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SUMMARY  
On his doctoral thesis

**ASPECTS CONCERNING PSYCHOLOGICAL  
SELECTION OF THE APPLICANTS TO THE MILITARY  
ACADEMIES IN ROMANIA**

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## ARGUMENT

### CHAPTER I. A revisiting theories of personality

- 1.1 Personality - a concept defined in idiographic and nomothetic coordinates
- 1.2 Abyssal psychology perspective on personality
- 1.3 B-values and self-realization humanistic approaches of personality
- 1.4 Modeling personality under the influence of situational factors: behavioral and non-behavioral vision
- 1.5 Cognitive-behavioral psychology elements used in explaining personality dimensions
- 1.6 Person in terms of skills , interests and values
- 1.7 Module motivation in personality structure
  - 1.7.1 motivational theories centered on the study of needs
  - 1.7.2 Theories focused on motivation as a process
- 1.8. The concept of personality trait. From Allport to the current theory of the five factors
  - 1.8.1 The five factors (Big Five). Lexical hypothesis
  - 1.8.2 Typological Perspective
  - 1.8.3. Situational Perspective
  - 1.8.4. Interactions perspective
  - 1.8.5. Culture perspective
- 1.9 Conclusion

### CHAPTER II. General issues relating to professional recruitment and selection

- 2.1 Human Resource Management
  - 2.1.1 The importance of human resources.
  - 2.1.2 Analysis of labor
- 2.2 Fidelity and validation of personnel selection
  - 2.2.1 The problem of criteria
  - 2.2.2 The problem of predictors
- 2.3 Recruitment and selection
  - 2.3.1 Recruitment
  - 2.3.2 Selection of staff
  - 2.3.3 Fundamental assumptions of psychological selection

### CHAPTER III. Specific problems of psychological selection in career military officer

- 3.1. Psychological experience of other states in selecting career officer

- 3.2 Psychological Selection of candidates for officers in the Romanian army (the direct pathway).
- 3.3 The psychological profile of officers
- 3.4 Mental disorders (psychiatric) that could occur due to participation in combat theaters of operations
- 3.5 Methodological issues in psychological selection of officers
- 3.6 Characteristics of the selection of officers

#### CHAPTER IV. Experimental investigation program

##### 4.1 Research Objectives

- 4.1.1 General objectives

- 4.1.2 Specific Objectives

##### 4.2 Research hypotheses

- 4.2.1 General Assumptions

##### 4.2. Specific work assumptions

##### 4.3 Group of subjects

##### 4.4 Research Variables

- 4.4.1 independent variables other than the psychological register

- 4.4.2 Independent Variables Psychological Record

- 4.4.3 Dependent variables

##### 4.5 Research tools

- 4.5.1 Batteries of tests of intelligence (A1 and I1)

- 4.5.2. Batteries of tests of intelligence (AI and IA)

- 4.5.3 The test of social intelligence

- 4.5.4 Personality Questionnaire C.P.1

- 4.5.5 Assessment of personality by questionnaire Big Five - Elements benchmark for interpretation

- 4.5.6 Test of conflict style approach TK (Thomas Kilmann)

- 4.5.7 Scale of appreciation Lavöegie

- 4.5.8 Test for evidence of self discrepancies

- 4.5.9 Probe sports

- 4.5.10 Situational tests

- 4.5.11 Assessment Interview

- 4.5.12 Holland Interest Questionnaire

4.5.13 Real reasons test (boys and girls)

4.5.14 Career interests test TIP70

4.5.15. Questionnaire to determine the type of motivation for learning object and profession

4.6. Methodology

4.7. Analysis of survey data and working hypotheses

4.7.1 Checking general hypothesis. 1

4.7.2 Checking general hypothesis. 2

4.7.3 Checking general hypothesis. 3

Conclusions

REFERENCES

ATTACHMENTS

Annex 1

Annex 2

KEYWORDS:

personality, skills, intelligence, motivation, interests, values, creativity, social intelligence, job analysis, recruitment, psychological selection for officers, human resource management, validity, fidelity, predictors, criteria, military academy in Romania, intelligence tests, questionnaires personality, motivation and interests, situational tests, sample sports interview, military career

## Introduction

The psychological selection for officers is one of the main targets of the human resource management and it is essential for a good course of action in the army. "In no job can the consequences of hiring untrained personnel be so terrible and irrevocable as in the military." (MacArthur in Cohen, 2001, p 135). Psychological selection is only the initial part of becoming an officer, followed by a selection during the years of training and especially after graduation importance.

Therefore, a validation of the instruments we use in psychological selection is imperative. This validation includes: identifying psychological variables that are common or different for students at military academies, the distinction between candidates rejected and candidates admitted at military academies entrance exam, identifying the psychological factors that can contribute to personal development and higher academic performance (the average between the baccalaureate exam, the entrance examination mark and the scores obtained during the school years).

