were not responded by the recipients. The answers responding to qualitative results (attributes, qualities, qualitative indicators) were not created by respondents (dean, deputy dean of education) and were not given in the preferred (written) form. The incoming answers were compared again with the conclusions arriving from other secondary sources.

To achieve my previous goals, to make the conclusions above more precise, I find a quantitative, multi-group, **undistorted sampling possibility**, i.e. I chose the method of **e-survey** for multiple organizations involving students and other participants taking part on courses/ university professors and school teachers, trainers/ education and training organizers / LMS or IT system operators.

I was looking for more groups with my questions to make a reliable fact-finding.

The associates of the student group were partly the students being in full-time status at NUPS, or at the HDF NCOA, and partly the ranked soldiers being in active service developed their competencies in a correspondence or course system trainings (e.g. language course, qualification or graduation exam). From the point of view of validation aspects, I collected the data at a (control) students group of the Faculty of Science of Public Governance and Administration of National University of Public Administration (NUPS FSPGA) as a **focus group**.

After processing and comparing the data, I analysed from the teacher's perspective the attitudes, habits and expectations related to the topic at another group with a similar method. The data procession was fulfilled at NUPS FMSOT, at the HDF NCOA and at the Hungarian Defence Forces Peace Support Training Centre (HDF PSTC). (I also looked at the latter's colleagues of HDF PTSC as a control group, that is why the latter one was a **focus group research as well**.)

I have addressed partly the same questions in the survey of the different research patterns, so that it became comparable with the common question group answer, and conclusions could be made about the motives from different perspectives.

The provision of data was voluntary and anonymous in all cases, only the researcher could see it. The surveys did not contain any sensitive data, which in case of relevant

research rules would have publically resulted violation of confidentiality or other privacy rights.

Based on preliminary measurements, tests and opinions, the questions included in the web surveys were relevant, assumed, interrelated, their drawing was professional and clear, their type was chosen according to the research goals, and were adequate with the average competencies of the research participants.

The surveys began with a request - containing an explanation - for taking part in the research, and were closed by thanking for contribution. At the questions the screenings and jumps have appeared as instructions, and in all cases it was indicated if even more answers could be given to the question, they also indicated the way of filling.

The surveys included a variety of question types (single and multiple choice, evaluation scale, response matrix, ranking, open text question). The most difficult and complex questions were placed in the middle of the questionnaire. As the final question, I asked the participants about their opinions, feelings and suggestions connecting to the research, to the central issue of the research and to the contents of survey. The surveys also contained open- and close-ended questions. Inside a question block, the questions were compiled with a funnel technique (from general to specific issues).

Based on the composition and number of research patterns, the research provided a realistic and actual picture about research topics. The answers were analyzed with a descriptive statistical calculation first time. Based on Babbie's work (2000), some variables and relationship between them sometimes can be represented by average and percentage calculations. Analyzes of more interesting relationships were complemented by mathematical statistics. The results of researches were presented in graphical and tabular form.

A part of the research builds on the comprehensive analysis of students' and teachers' pattern data, i.e. the differences between respondents students and teachers regarding to their habits and attitudes.

6. BRIEF DESCRIPTION OF THE DISSERTATION

The 1st chapter (as the introduction of the dissertation) was structured according to the structure of an average research material. The first chapter presents in details the

actuality and justification of the subject choice; the definition of the research problem; the research objectives and the theoretical and empirical research hypotheses; the applied research methods and the structure of the dissertation.

The following four chapters of the dissertation discuss theoretically issues relevant to the research objectives and substantiate of the empirical methodology consisting of the three sub-research chapters.

The 2nd chapter presents the changes of personnel and HR policy of public service, as well as the expectations regarding to the commissionaires' training, competencies and other requirements against them, while discussing its effects on the outplacement from point of view of serving in HDF. The chapter ends with conclusions.

The 3rd chapter focuses on the evolution, history and modifications of the HR strategy of HDF, and primarily **from the point of view of HR development**, for which the situation is illustrated by the elaboration of some basic questions of the HR field. The chapter concludes with reasoning.

The 4th chapter discusses the issue of reconversion. The chapter deals in particular, with the conceptual formation of human reconversion, its sources and development. The 4th part examines the realization of human reconversion in the armed forces of different countries through excerpt, and confronts with reconversion approach of **France and in detail the supporting competence development of Poland, as well as the Hungarian reconversion practice**. The conclusion can be found at the end of the chapter.

The 5th chapter examines the role of atypical learning methods mainly in the military and marginally in law enforcement education and training. The first part of chapter deals with knowledge centres and knowledge management, and then with systematization, short description of learning, and particularly with atypical (mainly with e-learning) methods. The chapter examines the practice of domestic and foreign military and law enforcement training through some selections, from point of view of community learning methods, and at the end it experiences the conclusions.

