

## CORRELATIONS AND DIFFERENCES IN PSYCHOLOGICAL CHARACTERISTICS AND FUNCTIONAL ABILITIES OF SERBIAN MILITARY ACADEMY CADETS

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### Abstract

Research compares results of men psychology and his functional abilities. The case studies have psychological characteristics and functional abilities of the Military Academy cadets. Problem of investigation are correlations and differences of psychological characteristics with the functional ability of the Military Academy cadets. The goal is to establish correlations and differences in psychological characteristics and functional abilities. The survey sample consisted of 164 cadets of the Military Academy of aged 21 years ( $\pm 2$  years), 126 male and 38 female. The data were analyzed in the statistical program SPSS 11.5. Obtained data were analyzed in the measurement of descriptive statistics (mean - standard deviation, and AS-SD), the determination of correlation was performed Pearson correlation analysis, and determining the difference between groups analysis by ANOVA. The result is to determine the correlation of all variables in this study to data that is similar to the level of significance  $p > 0.05$ . The importance of research is that it is based on the published data may affect the evaluation process of the Military Academy cadets, as well as possibly changing the value of the award and the adjustment in certain variables, provided the basis for further scientific research to upgrade two science areas and at the end of the research methodology can be used in studies of different age groups, the division by occupation or by health status.

**Key words:** ability, psychology, military

### Introduction

There is a question of expediency in research of two scientific areas in which the central character is a man. One area is a scientific psychology of people in its totality. The other is a scientific field that deals with the functional abilities of a man. The desire by the tendency is to try to reach some scientific knowledge using the scientific methodology of research in the field of correlation between the human mind, parts of his personality and psychological functional abilities. There was an assumption that in the sea of data we can certainly find correlation and similarities between these two scientific fields.

### Previous studies

Oliver & al. (1999) have summarized the research outcome of group cohesion in military units. The result of this study showed that the positive correlation coefficient of group cohesion in relation to the achievement of the group is (.40), compared to the achievements within the group (.20), the correlation between group cohesion and satisfaction of conducting military profession (.47). The cohesion is positively related to the positive feelings (.24) and willingness (.30), and in inverse proportion related to the discipline (-.14). That concludes that group cohesion is a desirable result for the army and that the research implicates the strategy of resolving numerous issues related to the field of soldier training. Sykora & al. (2000) have explored the topic of making command decisions guided with sociographic dynamics.

Within the macro group, micro groups of examinees were singled out in which evaluations were made within and between groups. Sociometric survey showed that most of the results were average, which is used for interaction between individuals within the group. The role of "a bridge" turned out to be an important one, so that the examinees categorized this way can have a significant role as social mediators between the various elements of such group. It turned out that these are most capable for any form of cooperation and aggregation. Salo (2006) followed the relation between sociometric choices and group cohesion. Soldiers who received more acceptances had higher personal and group performance, even higher than their instructor. They were characterized by higher number of positive attitudes in terms of military training and recovery period. Groups that have shown greater positive sociometric choice have also shown to be more cohesive. Individual sociometric choices and group level of sociometric cohesion directly depends on questionnaire and a wide field of criteria action related to behavior. Daniels & Leaper (2006) observed peer acceptance as a possible mediator in the relation between participation in sport and self-esteem in general. The sample was taken from the national longitudinal Study of Adolescent Health in the USA. Survey results indicate that participation in sport is significantly associated with peer acceptance between boys and girls, therefore, peer acceptance has an important role ( $z = 5.74$ ,  $p < 0.01$ ) as a mediator of participation in sport and self-esteem ( $z = 3.24$ ,  $p < 0.01$ ). Moran & Weiss (2006) researched the peer leadership in sport, exploring