The work is structured in two parts. The first part is a theoretical approach to different aspects of the psychological selection and the second part comprises the research conducted by the author.

The first chapter of Part I, entitled "*A revisiting of the theories of personality*", begins with a brief overview of recent definitions of personality, admitting that "our actions are a behavioral mirror of our personality" (Neculau, 2003). The common note of the personality characteristics is given by globalization, consistency and permanence in time (Dafinoiu, 2003). Personality has been approached from different perspectives: the abyssal perspective, (Freud, Jung, Adler, Horney, Fromm, Sullivan, Erikson), the beta values and self-making humanistic approach (Rogers, Maslow, May), the influence of modeling situational factors in behaviorism and neo-behaviorism (Pavlov, Watson, Skinner), the cognitive behavioral psychology in personality constructs (Kelly, Bandura), in terms of skills (various manifestations of intelligence and creativity), interests and values, the motivation theories centered on the study needs (pyramid - Maslow, the ERG - Alderfer, bi factorial - Herzberg and achieve success - McClelland) and process theories of motivation (expectations - Vroom and goals - Locke), the features (from classic to current theories of the five main factors ), typological (Allport), situational (Shweder and D'Andrade, Hampston), interactions (Mischel) and culture (Vîgotschi, Beauvois).

The diversity and the multiplicity of theoretical approaches and practical aspects of personality may seem disconcerting, if we don't make an effort to go beyond the controversies and

disagreements. These controversies and differences between personality theorists must be regarded as a starting point for a process of unification of concepts. Thus, we consider it to be more useful to focus on the similar aspects of concepts that describe personality. In our opinion it is very important that all researchers agree when it comes to support the existence of a hierarchical and systemic organization of personality, even if they can't agree on the raw elements that compose it and on the laws of that unify them. Recognition of personality systems and subsystems constitutes an implicit recognition of a foreseeable and knowable behavior issued by a person. The practical part of this research has been built starting from these main assumptions and tries to define structures of personality and behavioral patterns characterizing the applicants for the military.

The second chapter, called "*General aspects of professional recruitment and selection*" analyzes problems such as:

- the importance of human resources in an organization and their management, according to their performance
- work analysis in personnel psychology (in order to determine the relationship between assignment and employee using quantitative, qualitative and graphic methods)
- some general aspects of fidelity and validity in psychological selection (criteria and predictors of the problem)
- recruitment, selection and some of the basic psychological assumptions.

In the last few years, partly due to globalization, the concept of position has been diluted, we see around flattened organizations with fewer hierarchical levels, with joint working teams, restructured, without well defined borders. The British military organization working system is used to rank candidates in seven points (Pitariu H., 2006).

Measurement errors are estimated by means of fidelity and validity. Fidelity is given by the consistency of the predictors used, via a correlation coefficient, which is estimated by specific methods (test-retest, equivalent forms, internal consistency, etc.). Validity is a characteristic of the measurement method, referring to the precision of the measurements - it can be logical, empirical, criterion-based, content-based, descriptive, appearance-based, general, etc.

Criterion is "an independent measurement of what the test aims to measure" (Anastasia, 1976). Among the notable trends in a research, we must remark the attention given to the criterion specificity.

The problem of the predictors is analyzed from the perspective of individual differences, of the various skills that can be expected and of the undesirable social behaviors.

In terms of accuracy of methods of selection criteria for the group of training, note the following levels of validity, according to indicators: tests of cognitive (0.56), integrity tests (0.38), interviews (0.35), conscientiousness (0.31), biography (0.30), recommendations (0.23), years of education (0.20), interest (0.18) and years of experience (0.01). For group performance criteria relating to general note following levels of validity for the methods used: cognitive and integrity (0.65), cognitive and structured interviews (0.63), cognitive and work samples (0.60), testing the samples of work (0.54), cognitive tests (0.51), structured interviews (0.51), job knowledge tests (0.48), personality tests (0.40), assessment centers (0.37), biography (0.35), conscientiousness (0.31), recommendations (0.26), years of experience (0.18), years of education (0.10), interest (0.10), graphology (0.02) and age (-0.01) (Bogháthy Z., 2004).

A combined meta-analysis of the correlations between ability and personality and a review of the empirical findings of the relationship between skills, interests and personality produced an integrated model that identifies four categories of "complex traits": science / math, clerical / conventional, social and intellectual / cultural traits. (Ackerman&Heggstad,1997). Recruitment is the process that is attracting more people to apply for filling positions in an organization (Breugh, 2004; Rynes, Cable, 2003). In addition to quantitative recruitment perspective, it requires a qualitative perspective on the candidates recruited. The selection process aims to differentiate candidates according to skills and training of each individual and to choose the most suitable candidates. The selection highlights the skills needed to give a good return in the vacancy (Craiovan, 2007). In the army, the selection process includes psychological assessments and evaluations and others (medical, physical, academic). Psychological selection must take into account, in addition to their own requirements, the need to fit in all the other assessments (Popa, 2011).