The 6^{th} chapter is one of the most important chapters of the dissertation, because it consists of three sub-researches in details using empirical methods. The first of

them presents the results of the structured interview to explore the potential of ICT communication, e-learning, and e-learning support in some faculty of the NUPS (mainly at the FMSOT) and at the HDF NCOA. One of them researches some aspects of the situation and opportunities for developing atypical learning methods of questionnaire survey of NUPS FMSOT and HDF NCO Academy students. The third is processed aspects of questionnaire survey instructors', education and training organizers' and LMS operators of NUPS FMSOT and HDF NCOA examining their situation and opportunities for developing **atypical learning methods, community learning systems**. The results of the students' and teachers' questionnaire survey are compared side by side in the fourth subchapter, and the chapter concludes with reasoning.

The 7th chapter summarizes the new scientific results, draws up sums up conclusions and recommendations, and the using possibilities of the research in practice.

The appendix of the dissertation contains the list of used references of literature and the domestic and international legislation; the thanksgiving; the charts and tables providing information to research coming from the secondary sources; the list of tables and figures; the list of abbreviations and acronyms; the list of the author's publications, and his professional CV.

In the annexes of the dissertation documentation appears that supports the empirical methodological part of the research, such as the questions of the structured interview; the questionnaires of the web-surveys; and the tables and figures containing their results.

7. CONCLUSIONS AND THE NEW SCIENTIFIC RESULTS

7.1 CONCLUSIONS

The primary question was whether **the need for using learning methods - which are often more effective - differing from the traditional education and training appears in the strategy of defence organizations** (especially of military schools). Another question was how **the learning environment supported by virtual and collaborative learning methods exists in the training of staff**; how much is known, used and developed by the soldiers with military qualifications and rank, by teachers and students at military schools; educated, trained, and what kind of expectations they have relating to the formation of e-learning environment.

There is not any centrally ordered research available that would support the commitment of staff and their individual learning attitudes planning them to take part in the new type of training, which can fundamentally determine the key features of the training system building up in the future.

The atypical learning methods give an opportunity not only by providing a background as learning support of traditional courses, but also with their **multi-purpose usage from** the competency measurements of the recruitment period through the integration of a new employee into the organizational culture, through the replacement and maintenance of competence deficits along individual learning pathways; the development based on career management can make the staff on the military profession perhaps able to obtain the new knowledge inevitable for their outplacement or the conversion of the older ones. The multipurpose functionality also appears in learning processes – independently from the form of training – completely or partly (whether individually or in group, with presence or virtually). Supporting the knowledge transfer through individual learning and knowledge expansion, research, practice, knowledge control, and exams learning process can be more effective.

The Digital Hungary Program (DHP), based on the National Info-communication Strategy existing for several years, has defined the role of educational institutions in several areas. DHP provides an opportunity to renew the education and training culture by increasing digital literacy and creating digital communities, which provides more efficient functions of the state and public administration and ensures competitiveness not only for the individual, but also for the businesses spheres. In order to achieve this, it may be necessary to create a comprehensive change in management strategy, which with the appropriate financial background establishes firstly a new approach-oriented task delivery by setting up a project organization, and then if the system is working, develops and manages the work structure adapted to the volume and efficiency of the system.

The infrastructure and central services being currently in the hands of the state and be developed in the near future will only be able to work synergistically if these developments concentrate not only on some of the preferred areas (including some faculties of NPUS), but also provide tangible results across the whole sector (such as the HDF and the complete NPUS). That is, it is necessary to develop types of training (inter alia military) supported by e-Learning materials, which results not tools even more functions recognition which provide among other things the regulated online communication, the social networking, the opportunity to share information and content, as well as the support of online courses to the online network collaboration and the personal digital learning space, too. Beyond the listed ones providing to use MOOC as possible on mobile devices, so that participants can feel the flow experience joy and creativity, on which their competences can be built later. The new system will be just only operational and sustainable if its introduction is not an ad hoc, isolated action. A strategy has to be made which must be preceded by a comprehensive research and a long-term programming and planning. The acquisition of system requires on-going right level finance providing maintenance and development.

According to my research, I propose a transformation of a learning network, **a true knowledge centre** on the infrastructural and knowledge base of NPUS and of the different organizations taking part in the research and being involved in the development, which means using atypical learning methods (primarily supported by e-learning space) and developing ICT culture, education and training methodology systematically making learning process more effective. With this (independently from the legal status and rank of staff) the system contributes primarily to the continuation and fulfilment of the career in the HDF, in the public service or outside it (whether competitive or non-profit sector) by the developing employees' competencies, thus indirectly to the security of Hungary.