the connection between friendship, peer acceptance, psychological characteristics and athletic abilities of high school students who actively played football. The goal of this study was to examine the relations in sport with social, psychological and athletic characteristics. The result of this research showed that girls had in all their psychosocial variables a significant association with self-rated feature of leadership, while coaches and teammates gave evaluations only referred to football skills. When it comes to boys, their psychosocial variables and football skills were significantly associated with self-rated feature of leadership, and with an assessment of the same features of their teammates. On the other hand, coaches primarily evaluated football skills. Gašić – Pavišić i Janjetović (2007) explored the connection between participation in sports with pro-social orientation and aggression of adolescents with differences in gender. Research results showed that participation in organized sports has a positive effect in pro-social orientation and that same effect is most pronounced in the variables assessing the readiness for cooperation. The positive influence of sports was the highest among the most successful athletes. As for the relation between participation in sport activities and aggression, it is interesting that the students who had more training sessions per week manifested as significantly less aggressive. Female athletes were more willing to cooperate than non athletes. They also showed higher social responsibility and statistically significant negative correlation with aggressiveness. Especially the most successful ones were less aggressive than non athletes. Rodkin, Farmer, Pearl & Acker (2008) based their research on following the social and antisocial behavior of elementary schools pupils. Data from this research are going to benefit child models - athletes, because it is cooperative, studious and social.

### **Subject, problem, aim and importance**

Case studies are psychological characteristics and functional abilities of cadets at the Military Academy. Problems of investigation are correlations and differences of psychological characteristics with the functional ability of the Military Academy cadets. The goal is to establish correlations and differences in psychological characteristics and functional abilities. Narrower importance of this research is understanding the functional capabilities of raising the quality of the Military Academy cadets depending on their psychological characteristics. The wider significance of research lies in the fact that this is one of the few studies in the field of science to study the functional stage and psychological sciences.

### **Methods**

The sample consisted of 164 cadets of the Military Academy aged 21 years ( $\pm 2$  years), 126 male and 38 female. Respondents were randomly selected. The condition was that all of the subjects were second or third year of studies at the Military

Academy and that they have finished at least a two-year period of physical education. The sample of psychological variables: to assess aspects of expression of eight basic emotions: charm, cognition, behavior, emotions, activity in the social and physical environment as a behavioral outcome (Crutchfield, 1985): incorporation, security, navigation, deprivation, rejection, aggression, research, reproduction. For assessing the dimensions of Normans' "big five" model (lexical point of view): neuroticism, extroversion, openness toward experience, kindness, morality. For assessing the dimensions of "seven factor model" (a model of biosocial learning): adventure, fear, love, perseverance, self control, cooperation and spirituality. Control scales: coarse scale of attention, self-report scale reliability, scale reliability, general psychopathology, luck - to control the scale of representativeness of the sample, indecisive response. The sample functional variables: running at 3200 meters, pull-ups (men) - 2 minutes, push-ups (girls) -2 minutes, obstacles (men), abdomen - 2 minutes. Psychological surveys and measurement of functional abilities of cadets at the Military Academy was conducted from June to October 2010. Psychological measurements in this study were conducted using a standardized questionnaire by renowned authors. All subjects were given verbal instructions before the meeting. Respondents knowingly and voluntarily completed questionnaires. All respondents were familiar with the fact that the survey data will be strictly confidential, stored and used solely for the purpose of this work. Functional measurements were performed by standardized tests to assess the functional abilities of cadets from the Military Academy in the subject of Physical Education, which is in school curriculum. The data were analyzed in the statistical program SPSS 11.5. Data obtained were analyzed in the measurement of descriptive statistics (mean - standard deviation, and AS-SD), the determination of correlation was performed correlation analysis (Pearson correlation analysis), and determining the difference between analysis of variance (ANOVA).