Basic research paradigm for psychological selection was described in most standard texts (Albright, Glennon, & Smith, 1963; Dunnett, 1966, Guion, 1965; Lawshe & Balma, 1966, Schneider & Schmitt, 1986 Thorndike, 1949) but Guion's general model proposed five fundamental ideas (1998, p.13):

1) people have skills (mental, psychomotor, learned specific habit of dealing with things or events in the environment). It is not assumed that these skills are permanently fixed by heredity or early life experiences. However, it is assumed that these skills are stable enough and for a long period of time, if no distractors interfere.

2) people differ in the abilities they have. Individual differences between relevant skills are the basis of the selection decisions. Those who have relevant skills for a profession are expected to practice better in the same conditions with those with less developed skills.

3) relative differences among these skills remain almost the same, even after training or experience. When a skill is used for work performance it will be improved through practice, but the relative ranking of the people in the group will not be substantially changed.

4) different positions require different skills.

The decision taken during the selection of the candidates involves increasing the organization's strategic potential, with the main principle "which of the candidates added more value to the organization" (Pitariu, HA 2000).

The last chapter of the theoretical approach, entitled "*Particular issues of the psychological selection for officers*" analyses some models used in the army psychological selection of other countries (Austria, Spain, Belgium, USA, Canada, South African Republic, Sweden). It also deals with a description of the selection procedure the Romanian military academies use, also mentioning several psychiatric disorders that may occur due to participation in combat theaters of operations, and special methodological problems that characterize the process of selecting officers.

**Part II** is a study on the psychological selection of the candidates for military academies in Romania, which is organized around three distinct **general objectives**:

A. Identifying the differences between the profiles of the applicants to the military academies in Romania, reflected in their entrance examination results.

B. Knowing the personality profile of the students at the military academies in Romania with a significant impact on their overall performance (average of the baccalaureate exam, average entrance exam in military academies and scores obtained in the academy).

C. Establishing ways in which personality and environmental variables affect the school performance of the students in the military academies in Romania.

**The specific objectives** envisaged aim at:

A. Realizing personality profiles in T standard notes for students at the military academies, differentiated for each academy, revealed by the instruments used in selecting candidates for the military institutions of higher education.

B. Identifying significant differences between the personality profiles of the students at various military academies.

C. Since assessments take place before the baccalaureate and the entrance examinations, we wanted to achieve some general performance prediction models (estimated by school performance - the average high school examination, average entrance exam and military academies the school media academy), using tools for selection of candidates for military academies.

To achieve these objectives, we formulated the **following hypotheses:**

A. Among the successful candidates and the rejected ones there are statistically significant differences in the pattern-sized personality.

B. Various military academies in Romania involve distinct personality profiles, revealed by psychological instruments

C. The tests and questionnaires used in the selection of candidates for military academies have a strong academic performance outcome.

The **specific work assumptions** are that:

1.1 There are significant differences, depending on the variable entrance exam result at military academies, in terms of raw notes (for each subtest and totally) obtained at the intellectual performance test batteries.

1.2. There are significant differences, depending on the variable entrance exam result in military academies in terms of the dimensions of personality questionnaires, interest and motivation and the interview.

1.3. There are significant differences, depending on the variable entrance exam result in military academies, in the scales obtained in sports events held in the selection process.

1.4. There are significant differences, depending on the variable entrance exam result in military academies in terms of gross notes on size variants obtained from situational tests.

1.5 There is a valid predictive model of military success in admission to institutions of higher education, according to cognitive variables and personality.

2.1. There are significant differences in terms of intellectual performance of subjects, depending on the specific academy they attend.

2.2. There are significant differences in terms of personality dimensions assessed by questionnaires, motivation and interests, situational tests and interview, according the military academy attended.

2.3 There are significant differences in terms of academic performance (average high school, academy admission average annual student and school environments)

2.4 There are significant differences in perspectives of self assessment (theory - wanted, real - and ideal self-portrait) for military students in general

3.1. There is a valid predictive model based on Academic Performance of cognitive and personality variables revealed by psychological tests used in selecting future officers

### **Lot of participants**

The study involved 13,332 candidates for military academies, aged between 18 and 24, high school graduates, male and female, from all regions (average 19.25 years, standard deviation 0.95 years). The data were collected over 9 years, between 1999 -2008 by expert staff from the three regional centers for selection and orientation, which have as primary mission the psychological selection of candidates for the military profession. It should be noted that every year the psychological selection methodologies were modified and alternative test batteries were applied, which implies that the data can be continually modified.

### **Measurement instruments used according to their purpose:**

A. to determine the potential of general skills: intellectual performance test batteries A1, I1, AI, IA - adapted skills dedicated batteries, developed by Bontil (1972), battery EAI (Epreuve Analytique d'Intelligence), and social intelligence tests);

B. to determine the potential of adjustment to military life-CP1 personality questionnaires; TK-ISAC questionnaire, testing the adjustment at frustration abilities; Lavogie's self-appreciation scale and a test that highlights the discrepancies in the self.

