SUSTAINABLE MENTAL MOBILITY FOR PROFESSIONAL LEADERSHIP IN SECURITY ENVIRONMENT

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Abstract: An important subtle skill is the individual's mental mobility. The issue of identifying and developing this mental mobility opens up new opportunities to penetrate the core competencies of an individual. The objective of the paper is create factors, explaining individual elements of leadership in security environment. We have generated partial factors related to the professional leadership (mental mobility on the manager and relationship continuum) using a factor analysis statistical processing of data from the selected items of GPOP questionnaire which is based on the Myers-Briggs Type Indicator (MBTI). The sample consisted of 208 respondents from the security environment. Results of factor analysis include seven factors, which explain 73.799% of variances of all variables. It resulted in the identification of 3 factors.

Keywords: Human sustainability, professional leadership, security, personal potentials, MBTI, GPOP

1 Introduction

Contemporary environment (life, business, industry, corporate, military, security, etc.) is by its nature artificial because it is created by human thinking, cognition, and behavior. With the ongoing fourth industrial revolution, this environment starts to be referred to as Industry 4.0. (Lu, 2017; Vaidya et al., 2018). This environment opens new challenges (Prisecaru, 2017) new requirements on management and leader competence-competence for industry 4.0 (Hecklau et al., 2017). The digital world and consequences of technological progress bring changes not only to the area of cognition and decision making (Ambrozová et al., 2015), but also to the field of social relationships and leadership (Bujak, Śliwa, 2016; Shamin et al., 2016).

Permanent attention is given to the problems of leadership, both in professional (business, industry, corporate, military) and academic domain (Carbone et al., 2017; Mikulka et al., 2018a, 2018b; Ullrich et al., 2019). Along with changes brought by the environment of Industry 4.0, there are growing requirements on leader's qualities (Tremaine, 2016), from the performance and effectiveness point of view (Zaharia, 2016) or responsibility, transparency, and others (Bennis, 2007). Organizations are willing to invest significantly in leadership development and training of their employees (Crawford, Kelder, 2019).

1.1 Specification of leadership in context of connatural management

Based on analysis of articles published in the Leadership Quarterly, the most attention received neo-charismatic theories, with transformational and charismatic leadership, and further theories involving cognitive approach, information processing theories and social exchange / relational leadership theories, with leader-member exchange theory (Mikulka et al., 2018a, 2018b; Fusco et al., 2015; Beenen, 2016; Fry et al., 2005; Parris, Peachey, 2013; Cheong et al., 2019; Dinh et al., 2014; Bowen et al., 2003). Individual theories and models of leadership are being explored and empirically verified in the context of contemporary environment demands. A deeper understanding of the influence of leaders in organizations should be based on more complex and diverse approaches to leadership study. A classical division of leadership is focused on soft and hard skills, especially in the

context of identification and further development of competencies is the subject of a number of professional publications (Anderson, Sun, 2017; Lovelace et al., 2019; Kozáková, Saliger, 2019; Hendarman, Cantner, 2018; Laker, Powell, 2011; Culpin, Scott, 2012; MacLachlan, 2019).

Although the theories and models of leadership feature developed a theoretical background and defined competencies, the question is, how to measure and quantify potentials of an individual that would predict possible leader's qualities. Majority of studies is limited to validation of theories, leadership models or comparison of competencies and qualities of leaders (Zaccaro et al., 2018).

In the context of changing security conditions, which are due to higher complexity, unpredictability, dynamic changes, non-linearity, etc., the qualities requirements of professionals working in this environment are increasing, especially in case of military commanders and leaders. Therefore, there is a need to look for other possible approaches that will enable detailed identification of the background of the skills of professionals working in this environment. From this reason, we stretch the traditional model of hard and soft skills by the so-called subtle skills (Culpin, Scott, 2012; MacLachlan, 2019).

