

AN INTEGRATED RESEARCH OF AIRCRAFT MAINTENANCE OFFICER COMPETENCIES

József TÓTH

Department of Aircraft and Engines, National University of Public Service
(toth.jozsef@uni-nke.hu)

DOI: 10.19062/2247-3173.2016.18.2.40

Abstract: *A precondition of the proper functioning of our organizations and the success of their operations is a sizeable body of well-trained professionals. The execution of their tasks requires their taking part at a standardized, professional development scheme. In order to ensure that the next generations of military professionals can face the challenges of the workplace, regular research is necessary to clear what competencies they need. Such a research may add new information to the development and improvement of teaching programmes, the educational portfolio and their coordination with the labour market needs. This article summarizes the results of such a research.*

Keywords: *qualitative research, aviation engineering, military engineer, education, competency, model, military officer*

INTRODUCTION

Human resources does seem to be evaluated more and more important for military aviation organizations – what's more, it has become one of the most important and most difficult tasks for their management to provide for a healthy supply of qualified and experienced professionals. A healthy age structure of the workforce may guarantee long-term functioning, therefore proper recruitment and selection, training of young, competent staff members is essential. The resources invested into the new engineer-officers, their training and education, development and mentoring are crucial. The return of such investments can be expected only and exclusively if such areas as motivation, career management, positioning, remuneration etc. are also reasonably provided for. It is the foundation of building a professional culture and identity that will be missing if we forget about such details.

To form an ongoing education and development strategy that should serve the proper maintenance and operation of military aviation technology, it is necessary to offer professional knowledge and experience to be given over to one generation to another. Such a strategy may also create a positive reaction in both the target group (young officers-to-be) and the contractor.

KNOWLEDGE MANAGEMENT

The competence-based education must be tailored, targeted and professionally managed. As the needs and expectancies of the contracting parties change from time to time, their continuous monitoring is unavoidable. The question is only what to monitor and how to assess the findings. Besides, the rapid pace of technological developments in

MANAGEMENT

military aviation makes it unavoidable to keep an eye on such trends too. A complex knowledge management scheme creating, collecting, storing and channeling the data, information and knowledge to the places where they should be used may be the proper solution for the improvement needs. They can cover all the necessary areas from engineering to competence development. [5][6][7][8][21][23][26][27]

COMPETENCIES

Competencies cover how – i.e. by what means, behavior, capabilities, motivation and/or know-how – the individual can realize or reach targeted objectives. The behavior and activity leading to success has to be therefore supported by certain characteristics of the individual. Competencies in practice may be defined by those behavior patterns the consist of. In order to be able to study and develop them, they must be defined, described, quantified and analyzed. [6][9][11][12][13][14][15][24][25][26][30]

RESEARCH OBJECTIVES

Social and technological changes effecting the defense sector have caused alterations in the structure, tasks and concepts of the Hungarian Defense Force and, within it, the Hungarian air force. A continuous reassessment of its competencies and the communication of the results is an elementary interest of the organization. The aim of the research is to show a way how it can be done.

SAMPLING

A representative set of information on the present status of the air force and military aviation engineering would be the result of the analysis of those knowledges and competencies that are necessary to fill a position requesting an aviation engineering degree. It could be the basis of a competency model tailored to the needs of the organization. After analyzing the information collected by desk research and interviews, we identified those individuals whose work situation may be representative to show the overall standing of military aviation engineering. Each interviewee was asked to offer further name to grow and improve the sample. The rolling research went on as long as the provided data and information became repetitive, that is we reached a theoretical saturation. [18][19]

Personal interviews were made on 32 different sites with 45 individuals. The interviews covered information on the interviewees' life, military career, motivation, professional experience, interests etc.

QUALITATIVE RESEARCH

In order to verify or falsify our hypotheses, we tried to get answers to the who's, why's and how's of the topic. Due to the nature of qualitative research it concentrates on getting “soft” information instead of “hard”, quantitative ones. [1][2][3][4][16][17][19][22]

We chose the method of semi-structural interviews. After informing the interviewee about the aims and objectives of the research and their role, and legal issues (e.g. concerning the video recordings made), we asked for their agreement to continue.

THE INTERVIEWS

The semi-structured interviews followed the scenario presented in Table 2. Within the time limits set and the relevance to the questions we let them freely communicate their answers and expand on details, opinions and thoughts that occurred to their mind.