### **Results**

In descriptive data analysis we can see that the total sample of 164 respondents, of which 126 male respondents, while the remaining of 38 were female respondents. The age category shows that the larger sample of respondents were 20 ( $\pm 1$ ) years. Results presented (Table 1), can be noted that the results are well grouped and assigned to the variable normal infantry obstacles (OBST) AS 50.1 and SD 17.66. The total score on the scale abdomen (ABD) AS 91.4, SD 16.61, pull-ups and push-ups (PUPU) AS 67.1, SD 28.13, shows that the results fade away and that has some exceptions to the most extreme results. For the assessment of eight aspects of the expression of basic emotions (Table 2): incorporation, security, navigation, deprivation, rejection, aggression, exploration and play descriptive statistics, we conclude the results for normal distribution variables Protection (PRO)

16:43 AS and SD 4.56, orientation (ORJ) AS 17:46 and 4:09 SD, research (RES) 15:23 AS and SD 4.13 and the blur results from the variable incorporation (INC) AS 27.59 and SD 3:51, deprivation (DEP) AS 3.95 and 2.89 SD, rejection (REJ) AS 5.27 and 3.72 SD, aggression (AGR) AS 5.39 and SD 4.29, reproduction (REP) 22:32 AS and SD 2.62. After assessing the dimensions of Normans' "big five" model (Table 3): neuroticism, extroversion, openness toward experience, kindness, morality, with descriptive statistics, we can conclude: the results of normal distributive variables neuroticism (NEUR) AS 24.99 and SD 7.25 and the blur results in variables extroversion

(EXTRA) AS 60.51 and SD 8.19, openness toward experience (OPEN) AS 54.57 and SD 8:49, goodness (GOOD) AS 58.2 and SD 8.16, morality (MORAL) AS 46.35 and SD 6.67. After assessing the dimensions of seven factor biosocial learning model (Table 4): adventure, fear, love, persistence, self control, cooperation, spirituality, with descriptive statistics we can come to a conclusion of the normal distribution of variables results in spiritual AS 35.82 and SD 8.39 and the blur distribution results of all other variables. By determining the correlation of all variables in this study (Table 5) resulted in the following information.

Table 1. Functional abilities of total sample

		SEX	AGE	PUPU	ABD	RUN3200	OBST
N	Valid	164	164	164	164	164	125
	Miss	0	0	0	0	0	39
Mean		1.23	20.42	67.1	91.44	52.1	50.1
Std. Error of Mean		0.033	0.062	2.196	1.297	1.844	1.579
Std. Deviation		0.423	0.791	28.127	16.607	23.617	17.658
Variance		0.179	0.626	791.119	275.806	557.762	311.787
Skewness		1.284	0.98	-0.377	-2.157	0.491	-0.047
Kurtosis		-0.357	2.314	-0.984	4.007	-0.85	-0.282
Range		1	5	100	78	80	95
Minimum		1	19	0	22	20	0
Maximum		2	24	100	100	100	95

Table 2. Basic emotions

	INC	PRO	ORJ	DEP	REJ	AGR	RES	REP
Mean	27.59	16.43	17.46	3.95	5.27	5.39	15.23	22.32
Std. Error of Mean	0.274	0.356	0.32	0.226	0.291	0.336	0.322	0.205
Std. Deviation	3.511	4.558	4.098	2.89	3.724	4.297	4.126	2.625
Variance	12.33	20.774	16.79	8.353	13.869	18.46	17.022	6.893
Skewness	-1.495	-0.454	-0.595	1.097	0.67	1.593	-0.4	-2.052
Kurtosis	3.342	-0.335	0.674	1.811	-0.1	3.579	-0.387	6.561
Range	21	21	23	15	17	24	20	16
Minimum	11	4	2	0	0	0	4	9
Maximum	32	25	25	15	17	24	24	25

Table 3. The dimensions of Normans' "big five" model

	NEUR	EXTRA	OPEN	GOOD	MORAL
Mean	24.99	60.51	54.57	58.2	46.35
Std. Error of Mean	0.566	0.64	0.663	0.637	0.521
Std. Deviation	7.246	8.19	8.486	8.157	6.668
Variance	52.503	67.074	72.013	66.542	44.463
Skewness	0.187	-0.351	-0.251	-0.466	-0.27
Kurtosis	-0.689	0.002	-0.46	0.88	0.18
Range	30	42	41	50	33
Minimum	12	38	32	29	27
Maximum	42	80	73	79	60