There is a need to develop capabilities also in the military (sub)system(s) (based on Probono's infrastructure, or created independently) which are providing **the general direction and maintenance of the student-centred, decentralized training processes by integrating the whole sector, allowing the data change between the various** (sub)systems and to cover the complex learning process from application to exam organization and certification. The (sub)system(s) has to be able to serve online individual and group trainings; competency assessments regardless **of legal status, rank category; home and service location. It has to provide tutor support, access to courses of NPUS and other (higher)education plus of other** training institutions which provide individual learning paths based on individual learning plans to acquire the competences and credit points essential for retraining and conversion.

I also suggest joining the military sub-system of the Knowledge Centre to the US-based international ADL network, which can be limited and cost-effective to introduce our system and further research.

7.2 RESULTS

Analysing the results of the research, it can be stated that 7 of the 10 hypotheses (2 theoretical hypotheses and empirical hypotheses) were confirmed; 2 of the empirical hypotheses were partially verified and 1 of them was not verified but at the same time it was not false either; and none of them was rejected.

7.2.1 THEORETICAL HYPOTHESES

H1²: The hypothesis was confirmed.

I have supported by a critical analysis of documents the changes in our **public service legal system and the competency expectations of public servants** have taken place between open and closed systems during more than two hundred years. I have found that in this change soldiers were sometimes closer sometimes farther to public servant parity of both legal and social judgment.

I have shown based on the legislation of Magyary Program, that every Defense Forces' service positions belong to the public service.

Public service career paths have been aligned, and the new system of cross-linking career paths and a back-up system, as well as legislation defining qualification requirements³, have been developed. Career models contain life-cycle elements from entry to completion of a career, and in principle there is a potential for two-way interoperability between legal relationships, which - based on competence - supports the development of knowledge-based public administration. **The system provides customization primarily through individual e-learning pathways, based on NPUS to bridge competency deficits, but I have found that this is not true for all sectors, including defence.**

² Look at: p 6.

³ 29/2012. (III. 7.) Government Decree on Qualification Requirements for Public Servants

Although the qualification requirements for public servants have been formulated, the acquisition of educational levels and qualifications is not equivalent to the existence of competencies, so we do not only examine this when filling a job. As a result I have found that even the outplacement of members of the armed forces is not guaranteed in all cases with the necessary qualifications within other areas of the civil service, and especially outside it. I have pointed out that the comparison is only possible with specific measurements and since military courses and trainings have been taken out of adult education law, because their documentation (preferably with a list of acquired competencies) is not always accessible even within the public sector. Public service competency measurements can be carried out by the Governmental Personnel Centre, but the order of the Centre's list of offers is not mandatory for the employer's decision.

I have proven that the reconversion practices of different countries (among others supporting the acquisition of a new educational attainment, professional qualifications and competences) differ from each other, but they are everywhere the basis of the social appreciation of the soldiers. Hungary combines the soft (primarily for lowskilled complement and NCO) reconversion practice with the background (mainly for highly qualified warrant officers, officers and field officers) of the cross-path public service career model. I have proven that MoD's reconversion practice only partially follows international good practice and in combination with HR strategy provides only minimal opportunities for the appropriate outplacement of career changers, either within or outside the public service. The implementation of HR strategies so far (mainly due to economic and other reasons) did not aim at consolidating the social recognition of the soldiers, but also at eliminating the permanent shortage of personnel and other internal anomalies and lack of competences causing the fluctuation. Occasionally it has blocked, or not adequately supported the outplacement and failed to adapt the best international practices for reconversion.

In the spotlight of the above, I have demonstrated that the system does not have currently the capabilities to transform (adapt, reconcile, and, if necessary supplement deficiencies) acquired competencies in the defence sphere required by civil society jobs.

H2⁴: The hypothesis was confirmed.

I have confirmed that the training innovations, atypical education and learning methodological developments launched in the 2000s within the framework of the LLL strategy were stopped by the middle of the decade; and its financial, infrastructural and human resources were depleted. The recent developments had only a marginal impact on military education and training, while developments which had been implemented in the public and the private sector were exemplary.

I have demonstrated through critical document analyzes that in contrast to Hungary, advanced and less advanced NATO member and non-member countries have been undergoing inverse specialty developments and innovations which - regardless of country - include military school system and training courses, or rather competence development. Among the development goals and solutions is the creation of comprehensive unified platforms, the transition to open systems, the promotion of online community learning spaces and m-Learning, which focuses on the cognitive development of the students and not on the training institution, on the teacher and on the education. There is a tendency to develop real knowledge centres and networking, in which countries are researching jointly. I have verified that the military research and innovation centres in the examined countries are usually connected to (mainly higher)education or specialized training organizations, but their results are extended to other spheres in the framework of knowledge transfer.