Table 1: Interviews, dates, and numbers of people interviewed

	Place	Date	People interviewed
1	Szolnok SHM dept.	11. 05. 2015.	1
2	Szolnok SHM dept.	11. 06. 2015.	1
3	Budapest HM II. office	11. 11. 2015.	1
4	Szolnok SHM dept.	11. 16. 2015.	1
5	Szolnok RMZ	11. 17. 2015.	1
6	Szolnok FRT dept.	11. 18. 2015.	1
7	Kecskemét, hangar classroom	11. 23. 2015.	3
8	Kecskemét, RMZ. office	11. 23. 2015.	1
9	Szolnok, SHM dept.	11. 24. 2015.	2
10	Székesfehérvár, MH ÖHP 3/1 classroom	11. 25. 2015.	3
11	Kecskemét, Gripen office	11. 30. 2015.	1
12	Kecskemét, hangar classroom	11. 30. 2015.	1
13	Kecskemét, AN-26 office	12. 01. 2015.	2
14	Kecskemét, Gripen office	12. 01. 2015.	1
15	Kecskemét, RMZ. office	12. 01. 2015.	1
16	Budapest, HM II, office	12. 02. 2015.	2
17	Budapest, logistics office	12. 02. 2015.	1
18	Kecskemét, LJÜ, conference room	12. 03. 2015.	2
19	Kecskemét, LJÜ, office	12. 03. 2015.	1
20	Pápa, RM szd. commander's office	12. 07. 2015.	2
21	Pápa, RM szd. commander's office	12. 08. 2015.	1
22	Veszprém, home	12. 08. 2015.	1
23	Budapest, Zrínyibarackoffice	12. 09. 2015.	1
24	Budapest, logistics association	12. 09. 2015.	1
25	Kecskemét, RMZ. office	12. 10. 2015.	1
26	Budapest, Zrínyibarack office	12. 10. 2015.	1
27	Szolnok SHM dept. classroom	12. 11. 2015.	1
28	Szolnok, SHM dept. classroom	12. 14. 2015.	4
29	Szolnok, SHM dept. classroom	12. 15. 2015.	2

MANAGEMENT

30	Szolnok, 86 barack commander office	12. 16. 2015.	1
31	Szolnok, SHM dept. classroom	12. 17. 2015.	1
32	Szolnok, SHM dept. classroom	12. 18. 2015.	1

Table 2: The interview scenario

Scenario	
Semi-structured (career) interview	Main line
Pensioned, inactive, or active military officers with military aviation (or similar) degree and/or experience	Selecting sample
Meeting at an agreed date and place, agreement to take part and to recording the interview.	Doing the interview
Interview outline	
Introduction of the interviewer, informing the interviewee about legal issues and freedom of opinion, giving background information on the research objectives, structure, time needed etc.: Free talk on military career and profession. Warm-up: Why did you choose the military aviation engineering career? Whos opinion did you ask for when choosing this profession? <ul style="list-style-type: none"> • Who or what motivated you? What were the years at the Military Academy or College like? <ul style="list-style-type: none"> • Tell me about your professional development and career! 	Introductions, interview objectives and topics. Warm-up. Creating the atmosphere. (15 minutes)
Unbound discussion	50 minutes
Thanks	5 minutes

ANALYSIS

The content analysis of the interviews aimed at a standardization of the received data, the formation of an understanding (the creation of information), and doing a causative analysis (the creation of knowledge). With the help of the videos also the meta-communication of the interviewees could be analyzed.

The interdisciplinary content analysis provided us with documents showing data, connections, relationships and causations to draw our conclusions. The data were kept in a database of defined categories that were elucidated on the basis of the data themselves. They were not fully mutually exclusive due to the qualitative nature of the competencies. As a result, we identified competency groups as shown by Table 3.

Table 3: The results of the qualitative research

„WHAT?“	„HOW?“	Competencies	Forms of Behaviour
<i>13 qualities in all</i>	<i>12 qualities in all</i>	<i>12 qualities in all</i>	<i>19 qualities in all</i>

The identified behavioral forms provided us with the basis of the next phase, the questionnaire research.

THE QUANTITATIVE RESEARCH

With the help of the quantitative research statistical relationships between the data can be identified. [16][17] Essentially it aims at representativity and the receipt of statistically analyzable data. It may provide us with results that can be generalized. In case it is repeated in due course, it may provide input for trend analysis. [1][2][3][4]

THE QUESTIONNAIRE

In the first part we concentrated of general data like:

- education type(s) needed for the present job,
- highest professional qualification,
- highest professional training in which the respondent took part.

Then came questions concerning their professional careers, the positions they filled

- as a commander/manager (with masters degree)
- as a subordinate (with masters degree)
- as a commander/manager (with bachelors degree)
- as a subordinate (with bachelors degree)
- as a senior leader.

Another question asked here targeted information on which aviation technologies they worked with in the course of the careers.[29]

The answers provided information for the grouping of respondents in order to show what groups may possess relevant information on which professional competencies (see Table 3).