C. to determine physical potential: sports tests;

D. to determine potential leader: situational tests;

E. to measure the communication potential, as well as the motivational potential (evaluation interview)

F. to measure motivation and interests:(Holland, MRBF, TIP70).

### **Methodology:**

In order to verify the hypotheses and to achieve the objectives, we use, as statistical-mathematical methods of data processing a multitude of methods: media analysis, dispersion, the meaning of the difference between averages, the interpretation of the correlation coefficients between independent and dependent variables, the T test for independent samples, other nonparametric tests for independent samples (Mann-Whitney U test), the analysis of variance ANOVA, the non-parametric Kruskal-Wallis H test, the logistic regression, the interpretation of hierarchical regression models and modeling using SEM techniques.

Initial results were processed by removing data that had Z marks outside the interval (-3, +3) - outliers. The correlations between predictor and criterion were half-corrected, using the attenuation of fidelity (Cronbach alpha) and the restriction of amplitude (group that applies statistical tests is pre-selected) (Popa, 2008, 2011), in order to create models that predict scholar performance.

The significance of results and circumstances was explicit (most of the times), either as a confirmation of the methodological consensus guidelines or to confirm the assumptions made and the personal contribution to the topic in question, subject to validation by consensus of experts.

### **Analysis of survey data and working hypotheses**

The analysis of the survey data is intended to give some clear information with the purpose of finding relationships between the data examined, which could determine specific psychological profile, psychological mechanisms and structures, new directions for further research, etc. (Cojocaru, 2007).

In the research conducted there were noticed differences between the independent variables connected to the military academy entrance exams, like subjects, area of origin and type of military academy, and the dependent variables were analyzed correlations with personality factors and non-psychological some variables and models were built for predicting academic performance.

### **Research results interpretation**

#### **Psychological interpretation of the results for the verbal factor**

Most psychologists who have studied intelligence agreed that its different facets can be grouped into two main factors, which have in fact a close connection. Even if these factors were given different names (eg Cattell calls them crystallized thinking and fluid thinking, connected to new life experiences) they are most commonly known as verbal and nonverbal factors. Vernon (1950) described four levels of intelligence. The general factor g was situated on the first level, the specific factors s were placed on the last and in between there are minor or major group factors. The second level in Vernon's hierarchical model includes two major group factors: the verbal/educational factor and the spatial/mechanical abilities factor.

There are some who argue that the division into verbal and nonverbal factors has a biological basis, meaning that verbal intelligence would be located in a brain region activated by speech, while nonverbal intelligence is in an area activated by finger movements. Thus, "verbal

and nonverbal skills are closely linked to the sensorial motored skills involved in learning" (Ramsden, Richardson, Josse and others, 2011).

Measuring skills such as quick reading and understanding, good judgment, flexible and fluid thinking, the verbal factor report is considered a better predictor of academic performance than non-verbal factor.

In our case, the tools used in selecting candidates for military academies, in terms of intellectual performance (battery of tests A1, I1, AI, IA), produce results that fall within the general trend described above. In other words, most of the differences between the admitted and the failing candidates are rendered by the verbal subtests. However, not all four batteries of tests used during the nine years this research of the selection of candidates are equally effective; from this perspectives they can be ranked as follows: the best results were obtained with the battery of tests AI , which captures significant differences between those admitted and rejected at all five military academies included in our study; the battery of tests I1 is close to that efficiency, capturing the differences between four of the five military academies; the battery A1 is relevant for three academies and IA battery only for two academies.

Considering that these four batteries of tests were devised and implemented with the assumption that they are similar, our analysis shows that, in terms of factor identification protocol, the differences between the assessment results of the admitted and rejected candidates are not equivalent.

#### **Psychological interpretation of the results for the nonverbal factor**

Although the nonverbal factor was considered, as I said, to be less predictive than the verbal one, its specificity and importance come from the fact that it captures those aspects of the general intelligence that do not depend on the linguistic or on the cultural influences. (Jensen, 1998).

In our case, the nonverbal factor generally outlines differences between the two categories of candidates mentioned above, but it is not as relevant as the verbal factor. Thus, significant differences in the nonverbal factor depending on the category of candidates admitted / rejected appear only for batteries A1, AI and IA , only for three academies and the battery I1 is relevant only for two academies.

Given that intellectual performance test batteries assume equivalence in terms of identifying the nonverbal factor, their efficiency in differentiating the candidates admitted or rejected is not equal.

### **Psychological interpretation of the results from the final raw mark of intelligence**

Serious research programs analyzing the relationship between intelligence as aptitude and the educational achievement have been conducted since the 1900s. The report between the studies aimed at this relationship, and the studies on the relationship between the non-intellectual components and the academic performance is about 10 to 1 (Duckworth and Seligman, 2005). This is relevant for the importance of intelligence in predicting academic success.