7.2.2 EMPIRICAL HYPOTHESES

7.2.2.1 The hypotheses concerning the organisations

H3⁵: The hypothesis was confirmed.

I have proven by using empirically oriented method (comparing to answers of the questions of the structured interviews, and in their absence drawing conclusions from the critical analysis of the available public documents and informal sources) that there are huge differences between the faculties, institutes of NPUS, and HDF NCOA in the terms of assessing, applying, exploiting and creating the potential of atypical learning methods. There was not any concept encompassing all military ed-

⁴ Look at: p 6.

⁵ Look at: p 6.

ucation and training organizations, university faculties and institutes comprehensively, which would have provided a proportionate effort and focus, not excluding any of them from the positive effects of improvements.

I have confirmed that the technical and methodological expansion that created the elearning environment (leaving almost intact the military sphere) was shifted disproportionately towards public service preparation. Organizations have used different LMS and LCMS systems, without any professional collaboration on the researched topic, the less of developments have occurred only locally making the system fragmented which in case of similar developments have made increasingly difficult to work of the network as a knowledge centre.

I have proven that the developments of this topic - besides the combined effect of other influencing factors - have not been realized so far among other things, because the MOD, GS and HDF commissioning the trainings do not create such demands on the organizations, and the educational institutions do not generate these needs.

7.2.2.3 The hypotheses concerning the students

H4⁶: The 1st part of hypothesis was neither confirmed nor proven false (due to lack of data), and the 2nd part was confirmed.

I have shown that the respondent sample of surveys - in spite of reaching the target groups on several occasions, methods and interfaces - was characterized by inactivity. The PhD and MSc and other students of higher military management, language and other courses, and applicants for the graduate examination have practically completely excluded themselves from answering. This made it impossible to measure the attitudes, habits, and expectations of the staff already having rank and service experiences and to compare them similar indicators of younger generations.

I have proven on the basis of empirical results that the students of the same age group are open to new, atypical learning methods according to their age-specific learning habits, because they prefer quickly obtainable information; require dynamism; providing by colourful and varied creative learning materials with perceptible partial results.

⁶ Look at: p 6.

The cumulative average of support for these atypical learning methods measured on a 10-scale **is 7.53 studying at BSc level** (rank of MOOC and simulation are the highest, and of traditional distance learning the lowest of which). **This ratio in the NTR upper secondary VET education is lower with nearly 14%, overall 6.16** (the highest the gamification and simulation, the lowest the blended learning), but all students have received a grade above 5.6, so according to them most of these methods are valuable for their faculties and studies.

The students in Szentendre (measuring on a scale of 10) agreed with the above statements ranking the benefits of using atypical education methods with an average of 6.6. The same measurement have given a significantly higher (8.45) value at the sample of NUPS FMSOT, which means a positive deviation 18.5%.

H5⁷: The hypothesis was confirmed.

I have identified **based on empirical results analysing the computer and internet usage patterns of the student samples** that does not differ significantly from the attitudes of similar age groups. The e-Learning support should be given a priority in students' daily practice and values.

I have proven based on the survey data, that in each of the students' daily use of the Internet, the contact is determinative at both institutions. At the HDF NCOA the entertainment and learning, at the NPUS FMSOT the learning and the use of social media are on the podium still. I have shown that in the ordering of Internet functions the value creation activities (i.e. work, study, and communication in different order) were placed in the first three places.

I have proven with empirically oriented method that learning is one of the students' e-preferences, despite the fact that the majority of students at both military education institutes are uncertain, because nearly three-fifths of them cannot say whether during their study the courses are supported or not by e-Learning frameworks. The involvement of students in the development of the e-learning environment may also be hindered by the fact that more than three-quarters of NPUS FMSOT respondents, about half of the HDF NCOA students lack information on the topic. This may be due to inadequate information but also to the superficial handling of information considering not always to the primary value of students, or to the specific obligations

⁷ Look at: p 7.

of a given semester, so they do not anticipate and receive limited or purposeful information transfer from their colleagues.

7.2.2.3 *The hypotheses concerning the teachers* H6⁸: The hypothesis was confirmed.

I have proven unanimously based on the results of empirical researches involving both students and teachers, that the defining element of the teaching work is the oneway communication, during which the computer, the laptop / tablet / PDA, the ppt. slides, the web search, the PDF or other texts, the printed and digital materials, and the e-libraries play a role from point of view of the use intensity.

I have shown based on the analysis of incoming data that most of the web 2.0 applications are never used by teachers (for educational purposes) at over 90%, and the intensity of the interfaces using is even worse. Based on students' measurements the teachers do not receive a learning pattern, not required by them the use of the web 2.0 services, so entertainment use is their primary.