Table 4. The dimensions of "seven factor biosocial learning" model

	ADVEN	FEAR	LOVE	PERSIS	SCONTR	COOPER	SPIRIT
Mean	50.74	29.57	47.13	41.35	34.45	32.73	35.82
Std. Error of Mean	0.616	0.421	0.376	0.368	0.295	0.385	0.656
Std. Deviation	7.893	5.397	4.814	4.715	3.776	4.929	8.395
Variance	62.305	29.13	23.172	22.228	14.261	24.298	70.478
Skewness	-0.049	0.161	-0.644	0.059	-0.034	0.217	-0.077
Kurtosis	-0.846	-0.527	0.99	0.233	0.199	-0.741	0.083
Range	33	24	27	27	22	22	44
Minimum	34	18	29	27	23	22	16
Maximum	67	42	56	54	45	44	60

Table 5. Correlations

		SEX	AGE	PUPU	ABD	RUN3200	OBST
FEAR	Pearson Correlation	0.122	-0.088	-0.055	0.093	0.104	.245(**)
	Sig. (2-tailed)	0.119	0.263	0.484	0.235	0.187	0.006
	N	164	164	164	164	164	125
PERSIS	Pearson Correlation	-0.016	-0.113	0.049	0.121	0.105	.213(*)
	Sig. (2-tailed)	0.839	0.148	0.53	0.121	0.179	0.017
	N	164	164	164	164	164	125
COOPER	Pearson Correlation	-.231(**)	-.167(*)	-0.02	0.065	0.114	.334(**)
	Sig. (2-tailed)	0.003	0.033	0.801	0.406	0.148	0
	N	164	164	164	164	164	125
PUPU	Pearson Correlation	0.078	0.079	1	.285(**)	.238(**)	.508(**)
	Sig. (2-tailed)	0.318	0.315	.	0	0.002	0
	N	164	164	164	164	164	125
LIFT	Pearson Correlation	-0.036	-0.117	.285(**)	1	.215(**)	.281(**)
	Sig. (2-tailed)	0.652	0.134	0	.	0.006	0.001
	N	164	164	164	164	164	125
RUN3200	Pearson Correlation	-.291(**)	-0.105	.238(**)	.215(**)	1	.414(**)
	Sig. (2-tailed)	0	0.179	0.002	0.006	.	0
	N	164	164	164	164	164	125
OBST	Pearson Correlation	-.256(**)	-.238(**)	.508(**)	.281(**)	.414(**)	1
	Sig. (2-tailed)	0.004	0.007	0	0.001	0	.
	N	125	125	125	125	125	125

\* Correlation is significant at the 0.05 level (2-tailed). \*\* Correlation is significant at the 0.01 level (2-tailed).

Table 6. ANOVA - significant differences

		Sum of	Df	Mean	F	Sig.
NEUR	Between	238.606	1	238.606	4.646	0.033
	Within	8319.369	162	51.354		
	Total	8557.976	163			
ADVEN	Between	392.423	1	392.423	6.511	0.012
	Within	9763.303	162	60.267		
	Total	10155.726	163			
COOPER	Between	211.465	1	211.465	9.137	0.003
	Within	3749.188	162	23.143		
	Total	3960.652	163			
RUN3200	Between	7693.689	1	7693.689	14.977	0
	Within	83221.548	162	513.713		
	Total	90915.238	163			
OBST	Between	2530.656	1	2530.656	8.615	0.004
	Within	36130.992	123	293.748		
	Total	38661.648	124			