Although many intelligence researchers prefer to focus on its factors and on the multitude of their differences, Cattell's research and Carroll's meta-analytical analyses over 400 studies of intelligence, found that the variance given by the common factor is over 50%. This finding reconfirms the existence of Spearman's g factor, which links the specific factors of intelligence. Carroll, moreover, he proposed a hierarchical model of intelligence, structured on three levels, the general factor g having eight major facets which contain 69 specific factors. (Carroll, 1993)

All the four batteries of intelligence tests applied reveal significant differences between applicants, which certifies the importance of intelligence testing in selection. The hierarchy of the batteries of tests used would be the following: AI highlights differences in all military academies, II only in four of them I1 and A1 only in three academies.

Although our results were somewhat predictable, they demonstrate, on a large number of subjects, that the tests used have the ability to discriminate, managing to successfully differentiate candidates with high intellectual potential from candidates with low intellectual potential. We can't say with certainty that the overall results totally support the views of Spearman, Vernon, Carroll, and other psychologists who have a favorable attitude towards the existence of the general factor "g" of intelligence, but research results are consistent with them.

### **Psychological interpretation of the social intelligence test**

The instrument used to analyze the social aspects of intelligence is an adaptation of Guilford's theoretical model (1973). It aims to highlight the extent to which subjects are able to know and evaluate behavior from the perspective of units, classes, relationships, etc. (Guilford, J.P. and Hoepfner, R. 1971). We should mention that almost all intelligence researchers have introduced important facets of intelligence among the social factors. For example, Gardner (1996) mentions the existence of a factor among the important factors of interpersonal intelligence, which refers to understanding and relating with others, as in Guilford's case.

Naisser (1996) suggests that social intelligence is determined, among other factors, by the economic and social status of the family the candidate comes from and Reiss (1997) proposes, among others, the model imposed by parental behavior. In this model, parents' behavior influences

the development of the child's intelligence, which subsequently has appropriate behaviors. Harris (1995) suggested that, in addition to cases within the family, which have an important role in shaping children's intelligence, broader social environment (relatives, friends, acquaintances) has a decisive role. Harris's conception is consistent with the theory of and social categorization stated by Tajfel and Turner, 1986.

In our case we have obtained not only differences between the candidates admitted and rejected at military academies entrance exams in general, but also differences within each academy. Thus, the GE subtest indicates differences in all the five military academies in Romania, the PI subtest and the total gross note TIS in four of them, and the subtests EV and PC only in three academies. Among the candidates admitted and rejected AN and AFT, there are differences in all the social intelligence subtests applied, meaning that entrants know and evaluate human behavior in terms of products better than those who were not admitted. Only at PI and GE did the rejected candidates score more than the admitted ones and only at the Naval Academy. The candidates admitted at the ATM have developed very high social skills, that have been measured using the GE subtest.

An interesting result was obtained in case of the candidates admitted to SME. Their social skills, measured with all TIS subtests, are less developed than those of the unsuccessful candidates, which sustains Gardner's point of view (1997) on doctors' emotional intelligence. According to the author, physicians in general are expected to have a lower ability to empathize, understand and internalize social behavior. A possible explanation is that the medical profession requires a relative social isolation due the long period of time dedicated to studying on the one hand and, on the other hand, to a certain emotional detachment, necessary for the proper protection of the self in front of the others' sufferings , in an attempt of keeping one's emotional balance.

### **Psychological interpretation of the results obtained at the personality questionnaire CPI**

Generally speaking, the results of applying this personality questionnaire, although not spectacular, manage to predict the differences between the admitted and the rejected when it comes to their sincerity. This means that the admitted subjects have the tendency to be self-demanding and to take responsibility for their own mistakes. At the other extreme, rejected subjects generally had a facade attitude, a tendency to superficiality, backed by accepting their weaknesses and unfairness to others. Apart from these differences that we have achieved overall, mention should be made about the fact that, following the same criteria, we have noted significant differences only

among the applicants for the Land Force Academy. In the case of the other military academies, the results were irrelevant.

As Goldberg-one of the Big Five theorists-states the criterion of tolerance, extremely important in social relationships, includes, as a subordinate trait, the criterion of sincerity. Under these circumstances, it seems natural that the admission to military academies should be focused on selecting those subjects who are reliable and honest.

When testing activism, we came to the conclusion that the entrants at the Naval Academy significantly differ from the unsuccessful candidates, being slower and less active. A possible explanation would be their mostly introverted temperament, which seems more appropriate for the career they have chosen. (Cojocaru, 2007).

Behavioral normality, another dimension of CP1, characterized by adaptation to environment and flexibility, is dominant at the candidates that failed at ATM and poorly scored at the admitted ones. We believe that we have here a possible overlap with the intelligence factor.