Connatural management approach defines subtle skills as capabilities related to the natural potential of individuals creating one complex of a professional leader's qualities. They refer to mental and psychophysical condition, critical, creative, and systemic thinking, they are associated with inner discipline and stability, with the ability to change and transform depending on the situation. Subtle skills create a background for an individual approach to leadership (Raelin, 2016). In this context, we find the approach of monitoring of naturally born leader qualities very effective. The quality of subtle skills can serve as a significant indicator of professional leadership (Steinhoff, 2015; Amin, Kamal, 2016).

We consider professional leadership as an individual's potential and quality, essential for leading humans and human systems. Professional leadership relates to the command, direction, and management of people and human systems, organized from the inner environment of an individual. It can be defined as the quality of an individual saturated with the ability to perform situational performance and mental mobility on the relationship and managerial continuum. Within a relationship continuum, an individual can find himself in three modes: the individual himself, the individual as a member of the system (unit, team, group), or the leader of the system (Hardy et al., 2010).

Managerial continuum presents differentiation of human leadership forms in relation to the requirements of the situation, its conditions, and circumstances, and to the initial task, activity or mission. The dominant forms, specific for defined managerial continuum, are controlling management and leadership. Professional leadership is not considered as a position, but as the quality of an individual's natural potential, relating to an inner style that has the potential of following and significance, and is manifested in interpersonal contact in the ability to adapt to a situation. In this sense, professional leadership is close to situational leadership (Zigarmi, Roberts, 2017; Chapman, 2018) or transformational leadership (Bangari, 2014; Shabane et al., 2017; Pradhan, Jena, 2019).

1.2 Definition of mental mobility

A professional leader can, in terms of socially related aspects of the professional environment, in fulfilling functions or performing activities, fluctuate in three positions: an individual himself, a member of a system (unit, team, group, organization), or a leader of the system. An individual who occupies the position of a leader may find himself, depending on the

environment, situation, and task requirements, in one of the three management modes: controlling, management and leadership. Mental mobility shows the flexible leader´s adaptability in a given situational context according to the characteristics of the task assignment. Basic managerial functions are respected from a psychological point of view, cognition, a decision-making, taking action, and sharing information (Ambrozová et al., 2019). In this context, the issue of mental mobility is one of the important issues we paid attention to. We focused on personality potentials that could be used as an indicator of quality and how to identify and measure them. As an initial model, we used the Myers-Briggs Type Indicator (MBTI), enabling a wide range of use. It is a personality model that points out an individual's personality preferences from mental functions point of view (Bents, Blank, 2010). In the MBTI psychometric test is a recognized method, with significant application potential for management and leadership, which is employed since 60's (Gardner, Martinko, 1996; Fekry et al., 2019; Penzias, 2020; Saggino et al., 2001). It is used in many areas from recruitment and selection, education, team-building, and organizational change, to management and leadership development (Dawes, 2004; Harrington, Loffredo, 2010). The findings of the MBTI may be used in organizations for leadership building, finding out best candidate job-fit and organization-fit in the course of recruitment, and also for the training and development of the leaders (Chatterjee, 2014). Within the context of the Gestalt and Person-Centered coaching psychologies, the MBTI is presented as one tool that provides clients with information and insights essential to deepen self- and other-awareness (Bower, 2015; Penzias, 2020). The MBTI, as well-known managerial tool, proves a useful coaching tool, and an instrument in evaluating cognitive skills (Wiater, 2015; Gardner, Martinko, 1996).

2 Materials and Methods

The tested group consisted of 208 respondents from the security environment. They all successfully finished personality developing management courses with an applied method of X-tream (Ullrich et al., 2019a, 2019b). The methodology is focused on identification and evaluation of abilities, natural potentials and personal dispositions in conditions of permanently changing load and challenges of situations and tasks (Ambrozová et al., 2015). The group comprised of 19 women of an average age of 24, and 189 men of an average age of 26.68. Among these 208 respondents there were professional soldiers – students of the University of Defense (n = 117), average age of 23.47, standard error 0.88642; professional soldiers – commanders, degree team – company (n = 61), average age of 29.43, standard error 3.49027; professionals - members of a special unit (n = 30), average age of 27.13, standard error 2.04658. X-tream methods based courses took place from 2013 to 2016 and lasted for 5 days. Data were collected within the process of personal, mental and psychophysical condition diagnostics.