The pilot research

The testing of the questionnaire started on 23.02.2016 and finished with 26.02.2016. Out of the 24 questionnaires sent around, we received 11 answers (45,83%). On this basis we improved and finalized the questionnaire.[28]

THE QUESTIONNAIRE RESEARCH

152 were involved in the research executed in the EvaSys system between 03.03.2016 and 16.03.2016 where we received 89 answers (58,55%). The high ratio of respondents

proves the interest of the profession in such research and their future. The analysis of the data received is still in process. [20][28][29]

REFERENCES

- [1] Wendy Gordon–Roy Langmaid: *Kvalitatívpiackutatás Gyakorlatikézikönyv*, HVG Kiadói Rt., 1997, ISBN 963 7525 12 2
- [2] AntalLászló: *A tartalomelemzés alapjai*, MagvetőKiadó, Budapest, 1976, ISBN 963 270 403 7
- [3] Langer Katalin: *Kvalitatív kutatás technikák*, SzentIstvánEgyetemiKiadó, Gödöllő, 2009.
- [4] KoronvályPéter - SzegediPéter - TóthJózsef: *Kutatásés képzés – módszertanifelvetések az előadások és a képzési portfólió összehangolására a repülőműszaki képzésben*, Hadmérnök, X. Évfolyam 2015/4, pp. 237–246. Available at: http://www.hadmernok.hu/154_22_koronvaryp_szp_tj.pdf (2015.08.06)
- [5] TomkaJános: *A megosztott tudáshatalom*, HarmatKiadó, Budapest, 2009.
- [6] Dr. KoronvályPéter dr. SzegediPéter: *Tudásalkalmazás és tudás gondozás*, Hadmérnök, X. Évfolyam 2015/4, pp. 217–226. Available at: http://www.hadmernok.hu/154_20_koronvaryp_szp.pdf (2015.08.06)
- [7] Bencsik Andrea: *A tudásmenedzsment elméletben és gyakorlatban*, AkadémiaiKiadó, 2015.
- [8] *Tudásmenedzsment a tanulótársadalomban, oktatás és készségek*, OECD, 2001. Available at: www.oecdbookshop.org/get-it.php?REF=5LMQCR2JCGG1&TYPE=browse (2015.08.06)
- [9] Dr. BelényesiEmese: *Változásmenedzsment a közigazgatásban*, NemzetiKözszolgálatiEgyetem, Budapest, 2014. ISBN 978-615-5491-09-2
- [10] KoronvályPéter: *A szervezetikultúra és a vezetés stílusa: Charles Handy*, Vezetéstudományi jegyzetek, 2005. Available at: <http://katasztrofa.hu/documents/koronvary/VT16r.pdf>; (2010.12.29)
- [11] TóthJózsef: *A repülőműszaki tisztviselői kompetenciák kvalitatív vizsgálata*. In: BékésiBertold, SzilvássyLászló (szerk.), *Repüléstudományi Szemelvények*, NemzetiKözszolgálatiEgyetemKatonaiRepülőIntézet, Szolnok, 2016. pp. 177-196. (ISBN: 978-61-5057-70-0) Available at: <http://www.repulestudomany.hu/kiadvanyok/RepSzem-2016.pdf> (2016.03.29)
- [12] „*A kompetencia ismeretek, képességek és attitűdök együttese*” *Kerekasztalvita a kompetenciafejlesztésről és a kompetencia alapú oktatásról*, A vita résztvevői: PálaKároly, RadóPéter, SzabóTasésVisiJudit. A moderátor: SchüttlerTamás. Available at: <http://ofi.hu/tudastar/kompetencia/kompetencia-ismeretek> (2016.03.30)
- [13] Klein Balázs, Klein Sándor: *A szervezetetelke*, Edge 2000 Kiadó, Budapest, 2012.
- [14] FalusKatalin, „Földes Petra és VajnaiViktória: *Kulcskompetenciák komplex fejlesztése Modellek és joggyakorlatok*, In: FalusKatalin, VajnaiViktória (szerk.), *Oktatáskutató és Fejlesztő Intézet Budapest*, 2012. p. 167. Available at: <http://ofi.hu/sites/default/files/attachments/kulcskompetencia.pdf> (2016.03.30)
- [15] SzabóSzilvia: *Közszolgálati életpályaelemző forrás gazdálkodás az emberierőforrásfejlesztés humán folyamata a közszolgálatban* („Közszolgálati Humán Tükör 2013” rész tanulmány) Magyar Közlöny Lap- és Könyvkiadó Budapest, 2013. p. 48 Available at: http://magyaryprogram.kormany.hu/download/6/0b/a0000/08_HR_EmberiEroforrasFejl_AROP2217.pdf (2016.03.30)
- [16] HéraGábor, LigetiGyörgy: *Módszertan Bevezetés a társadalmi jelenségek kutatásába*, Osiris Kiadó, Budapest, 2006, p. 371., ISBN 963 389 788 2, ISSN 1218 9855
- [17] Langer Katalin: *Kulcskompetencia a kvalitatív marketing kutatásban*, Available at: http://www.gtk.szie.hu/upload_files/20071029090001_Langer_Katalin_TI.pdf (2011.01.25)
- [18] GyengeBalázs: *Marketing kutatás*, jegyzet, SzentIstvánEgyetemGazdaság-ésTársadalomtudományiKar Marketing Intézet, SzentIstvánEgyetemiKiadó, Gödöllő, 2009, p. 193.
- [19] HorváthDóra, Mitev Ariel: *Alternatív kvalitatív kutatás kézikönyv*, AlineaKiadó, 2015.
- [20] HéraGábor, LigetiGyörgy: *Módszertan Bevezetés a társadalmi jelenségek kutatásába*, Osiris Kiadó, Budapest, 2005. Available at: <http://www.scribd.com/doc/288482887/Hera-Ligeti-173-199-1#scribd> (2016.03.31)
- [21] Dr. SzegediPéter: *A pilótánélküli repüléshez kapcsolódva... Tanulmány a pilótánélküli légijárművek működésével és üzemeltetésével kapcsolatban*, p.:80, ISBN 978-963-12-5224-8, 2016. Available at: http://m.ludita.uni-nke.hu/repozitorium/bitstream/handle/11410/10148/Tanulmany_Szegedi%20K%C3%A9sz_20160407.pdf?sequence=4&isAllowed=y (2016. 04. 20)
- [22] Dr. SzegediPéter: *Egy non-profit szervezetértékeinek közvetítési tömegkommunikációs csatornákon keresztül, tanulmány a magyar honvédség hagyományainak, jelképeinek*