#### **Psychological interpretation of personality questionnaire BFQ results**

The successful applicants have high scores for the criterion of dominance and low scores at dynamism, impulse control and cultural openness. The last two characteristics are essential for an officer to be, which makes our results not at all surprising. Dynamism is also low, while dominance- very important for a good leader- is high.

#### **Psychological interpretation of results from questionnaire ISAC TK**

The results clearly reveal that the successful applicants are more willing to compromise and to be assertive than those who failed. The rejected candidates seem to value most their personal goals and ambitions.

#### **Psychological interpretation of the results at the Holland interests questionnaire**

Overall, on the investigative dimensions of personality, the difference between subjects is more relevant than ever. They are significantly oriented towards investigative activities and believe they have sufficient skills and abilities for research and problem solving.

Another dimension positively represented is successful candidates' sociability. Although there were not mentioned significant gaps when it comes to applicants' competence, when it comes to activities, abilities and aptitudes, the entrants were far more sociable.

An interesting result is the entrepreneurial personality type. Although the entrants perform positively in activities, their entrepreneur profile shows they are weaker than the rejected ones.

The entrants at the Land Force Academy seem to have high investigative aptitudes and very low artistic ones. A surprising result comes from the Air Force Academy, where entrant seem to have high artistic, investigative and social aptitudes, contradicting the general tendency mentioned before. The scores at the Technical Academy were lower.

#### **Psychological interpretation of outcome assessment interview**

The interview for a military career covered two dimensions: motivation and communication skills. We believe that it has proven its value in the selection process, since after the entrance examination, we find that, in general, the candidates with high the interview passed the entrance examination as well.

#### **Psychological interpretation of the results from TIP70**

This is a projective test that has revealed that the entrants at the land Force Academy are interested mostly in open-air activities rather than in spending their time in closed spaces, such as laboratories

#### **Psychological interpretation of the real reasons test**

The most significant results at the MRBF test envisage the erotic dimension, which is natural, considering the age of the subjects and the fact that they are mostly single. Also, the entrants had low scores for anxiety and aggression.

#### **Psychological interpretation of results in sports events**

Even if they are not considered and assessed at the entrance examination, sports tests are important when it comes to the selection process. Moreover, research shows that the applicants with good results at these tests were successful at the exam as well. This might be owing to a good moral and to the strength of character physical activities trigger. Even if specialists claim that there is a close connection between the high anxiety level and the good sportive achievements, our tests proved the opposite.

#### **Psychological interpretation of situational test results**

Current research reveals that the situational tests place the candidates in situations similar to those he will encounter in real life. Our test is intended to grasp the potential of a military leader, who must manage complex work situations, from leading people in training activities to planning and executing various actions in the battlefield. We note that in the first variant there are significant differences between the admitted and the rejected applicants, depending on certain personality traits characterizing a leader (understanding, planning, judgment, flexibility, evaluation, communication and total gross note). The entrants at the Land Force Academy and at the Technical Military Academy the scores at the factor tenacity are very high. For the other

variants of situational tests applied we remark the composite note scored for leadership potential; There are statistically significant differences between the candidates admitted and rejected, meaning that the entrants have higher average grades than the leadership potential of the rejected.

### **Psychological interpretation of model results for predicting successful admission in military academies**

From among all the factors favoring successful entrance examination exams, we should notice the importance of the socio-demographic factors, as well as the importance of the institutional factors (whether the candidate comes from a military high school or from a civilian one).

Military academies prepare graduates to become officers the Romanian army, male-specific position. Actually, the share of vacancies is gender-differentiated (female candidates get about 10 per cent of the vacancies). The only institutions that do not gender-discriminate are ATM and IMM.

Unlike some contemporary authors, who say that high school graduates prepare themselves to apply for civilian universities, (Cretu, 2012), the current research emphasizes the importance of the institutional factors in predicting the entrance examination results. It is however a fact that almost half of the Military College graduates don't want a military career because attractiveness to this field has fallen steadily in the recent years.

From a psychological factors perspective, verbal intelligence fails to better predict success on admission into military academies, followed by nonverbal intelligence (tests A1, I1 and AI), which is in line with contemporary theories (Premuzic and Furnham, 2005). The personality factors that are significant in predicting success at the entrance examination are honesty - CP1 (BFQ distortion); cooperation - CP1, emotional balance - CP1 (emotional stability: better control of emotions but a lower impulse control - BFQ); energy (extraversion)-less dynamic but more dominance - BFQ, open mindedness (BFQ) and compromise style of conflict approach - (TK). When it comes to interests, influential in a positive way are the artistic and the entrepreneurial skills, while the conventional and realistic skills have a negative impact.

### **Psychological interpretation of the differences between intelligence and personality test results at different military academies**

After comparing the results at the intelligence tests, we noted that only two of the tests (A1 and I1) indicate significant differences between the students of the five academies. The biggest difference appear among the students from the ATM and the IMM on the one side and the students from the other academies on the other. The results obtained at the ATM were far better. But when

it comes to analyzing the factors loadings the results are pretty much different. The marks obtained by the IMM students at the nonverbal factor are lower than those obtained at the ATM. This can be explained taking into account that the students at the Technical Military Academy need mostly nonverbal skills, focusing on Mathematics.