To measure personal potentials for professional leadership we used a standardized technique of questionnaire survey for quantitative research. It is a self-reporting/evaluating questionnaire of personality type „Golden Profiler of Personality" (GPOP) in a Czech version, which identifies individual personality preferences, that result from two basic approaches of their orientation toward the outer world (introvert and extravert) and four psychological functions, describing receiving of information (intuition and sensory perception) and their processing (thinking and feeling). The questionnaire is based on Jung's typology and works with the same scales as the Myers-Briggs Type Indicator (MBTI) (Wagnerová, 2011; Bents, Blank, 2010). Combinations of individual scale preferences are further elaborated into 16 personality types, which perform a behavior, related to receiving of information, perception, thinking and decision-making, including social relationship context (Havlůj et al., 2009). Our questionnaire contains 116 items with seven grade scale. Results were processed by computer software (Hogrefe Test System 4.0, Fribourg, Switzerland) and expressed in ten global scales, paired to five couples: Extraversion (E) – Introversion (I), Sensing (S) – Intuition (N), Thinking (T) – Feeling (F), Judging (J) –

Perceiving (P), Stress (S) – Release (R). Five constructs of auxiliary scale that describe individual differences more precisely were assigned to each dimension.

Data from hand-written questionnaires were placed to the above-mentioned evaluation program. As standard scores, there were used STens (Standard Tens) reaching values 1 – 10, mean = 5.5, standard error = 2. For statistical data processing global scales were marked by their beginning alphabetic characters (E, I, S, N, T, F, J, P, S, R) and auxiliary scales were labeled with letter G and numerical index 1-60.

To process the data, we used factor analysis, which belongs to multidimensional statistical methods, is mostly used to reduce the data file (Gavora, 2012). The aim was to create new (artificial) variables – factors so that with their minimal numbers we could capture maximal information contained in the original file. The dimension of newly acquired data approached the real value, which was an important prerequisite for further processing.

Factor analysis is based on the selection of correlation and partial correlation coefficients. The correlation coefficient represents the closeness of linear dependence of individual variables and partial correlation coefficients, ranging from -1 to 1. Partial correlation coefficient shows a similarity of two variables in a situation when the other variables are assumed constant. If it is possible to explain the dependence of variables using common factors, the partial correlation coefficients are very small, close to zero (Gavora, 2012; Škaloudová, 2010). To assess the suitability of factor analysis two tests were used:

(1) Kaiser-Meier-Olkin (KMO) is a coefficient which could reach values between 0 a 1. Its value is done by the rate of the square sum of correlation coefficients and square sum of correlation and partial coefficients. The acceptable value is 0.5 and higher, optimal is 1.0.

(2) Usage of Bartlett´s Sphericity Test is in testing the zero hypotheses, that correlation matrix of variables is unit (on diagonal are only ones, others are zeros). If the zero hypothesis is rejected, factor analysis could be used for defined variables. The optimal value of Bartlett's Test is 0.0, but values under 5% error are acceptable.

The way to determine the number of factors and the size of the factor loads represent extraction methods of principal components gives non-correlated factors, sorted by their variance. The analysis tries to reduce the number of variables to express the variance of the original variables. If there are high correlations between variables, the total variance can be expressed by one main component. The implementation of this method gives a clear factor solution where the variable uses the highest possible percentage of variance.

For verification of factor analysis, Cronbach's alpha indicator must be used. This indicator is seen as the reliability coefficient, which is used as a kind of analog of the correlation coefficient. Usually, it is possible to reach values in the interval of <0.1>. Zero as extreme value describes a situation, in which individual variables are uncorrelated. On the other hand, the value of 1 describes the correlated variables. When the value is closer to 1, there is reported a higher degree of conformity (Cronbach, 1951; Hrach, Mihola, 2006).