I have discovered that about 90% of the students do not know or are not aware of being in any e-Learning course during their study. Institutional instructors The Google Drive, Google Docs, webcam, e-Learning framework, gamification, Facebook, and simulation are the most likely to reject categories during the course/subject knowledge transfer. The ICT tools and e- or digital curricula used in each educational / learning process is also sporadic, although their use for multiple purposes would be advisable. The student receives the training materials provided by the instructor suggested for his individual preparation mainly by traditional ways (e-mail, flash drive, printed material).

It may be decisive in the use of a new method that the "*superiority*" of the teacher towards the student is indicated by other values⁹ besides possessing knowledge. This role is difficult compatible for him with the less well-known methods providing insecurity. I assume that curriculum development is overlooked and beyond individual ambition and curiosity because in most cases the teacher does not receive, or only rarely receives the core curriculum, support, and material value for development.

⁸ Look at: p 7.

⁹ E.g.: rank, status, scientific titles, publications, etc.

H7¹⁰: This hypothesis was only partially confirmed.

I have proven by the empirically oriented method that e- and blended learning methods are the highest rated with regard to the trainings in the organization by the instructors of HDF NCOA. On average, 78.3% of them were considered eligible for training. These methods can be considered to be course compatible with virtually any preparation they provide. However the other methods (gamification, MOOC, web 2.0, simulation) they generally considered to low efficiency (below 40%).

I have shown based on the analysis of the data, that there is a significant difference between the teaching staff of the HDF PSTC and the military educational institutions regarding the atypical learning methods can be used in educational institutions or outside them, because school teachers are more sceptical than trainers. While the trainers of HDF PSTC highlight the role of e- and blended learning as a whole (96.7% and 71.7% respectively), from the point of view of school teachers only e-Learning (48.65%)) may play a stronger role in preparations, the other methods have received a negligible evaluation below 20%.

I consider that in the case of school teachers a further research is needed to delineate the issue more precisely (primarily the reason for their assessments).

7.2.2.4 The hypotheses concerning both students and teachers H8¹¹: The hypothesis was confirmed.

I have proven based on empirical results that the students' e-experience factors play a bigger role than their teachers', since about one fifth of VET respondents and over three fifth of BSc students have previously attended courses based mainly on e-Learning, but its total length is less than 1 year.

I have shown that only about one tenth of the sample of teachers has special (atypical learning method preparing) training, the specialists acquired their competences mainly through scientific research / application. It is true that their experience period totals are 1-3 years.

I have confirmed based on the evaluation of the responses to the survey, that students consider their own and their colleagues' IT competences (at HDF NCOA close similar, at NUPS FMSOT significantly higher) to be better than

¹⁰ Look at: p 7. ¹¹ Look at: p 11.

their teachers'. Based on the answers of the teachers I have shown that the students were ranked higher than the self-assessment of their own IT competencies.

A paradigm shift in this area - with many other conditions - can only be imagined if the teachers are more recognize and apply professionally the opportunities offered by the e-learning space, and this is not possible only limited without expedient knowledge extensions and organized trainings.

A further research is needed to determine which of the five areas of ICT competences¹² have arisen competence deficit and sufficit of the two groups, as a successful development concept can be worked out only on this basis.

H9¹³: The hypothesis was only partially confirmed.

I have found comparing the data from empirical research that the evaluation of HDF NCOA students is close to the opinion of the lecturers. Approximately one-fifth of them are expecting a decrease of their time expenditures and slightly more than a quarter expect their increase. Teachers predicting a decline is more than 10% and 1.4% less of them predict a growth. However, there is a significant difference between NUPS FMSOT and HDF NCOA teachers' or students' sample, because more than three-quarters of them are expected to reduce their burden and only onetwentieth to increase it.

A further research is needed to determine what the HDF NCOA students based on their opinions, what the relationship is between their opinion and practical character of their education, ICT tools equipment of school or other barriers.

I have found according to the evaluation of nearly six-tenths of the teachers that the provision of institutional ICT is necessarily appropriate or even worse. However, I have shown that students' perceptions are mixed. HDF NCOA students pursuing NTR VET education perceive the opportunities provided by the school as better than their peers at NPUS FMSOT. Only slightly more than one third of VET, while over two-thirds of BSc students have ranked ICT conditions necessarily adequate or worse of their school.

Information and data, communication and collaboration, digital content development, security, problem solving. (Lazányi, 2016) ¹³ Look at: p 11.

A further research is needed to determine what kind of improvements students and educators would expect, and what kind of overlaps are in group expectations.