- tradícióinak, értékeinek közvetíthetőségéről*, 2016 p.:80 ISBN 978-963-12-5258-3 Available at: https://ludita.uni-nke.hu/repozitorium/bitstream/handle/11410/10149/tanulmany2_szegedi_peter.pdf?sequence=1&isallowed=y (2016. 04. 20)
- [23] Békési Bertold, Koronváry Péter, Szegedi Péter: *Terrorism and Airport Security Some Technological Possibilities to Reduce Exposure, Deterioration, Dependability, Diagnostics* International conference, University of Defence, Brno, 2015.10.06-2015.10.07. pp. 279-288., ISBN:978-80-7231-431-7
- [24] Koronváry Péter - Szegedi Péter: *Thoughts on understanding our organizations*, Hadmérnök X. 4. (December 2015) p. 227 Available at: http://www.hadmernok.hu/154_21_koronvaryl_szp.pdf
- [25] Szegedi Péter: „ÖTLET! ... ROHAM!” egy „csináldéstanútsd” folyamat elindításához, a katonai felsővezetők képzés lehetséges fejlesztési iránya, Hadmérnök, IX. Évfolyam 2. szám - 2014. június pp.:400-408 Available at: http://hadmernok.hu/142_35_szegedip.pdf
- [26] Koronváry Péter: *Gondolatok a vezetéstudomány feladatáról*, Hadmérnök, III. 2. (June 2008) pp. 161-168. Available at: http://hadmernok.hu/archivum/2008/2/2008_2_koronvaryl.pdf
- [27] Koronváry Péter: *TQM a közszférában? veszélyek és lehetőségek*, Hadmérnök, IX. 3. (September 2014) pp. 281-289. Available at: http://hadmernok.hu/143_23_koronvaryl_1.pdf
- [28] Tóth József:
Компетентностный подход модернизации образования инженеров по эксплуатации современных летательных аппаратов, Repüléstudományi Közlemények, XXVIII. évf. 1. sz. pp.: 49.-53 Available at: http://www.repulestudomany.hu/index_rtk.html (2016.04.29)
- [29] Turcsányi Károly, Szegedi Péter, Tóth József: *A katonai repülőműszaki tisztikompétenciák felmérése integrált kutatási módszerrel* Repüléstudományi Közlemények, XXVIII. évf. 2. sz. pp.: 153.-164 Available at: http://www.repulestudomany.hu/index_rtk.html (2016.04.29)
- [30] Tóth József: *A repülőműszaki tisztikompétenciák kvalitatív vizsgálata*. In: Békési Bertold, Szilvássy László (szerk.), Repüléstudományi Szemelvények, Nemzeti Közszolgálati Egyetem Katonai Repülő Intézet, Szolnok, 2016. pp. 177-196. (ISBN: 978-61-5057-70-0) Available at: <http://www.repulestudomany.hu/kiadvanyok/RepSzem-2016.pdf> (2016.03.29)

MANAGEMENT

MANAGEMENT