3 Results

Firstly, we have analyzed the items of global and auxiliary scales of the GPOP questionnaire in the context of required qualities of professional leadership, potentially related to the aspects of ability for mental mobility on the managerial continuum (see table 1).

Table 1. Selected items with potential relationship to the aspects of ability for mental mobility

GPOP scales	Selected items
Extraversion (E) Introversion (I)	Energy (E_{G1}), The spirit of an enterprise (E_{G5}), Spontaneity (E_{G6})
Sensing (S) Intuition (N)	Sensing (S_{G13}), Practicality (S_{G14}), Concreteness (S_{G15}), Realistic approach (S_{G16}), Stability (S_{G18})
	Intuition (N_{G19}), Innovation (N_{G20}), Imagination (N_{G22}), Change (N_{G24})
Thinking (T) Feeling (F)	Thinking (T_{G25}), Objectivity (T_{G27}), Leadership (T_{G29}), Criticalness (T_{G28})
	Empathy (F_{G31})
Judging (J) Perceiving (P)	Judging (J_{G36}), Orientation to decision making (J_{G37}), Structure approach (J_{G39}), Sense for details (J_{G41})
	Perceiving (P_{G43}), Orientation on the process (P_{G44}), Sense for a whole (P_{G47}), Openness to the occasions (P_{G48})
Stress (Ss) Release (R)	Skepticism (Ss_{G54})
	Equanimity (R_{G57}), Self-confidence (R_{G59}), Positive attitude (R_{G61}), Optimism (R_{G63})

Source: own work by authors

Secondly, we have generated partial factors related to the professional leadership (mental mobility on the manager and relationship continuum) using statistical processing of data from the selected items of GPOP questionnaire. To perform the factor analysis, it was necessary to determine the KMO and Bartlett's Sphericity Test values. The minimum acceptable KMO value is 0.5, and the maximum acceptable Bartlett's Sphericity Test is 0.05. Observed KMO was 0.762 and Bartlett's test value was 0.000. All selected items of GPOP questionnaire served as input to factor analysis.

The result of the factor analysis is the creation of a rotated matrix of components that indicate the saturation power of the individual variables that enter this analysis. Results of factor analysis include seven factors, which explain 73.799% of variances. To determine the resulting equation of the individual factors, we have used the values in the un-rotated matrix. The equation can only be determined if it contains at least two saturation variables (see Table 2).

Table 2. Component matrix and highlighted saturation variables of selected items

	1	2	3	4	5	6	7
E_{G1}	.430	.507	.239	.444	.239	-.310	-.180
E_{G5}	.363	.500	.059	.384	.295	-.366	-.105
E_{G6}	.477	.501	-.050	.315	.173	-.226	-.095
S_{G13}	-.754	.328	.451	-.072	.088	.134	.054
S_{G14}	-.718	.012	.430	.000	.279	.176	-.059
S_{G15}	-.571	.532	.165	-.135	-.150	.013	-.164
S_{G16}	-.520	.452	.475	-.091	.082	-.042	.225
S_{G18}	-.705	.046	.142	.174	.142	.082	.203
N_{G19}	.793	.339	-.174	.139	-.125	.223	.196
N_{G20}	.669	.367	-.227	.133	-.303	.137	.193
N_{G21}	.604	-.109	.072	.216	.142	.294	.318
N_{G22}	.655	-.049	-.266	.160	.206	.343	-.227
N_{G24}	.632	.430	-.013	.003	-.132	.037	.242
J_{G39}	-.662	.558	-.138	.114	-.169	.185	-.029

Source: own work by authors

Based on the values of the selected items we have calculated their weighting. The sum of these weightings in each factor expresses 100% representation within the relevant factor. To confirm the correctness of the factor analysis we have determined the Cronbach alpha indicator for each factor to verify it. The verification value must be at least 0.5. Individual factors

were designated as G1 – 3 factors. Table 3 shows generated factors G1 – 3, individual equations and Cronbach alpha values.