H10¹⁴: This hypothesis was confirmed.

The technical communications have shifted from traditional landline devices to pay mobile, after then free or low cost Internet services. The fixed-line phone and fax communications are being pushed back increasingly - somewhere absolutely.

Based on the incoming data I have shown that almost one-tenth of the respondent students have not any email addresses (almost one-fifth of instructors also does not have). These respondents are already communicating with each other mainly via social media. This is confirmed by the fact that the number of emails sent and received in the dominant category below 20 per day is almost 10% lower at students than at teachers. I have proven that in their proportion almost twice of students use many times per day the free Google Talk / Facebook Messenger applications than teacher. Almost half of the teachers do not use them at all. The rate and intensity of mobile phone use is nearly the same at both samples, but almost half of the teachers, almost three-quarters of the students have never communicated by landlines phone. The one fifth of teacher uses such a landlines device, maybe during their military task. I have shown that Google Drive is not popular at teachers because almost half of them do not use it at all (similarly to one-tenth of the students), and the using intensity of the application is also much higher than at the students. I have proven that in regular and not at all using Skype and Ustream applications also have a lot of difference between students and teachers. The same difference can be observed in proportion in using of community message boards.

Based on the data gained from the questionnaires I detected that according to the answers relating to the topic of supporting institutional developments only 50% of HDF NCOA students have a supportive attitude – the same is true for 90 % of NPUS FMSOT students. Only one-fifth of lecturers are unconditionally supportive; in this group people who are supporting these developments only with certain conditions and only theoretically are represented in higher numbers. I proved that based on both students' and lecturers' opinion the students are more open to and more interested in developments than their teachers. Moreover, students assess the

¹⁴ Look at: p 11.

introduction and propagation of developments relating to atypical (mainly e-) learning methods at the given faculty/major/training to be more necessary than lecturers do.

Considering the topic, two questions will need future research. One of them is the reason for HDF NCOA students' scepticism. Can it be the relatively short time of studies, the institution's infrastructural background about IT tools, their user habits, the character of their studies, bad experience or else? The other question is under what conditions are teachers ready to support developments and take part in them in practice.

7.3 NEW SCIENTIFIC RESULTS

The missions of my research are fulfilled, and I have not only highlighted the causeand-effect relationship of the research topic, but I also discovered the specificities of the field, some focal points of the latent problems.

Web-survey research has demonstrated that students' attitudes (in the background of proprietary IT equipment, Internet or media usage habits, and attitudes towards atypical learning methods) **already present** - mainly in the military higher education, but also in the NTR military VET education too - **the opportunity**, or even the intention, to enables them to exploit the content available in the e-learning environment, if they are available or required their using.

The research has demonstrated that students' approach have already been present (in the background of their own IT equipment, Internet and media usage habits, attitudes towards atypical learning methods) the possibility, rather the intention which is exploiting the content available in the e-learning environment (if they are available or required to use them) mainly in military higher education, but also in NCOS' education, too.

Based on the six-group model (three top-ranked, one temporary and two disadvantaged lower groups of them) developed by Ságvári (2011), I have identified **the students falling into the upper categories**, I have categorized the BSc students primarily to the digital elite and the digital native, the NCO students primarily to the digital native and to the digital middle groups. **Based on the above classification, I have proven** - by maintaining Ságvári's application to the 20-29 age group – that **the teachers belong to elite's last category de**scribed as the digital middle class, or to the group of traditional mass-culture consumers belonging to the transition category.

I have shown the following fact, as well as the disadvantages and frameworks of organizations (e.g. the lack of strategy, requirements, finance of institution of atypical learning systems; the network fragmentation; the largely only inevitably suitable state of ICT devices and infrastructure): the knowledge transfer is unavoidable for learning has happened by traditional channels and methods, and the modern on-line media and e-Learning space can only be found in the method palette of some experimenter teachers. It must be changed. In the mirror of interoperability between professions the aims of the public service and the military HR strategy; the short, medium and long term goals of the Z2026 DADP; the vision has outlined by organizational researches; the expectations for the digital soldier; the expansion of missionary tasks; the rapid development of ICT-based education technology and methodology; the expansion of NPUS with rural campuses and the maintenance of a common semester for them; the role of national and international (higher) educational cooperation and networks (e.g. ERASMUS); the possibilities provided by NCOS' five-storey training system named 'Steel Cube'; and the interoperability between contractual relationship and staff categories have shown, that the development of a cognitive-based network for soldiers differing from traditional methods and approaches needs to play a bigger role. And the concept of the new system is inconceivable without much more thoughtful organizational support based on strategy than ever before.