At the BFQ test, the best results were obtained by the students from IMM and AFA, but at different factors. Besides the common factor that is conscientiousness, IMM students have higher scores on openness to culture and perseverance, while AFA students have high scores on dominance and power. We should also note the very low scores on the dimensions of conscientiousness, openness to culture, dominance, energy and perseverance for the AN students. The CPI test highlights another significant difference between IMM and AN students, this time it is about the size of cooperation, IMM students getting significantly higher grades on this factor.

The dimensions measured by the Holland test reveal that the students from the IMM are oriented towards investigative activities, contrary to the AFT students. In exchange they have well represented managerial and entrepreneurial abilities and skills unlike the ATM students. The students at the ATM also have low scores in artistic and social activities, unlike AFA students who have high scores at such activities.

On both dimensions, motivation and communication evaluation interview, IMM students have obtained higher marks than the AFT and the AN students, located at the opposite pole. Lavoeie's self-esteem scale indicates significant differences on the descent-dominance scale between ATM and AFT, meaning that students are more dominant at the ATM, unlike the AFT students who are more obedient. However, in terms of energy-activism scale, the AFT students seem more active, unlike the students from the IMM, who are more passive. Also, the AFT students' optimism is higher than that of the students from the AN.

If the questionnaires to determine the type of motivation identify the pole with intrinsic motivation at the AFA students, at students from other academies it is the extrinsic motivation that predominates. It was expected that at students at AFA intrinsic motivation should prevail because most of them are passionate about flying, doing extraordinary things and working with the latest technology in the industry. Tests of real reasons, we believe, complete the detailed results from the questionnaire to determine the type of motivation. Specifically, the AFA students who scored high on intrinsic motivation have, as expected, low scores on material interests and social high lift, in comparison to the AN students, who have large interests and erotic materials and lower social self-realization and lifting. Students from AFT are characterized by high scores on self-realization and low erotic and social interests.

The exploration of interests using TIP70 reveals an orientation of the former according to the each academy. For example, as it is normal, the IMM students have powerful health care interests, while all the others don't. The same thing happens with the technical interests; students at ATM, AN and AFA have strong interests due to the institutional curriculum, while the students from AFT and IMM have reduced them. When it comes to technical and scientific interests, the AN and AFA students do not have high interest while the ATM do. Students at IMM still have notable social and educational interests, large and small administrative and commercial interests, while everyone else has these interests more developed. It is natural, in terms of social and educational interests, that the scores from SMEs should be totally opposed to those from ATM.

Major differences in the situational tests, aimed at determining potential leader, came from students at the Naval Academy and at the Land Force Academy, meaning that students from the land force have more developed leadership skills than the students from AN. If we considered only the initiative factor, we should remark that although AN and ATM prepare students to become engineers, the significant differences between them come from the fact that students the ATM have more initiative than the students at the AN.

The social intelligence factor, measured with an instrument that is based on Guilford's theory, separates IMM students who fell in all its dimensions from the students at the other military academies. We find thus some significant differences between the AFA and the students from other academies, which entitle us to say that students at AFA have developed social skills.

A very interesting fact, which contradicts the results of all the tests applied, is the unusually high average in high school of the students from the AN. Considering that, on the one hand, AN students had the lowest scores on the tests of intelligence applied, the conscientiousness, openness to culture, perseverance, etc. (personality tests), intrinsic interest, investigative, self-realization and social lift while these students had high scores on extrinsic reasons and erotic material interests, and on the other hand their performance in entrance examination and academic performance in the first three years is significantly lower than the other, is difficult to understand as possible the average school-leaving examination to be.

### **Psychological interpretation of linear regression models**

In an attempt to predict performance using linear models, we applied multiple regression. I was interested to begin with to see if the instruments used in the selection of candidates can predict their average high school. The best results we have been obtained from the combination of A1 and BFQ personality test. More specifically, both the verbal and nonverbal factor of A1 can make a prediction test acceptable to note baccalaureate candidates (variance explained 0.294), which can

be improved by adding two personality factors in questionnaire BFQ (explained variance increased to 0.33). We can see that just as with the candidate differentiation and those rejected for predicting baccalaureate note all verbal factor of intelligence that it outperforms the nonverbal (4 subtest factor of 5 minutes, compared with 1 of 3). An interesting prediction model we identified the combination of different skills. We refer here to the predictive power of sport results applied to the sample path tool, combined with the results of the evaluation interview, the gross size and grade communication nonverbal factor battery of tests of intellectual performance IA.