Table 3. Generated equations for factors and Cronbach alpha values

	Cronbach's alpha
G1 - Factor of situation pragmatic approach	.754
G2 - Factor of proactivity	.885
G3 - Factor of social and situational engagement	.861

Source: own work by authors

The determined equations allow calculating the appropriate Factor value for each participant based on the values of selected items of GPOP questionnaire. Thirdly, we have assigned a term, description, and an equation for calculation of each factor.

G1 – Factor of situational pragmatic approach expresses the relationship between sensing, practicality, concreteness, and orientation to decision-making. The Factor reflects the logical and structured approach to situations and relations characterized by responsibility, methodicalness, realistic approach, and stability. For calculation of this Factor we have created the following equation:

$$G1 = 0.16444 \times S_{G13} + 0.15658 \times S_{G14} + 0.12459 \times S_{G15} + 0.11344 \times S_{G16} + 0.15383 \times S_{G18} - 0.14283 \times N_{G22} + 0.14429 \times J_{G39}$$

Numerical coefficients constitute the weighting of individual variables in the frame of the Factor. Other items: S_{G13} – Sensing, S_{G14} – Practicality, S_{G15} – Concreteness, S_{G16} – Realistic Approach, S_{G18} – Stability, N_{G22} – Imagination, J_{G39} – Structural Approach.

G2 - Factor of proactivity indicates the relationship between intuition, innovation, useful and effective mobility in changing conditions. The Factor characterizes the ability to perceive situations as a complex, with creativity and sense of perception of relations and connections within different or even contradictory appearing phenomena. For calculation of this Factor we have created the following equation:

$$G2 = 0.41983 \times N_{G19} + 0.54834 \times N_{G20} + 0.03183 \times N_{G24}$$

Numerical coefficients constitute the weighting of individual variables in the frame of the factor. Other used items: N_{G19} – intuition, N_{G20} – innovation, N_{G24} – change.

G3 – Factor of social and situational engagement represents the relationship between vigor, the spirit of enterprise and spontaneity, in the sense of the need for the social environment as the background with energizing potential. The Factor reflects social relations and immediate reaction to challenges from surroundings. For calculation of this Factor we have created the following equation:

$$G3 = 0.38838 \times E_{G1} + 0.33568 \times E_{G5} + 0.27594 \times E_{G6}$$

Numerical coefficients constitute the weighting of individual variables in the frame of the factor. Other used items: E_{G1} – energy, E_{G5} – the spirit of enterprise, E_{G6} – spontaneity. Individual factors were calculated for each respondent of a tested group. From these calculated results there were subsequently established values for descriptive statistics (see Table 4).

Table 4. Descriptive statistics of identified factors for professional leadership

	Mean	Variance	Std. error	Min	Max
G1	4.4596	2.5457	1.59554	0.95	8.23
G2	5.2517	4.5741	2.13872	-1.52	10.00
G3	6.0845	3.0031	1.70603	2.15	10.00

Source: own work by authors

Factors can be used in the process of selection of the right individuals for a position, further on in the process of determination of an individual´s potential for professional leadership, or to aim further development e.g. additional preparation, advancement, and cultivation of personality potentials and sources. Figure 1 shows the graphical expression of identified factors levels and their variances.
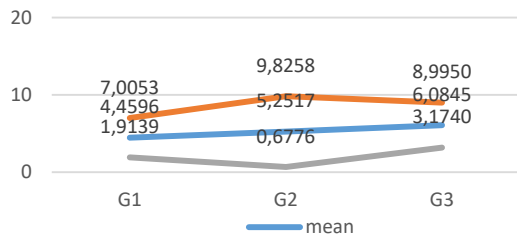

Figure 1. Graphical expression of partial factor values

The interpretation of values can be as follows: individuals reaching lower range results (mean - 1 variance) show lower values in the monitored factors and are likely to feature a lower potential for mental mobility, based on GPOP indicators. The individuals reaching upper range results (mean + 1 variance) show high potential and are likely to feature the potential for mental mobility in the context of professional leadership.