I have confirmed that the opportunities (laptop, projector, ppt, PDF and digitized text, audio formats) have been present for decades in the digital device and media usage has been the main attack direction and the social media usage (eg. Web 2.0), the LMS frameworks and collaborative learning solutions are gaining less ground. In addition to external factors, one of the main reasons for this is that instructors consider the use of these tools less expedient in full-time, school-based, traditional attendance-based systems requiring personal military socialization. At the same time they lack the recognition that the options listed in the study provide multifunctional storage. The novelty of my research was that the study covered specific areas where my knowledge such the comprehensive approach (public service, MoD HR strategy, characteristics of the reconversion, students and teachers of the military institutions and the control groups) made by me has not been investigated yet. The dissertation would provide an appropriate methodological basis for further research and would assist the strategic decision making needed to convergence of the military education, re- and follow-on training system.

7.4 PRACTICAL APPLICABILITY OF RESEARCH RESULTS

The novelty of the research is covering the teaching and studying backgrounds simultaneously of the two major military educational institutions are considered as knowledge centres on their field (NPUS FMSOT, HDF NCOS). Unfortunately the passivity of other participants of the full-time and correspondence courses (MSc, PhD, leadership, language, warrant officer, etc.), as well of exams (qualification, degree and other) doing real military service, did not allow large-scale research that could have made it possible to compare the attitudes of the younger generation taking part in basic military education and of the ranked soldiers having military qualifications, training, service and life experience.

Based on the evaluation of the questionnaires comparing the ICT competencies available to and expected from educators can provide a basis for developing a standard which summarizes the teachers' abilities and skills¹⁵ need to be able to adapt to the changing demands of the digital society, and to meet the requirements of the XXI century. However, exploration of the current situation reflects a cross-sectional state of the sample. By studying the habits, practices, and expectations of students and teachers in the field of e-Learning, we can also provide an answer to the direction in which research organizations should focus more on their reputation and recognition by developing **new media-supported community learning environments** to appropriate development of staff competences, providing among them the social and professional expectations regarding to the staff retention, to HR development and the humane outplacement.

¹⁵ Supporting the development of learning and creativity; design and development of the learning process and assessment for the digital age; modelling the work and learning process of the digital age; promoting and modelling digital citizenship and responsibility; participation in professional development and leadership (ISTE, 2000).

7.5 RECOMMENDATIONS, SUGGESTIONS

Examining and summarizing the hypotheses set up at the beginning of my research, several further questions arose that could not be investigated thoroughly in the framework of my PhD dissertation. However, the further researches on these topics may help to understand the special status quo of the NUPS FMSOT, of the HDF NCOA, and of the other military training and education organizations, which can support either central or local (faculty level or institutional) decision making.

When it comes to preparing a strategic decision, a thorough, real-world analysis of the organization as a whole is needed to determine where we are at the moment, what goals we want to achieve, where and what weaknesses we have. We have to determine where we are at the moment, what goals we want to achieve, where and what weaknesses we have to prepare a strategic decision by a thorough, real-world analysis considering the whole organization. This can provide a solid starting point for the development process (from the recruitment trough the military school education and military training - including mission preparation, health and mental health prevention) and ending with reconversion competence development - I suggest further empirically oriented research to the following issues:

- On what level and scale are the political and organizational leaders involved in defining, leading, monitoring in the paradigm shift?
- What is the opinion of the civil sector especially the recruiting age group in the near future about the digital transformation of the HDF?
- What kind of military persons having rank and service experience to the expected developments? What should their opinion be based on, how and by what could they be convinced by about its positives?
- How much comprehensive and complete should be the development? Where and how should it be started/continued? Should it be built from bottom up or top down? Is it better to work by parallel, tiered, or mixed working methods?
- Should existing organizations in the exercise of their current responsibilities-, lead the change in a consortium or should they generate a temporary project organization with appropriate decision-making, management and control powers to manage the change?

- Are there any areas that do not require any development in any respects or are there areas necessary to prefer them for some reason? Should development start from zero and should the new system (learning by doing) produce its results step by step? Should development have to make comprehensively in the full network of the each organization without an interest injury, or individually and complete-ly independent of each other in a loose collaboration?
- What kind of trainings for which atypical learning methods can be successful? What kind of new or atypical learning methods can be used to support these (in whole or in part), and what are their cost / value ratios?
- If only partial areas can be developed due to budgetary factors, which for training courses are the most expedient the new methods for point of view of costeffectiveness analysis? (For example, is it possible to build the curriculum of the uniformed foundation semester at NPUS faculties in the MOOC, with webinar support, or in other system? Are there courses where the latest VR space concepts can prevail? Which are the largest mandatory courses, embracing the full staff and repeating in every year?)
- What kinds of infrastructure, technology and network improvements are needed to cover the needs?
- How many times and what financial background are needed for the development to serve their goals? Who and from what sources will finance the projects? Is it possible to use EU finance (e.g. for reconversion purposes)?
- Who should make the improvements, external experts or staff of organizations addition to their daily workload, and with what kind of financial and other conditions? How prepared teachers and other staff members involved in development should be?
- What kind of change management and competence development have to organize for employees of the organizations in the interest of new developments are not only seen as an inevitable obligation, but rather as an opportunity?
- Is it worth to build up an unified LMS system already proven in administrative training building on the know-how available in the organization, using the (still modern) infrastructure and tools system, on the research and project results of NUPS FSPGA and to integrate into system the existing and future subsystems of Ministry of Interior (MoI) and MoD?