Models of prediction of success at the entrance examination identified new record out again real usefulness battery of tests A1, in combination with other factors BFQ personality questionnaire and interview assessment. Personality factors that help improve the predictive value of the model are conscientiousness and emotional balance. Besides the battery A1, a good prediction can be achieved with other models that use AI subtest of the battery. Interestingly, in both models that predict success in the entrance examination, and running is as a predictor of resistance, this is explained as well as candidates for differentiation by stopwatch by the findings that, to achieve performance the running resistance are involved and personality traits such as diligence, perseverance, will, anxiety etc.

In the attempt to identify academic achievement prediction patterns in the school years we have obtained very interesting results. Again, intelligence A1, I1 and IA subtests, along with personality factors such as conscientiousness (facets perseverance and scrupulous) and emotional balance can clearly predict success. Emotional balance, on the other hand, appears as a predictor both for the baccalaureate exam results and for the entrance examination scores. In conclusion, we consider at the multivariate linear models identified by us are good arguments supporting the fact that the batteries of tests use in the Romanian army are both useful and relevant.

### **Conclusions**

As stated in Chapter 1, personality researchers consider personality to be hierarchically structured, and thus knowable and predictable. In agreement with these ideas, we made assumptions, trying to emphasize how some instruments measuring intelligence, motivation and military institutions of higher education overall and within each academy. Our approach to identify the differences between the candidates aims at discovering the most important aspects of personality, which is really necessary for a military career.

According to most studies conducted by researchers of intelligence, this skill proved to be, in our case as well, the most important factor differentiating certain candidates, among different academies and inside each of them. Also, the verbal factor, which measures flexible thinking,

verbal reasoning and speed proved to be superior to the non-verbal factor in differentiating the candidates. Overall, the results obtained pointed at the importance of "intelligence" in the selection into the military academies. Thus, all four batteries of tests for intellectual performance reveal significant differences between admitted and rejected, even if these batteries do not have the same accuracy of prediction. Although the results from the social intelligence factor test were not spectacular, some differences, like those of the candidates admitted to SMEs, which have a lower social intelligence than the unsuccessful candidates were found to be interesting.

At the most general personality dimensions, the results revealed significantly higher scores in factor dominance and small impulse control, dynamism and openness to culture at the successful candidates. These results do not match well with the personality profile normally assigned for officers.

At a closer to concrete level, we tried to shape the personality profiles based on Holland's typology and showed that, although students from all academies have investigative interests, those of the AFT are entrepreneurs, from the AFA and IMM are social, and the students who will become engineers have a realistic approach.

As shown, at the real reasons test the most important results were for eroticism, which is understandable if we consider the age of the candidates. Anxiety, aggression and compensation are also low, typical for the successful candidates.

Although the results in sports tests have been used to differentiate the candidates in the entrance examinations, their performance shows that they have pretty good predictive value in the sense that the applicants who received best sports scores, are more likely to examination admission. Interestingly, our results indicate an inverse relationship between anxiety and athletic performance, increased physical tone is closely related to a low level of anxiety.

Knowing the differences between candidates' aptitudes and personality occupied only a part of our investigative approach. I was interested in the efficiency of the tools used in selecting candidates, in their ability to predict later academic performance. Specifically, we made several predictive models that reveal the relationship between test results and surveys, on the one hand, and the scores of the admitted candidates at the baccalaureate, the admission and, not least, their performance during the years of study, on the other. It turned out that the high school grade is generally predicted by the results obtained from A1 intelligence tests and some personality dimensions (impulse control, scrupulous and cooperation) are predicted using the BFQ test.

In terms of predicting the admission score, the regression models obtained show again the high predictive power of the questionnaire A1, but we appreciate the predictive power of the

questionnaire AI, as well. The dimensions of the questionnaire BFQ that predict the entrance examination results are scrupulosity, emotional control and dominance.

The intelligence A1 test also appears in the school performance predicting models over the years, this time backed by other intelligence tests I1 and IA.

Interestingly, the emotional stability dimension measured BFQ appears in the main predictive models, measuring high school graduation score, the entrance examination mark and the results obtained during the academic training. Another personality factor that predicts school performance is sociability (agreeability), followed by consciousness.

Overall, we believe that, without exceeding, the methods used in selecting candidates for military academies in Romania manage to make a good difference between the admitted and the rejected applicants; also, they may be useful in shaping specific personality profiles of various academies and in can make a reasonable prediction of academic performance.

### **Openings, perspectives**

This doctoral thesis is a first step in a study to be further developed and deepened. We have identified some psychological differences that exist between the candidates who succeeded in passing the entrance examination and those who don't. So, I highlighted the differences in the psychological profile of the students from different military academies, I made some models of prediction of academic achievement (the score at the baccalaureate, at the entrance examination and during the academic training) using assignments, tests and questionnaires used in the psychological selection.

What comes next is to identify prediction models for each military academy, that will be tested on groups of subjects and verified through confirming factorial analysis.

Also, by using USM, Neusrel or other similar software programs, I am planning to study the field of interaction between variables.