4 Conclusion

The present study deals with the problems of personality potentials for professional leadership evaluation. In our point of view, professional leadership is about the quality of an individual´s abilities not about a professional position. In this sense, it differs from the classical concept of leadership.

Searching for its suitable measurement tool we started with the Czech version (GPOP) of the MBTI model because it contains classic attitudes (introversion and extraversion) and four functions (intuition, sensing, thinking and feeling). The reason for this choice, are individual dimensions that can be considered as continua. Each side of the continuum represents a partial quality/function, related to the information intake manner (introversion – extraversion), their processing (sensing – intuition), creation of decision making (thinking and feeling) and lifestyle (perception judging). Continua of individual dimensions represent an environment for possible mental mobility of an individual among respective functions. Individual's ability to use potentials of both continuum functions is given by the measure of their preferences.

Research studies, using the MBTI model are aimed above all to the identification of factors, which may affect the manager's ability to lead his subordinates effectively (Kuchynková, 2015). They follow personality types in the context of expected administration style (Brandt et al., 2013). Other studies focus on the difference between business leaders who are introverts and extroverts (Barnett, 2016). Officers and enlisted members of The U.S. Air Force are looked at individually and collectively. The findings suggest that there are many similarities between officers and enlisted personnel. For example -introversion, sensing, thinking, and judging; they are also predominantly left-brained individuals. Some similarities include officers and enlisted members preferring to work quietly while still exhibiting a realistic problem-solving style (Devlin, Singh, 2010).

However, in our study, we decided to use the measure of individual functional MBTI dimensions preferences for identification of personality potentials for professional leadership. It resulted in the identification of 3 factors (G1 - Factor of situational pragmatic approach, G2 - Factor of proactivity and G3 - Factor of social and situation engagement) and equations for their calculation. Their descriptive statistics arise from the tested group of respondents.

Professional leadership as an ability and competence in security environment is organized from the inner environment of an individual. It emphasizes proactivity, mental mobility, organizational and structural openness, and reclusiveness. It consists of the ability to find the order and structure, to recognize the hidden qualities, principles or relationship of the organization and other potentials of the respective environment. This work presents the first results of personality potential of military and security professional research. Identified factors for professional leadership show the quality of an individual, that can be evaluated both in the context of specific requirements of working positions (selection of people for positions) and in the context of education, development, and cultivation of personality potentials and qualities.

The significance of individual factors, as indicators of personality potentials for relationship and managerial continuum, especially for the modes of the individual as himself, individual as a member of the team, and professional leader can be described as an irrelevant indicator, a relevant indicator, and a significant indicator. G1 - Factor of situational pragmatic approach is considered a significant indicator for the individual as himself mode, a relevant indicator for the modes of the individual as a member of the team, and professional leader. G2 - Factor of proactivity is a significant indicator especially for modes of individual as himself and professional leader. G3 - Factor of social and situational engagement is irrelevant for the mode of individual as himself. On the other hand, it is a significant indicator of the modes of individual as a member of the team and professional leader.

The next step in our research is the monitoring and validation of factors in the practice of military professionals and professionals working in the security environment. In this context, we see as useful, for example, courses or special training for professionals, with the applied X-tream methodology. The methodology is used to simulate stress factors and successful completion of this course is a certain confirmation of the quality of the individual's physical condition, which is monitored in the mental, personal and psychophysical dimension (Koleňák et al., 2016; Wang et al., 2018).

Identified factors for professional leadership highlight individual qualities that can be evaluated both in the context of specific job requirements (e.g., people selection processes for positions), and in the context of education, development, and cultivation of personality potentials and qualities.

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