- Do we have to develop an open, closed, or mixed system from point of view accessibility, and should it include mobile applications? How safe is the Probono system, its safety meet the requirements of MoI and MoD? If not, can this system be made more secure and closed?
- The integrated education / training system based on the new approach will become more compatible and interoperable, similarly to the integrated public service personnel system? Are there any possibilities and a need to develop a skill translator and with its help to recognize the equivalence of civilian qualifications and military competence developments being outside Adult Education Act?
- Is it possible to use atypical learning methods (e.g. e-Learning, blended learning, MOOC, Web 2.0, gamification, simulation) becoming traditional in other fields, to measure and replace the competency deficit associated with recruitment, to prepare and retraining of reservists?
- Should further research be made regarding to the future of development of deep neural networks based on the deep learning paradigm in HR management and development?

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AUTHOR'S CV IN TEXT FORMAT

The author has been involved in education, training and curriculum development (as a scientific expert and as a professional practitioner in his daily work) since 1984 and in HR management since 2000.

His military and pedagogical basic studies were carried out at the field of study of the mechanized infantry - physical education teacher specialization of Kossuth Lajos Military College, and the military master study in Warsaw at the Akademia Obrony Narodowej. In addition to these military qualifications, he was graduated as the HR Manager (PTE), as the Public Education Manager (BME) and as the Education IT Specialist (PTMIK), and has completed a number of other courses (Battalion Commander, Pedagogical Program Expert, e-curriculum Development, Quality Assurance, HR Master and so on). His Doctoral School started in 2011, at the legal predecessor of NKE HHK (ZMNE HDI).

The author has advanced language skills in Polish, intermediate language skills in English and basic language skills in Slovak.

He served in different military leadership positions (commander of Mechanized Infantry Platoon – Company - Battalion, Commander of Territorial Defence Regiment, Head of Operation Subdivision of Mechanized Infantry Brigade) between 1984 and 1995. He worked in the field of the military education, HR management and development in different military schools, at General Staff and MoD from 1995 until 2006. In addition to his work at MoD and to his ministry work, he was a lecturer instructor at the HRM course of the predecessor of NKE HHK.

After 2006 the author has worked in the area of HR management and development in the leader and deputy leader positions of the different institutions and has provided leadership and advisory functions, in addition to this he was a lecturer instructor of info-communications subjects at the predecessor of EKE and has supervised HRM students' entrepreneurship and practice. Beside his work he has managed the development and edited 17 e-learning materials in the framework of EU projects. The author also has made consultant, mentor and instructor tasks at the Government Information Technology Development Agency since 2012.

He is a participant and lecturer of different national and international HR development conferences. Delegated by MoD, he attended e-learning conferences in Sofia, Trencín and Oberammergau. He has officially represented Hungary on different other study trips conferences and workshops in Italy, Slovenia, Finland, England, Poland organized by OECD and other institutions in HR development and training topics.

He has published 49 publications in MTMT, in 6 of them he is co-author, and he has subscribed 43 independently. 6 of these were written in English, 20 were related to research, but others are mainly concerned with education, with HRM and development. His papers were published in different places such as the Munkaügyi Szemle, the TUDÁSMENEDZSMENT, the Szakoktatás, the GRADUS, and the TÁR-SADALOM és HONVÉDELEM, etc.

He was registered as the expert in the public education, vocational training and adult education topics at the MoD, at AIFSZ Kollégium and at the Tempus Public Foundation and as the Exam Chair of the NQR professions within the competence of the OM Education Office. He was a member of the North Hungarian Regional Training Center Professional Advisory Board in the request of the Ministry of Social Affairs and Labor. Since 2014 he is a member of the Andragogy Subcommittee of the Pedagogical Committee of the Hungarian Academy of Sciences.

The author has earned PhD leaving certificate as a student of the National Public Service University's Doctoral School of Military Science in September 2014. His research area covers primarily HRM and development topics, he focuses his interest on the non-traditional, effective e-learning methodological solutions.