The variables are correlated negatively in cooperation (COOPER) -. 231 (\*\*), running 3200 meters (RUN3200) -.291 (\*\*), and infantry obstacles (OBST) -.256 (\*\*), with the sex of respondents. In relation to the age of the respondents in the low negative correlation is the variable infantry obstacles (OBST) -.238 (\*\*). The correlated variables pull-ups and push-ups (PUPU) with variable abdomen (ABD) .285 (\*\*), running 3200 meters (RUN3200) .238 (\*\*), and high correlation with variable obstacles Infantry (OBST) .508 (\* \*). With variable abdomen (ABD) correlated variables pull-ups and push-ups (PUPU) .285 (\*\*), running 3200 meters (RUN3200) .215 (\*\*), and infantry obstacles (OBST) .281 (\*\*). With variable running 3200 meters (RUN3200) correlated variables pull-ups and push-ups (PUPU) .238 (\*\*), and abdomen (ABD) .215 (\*\*), and high correlation is variable infantry obstacles (OBST) .414 (\*\*). There is a significant correlation of variables biosocial learning models of fear (FEAR) .245 (\*\*), persistence (PERSIS) .213 (\*) and

cooperation (COOPER) .334 (\*\*), and variables infantry obstacles (OBST). There were significant differences in variables (Table 6.) neuroticism (NEUR) .033, adventure (ADVEN) .012, cooperation (COOPER) .003, running 3200m (RUN3200), .000, and variables infantry obstacles (OBST) .004. In other social and functional abilities there are no significant differences.

### Conclusion

Based on a set of research subjects we have dealt with psychological characteristics and functional abilities of the Military Academy cadets. Defining the research problem by determining correlations and differences, we got valid information. The negative correlation between the variables 3200 meter running (RUN3200) -.291 (\*\*), with the sex of the respondents can be explained by the fact that the battery of test men and women are not proportionate to the distribution points.

The negative correlation between variables infantry obstacles (OBST)  $-.256 (**)$  with gender of respondents is justified as a condition of transition barriers for girls is not limited by time standard. This is because girls don't have a time limit and could not afford the "luxury" of not using maximum functional ability to cross barriers. In relation to the age, in the low negative correlation is variable infantry obstacles (OBST)  $-.238 (**)$  and the data indicates that respondents with the time limit are evident that functional abilities decline. It is disturbing that the functional abilities of the age categories of respondents should be higher and therefore the importance of research in the small size got to find the source for such a situation arose. For the next period should be sought for the causes that may be in the broader context of the study at the Military Academy, all obligations under study in this residential type facility. Correlation variables pull-ups and push-ups (PUPU) with variable abdomen (ABD)  $.285 (**)$  and running the 3200 meters (RUN3200)  $.238 (**)$  supports the fact that there are similarities in the functional abilities of respondents. This may explain the totality of an organized process in the exercise of physical education is particularly pronounced high correlation with the variable infantry obstacles (OBST)  $.508 (**)$  which is evidently necessary muscle strength of upper extremities, chest, trunk, back and abdomen. With variable abdomen (ABD) correlated variables running 3200 meters (RUN3200)  $.215 (**)$  and infantry obstacles (OBST)  $.281 (**)$  which indicates that the abdominal musculature in these important synergistic movements and it's significant. Variable running 3200 meters (RUN3200) is highly correlated with the variable infantry obstacles (OBST)  $.414 (**)$  can be explained by the result of crossing an

obstacle is directly dependent on the speed and continuity of infantry running when crossing obstacles. A significant correlation variables infantry obstacles (OBST) and the model variables biosocial learning of fear (FEAR)  $.245 (**)$  for which there is coverage in the fact that all the obstacles because of their complexity and difficulty moving such that it can cause real injury, then the variable persistence (PERSIS)  $.213 (*)$  for what is sure to do the maximum and sub maximum load and that the degree of persistence is directly dependent variable and cooperation (COOPER)  $.334 (**)$  for which there is an explanation that each obstacle in transition there is a person who has role of physical security and must be ready to respond at any time. Without good cooperation with the physical security barrier crossing safely would be reduced to a minimum which would have resulted in causing many injuries. After all, we set out to determine the correlation there are certain psychological characteristics and functional abilities as well as differences within and between groups with statistical significance of data. This work is multi-dimensional component of significance. First, based on published data can influence the valuation of the Military Academy cadets, as well as possibly changing the value of the award and the adjustment in certain variables. Second, this study provides the basics for further scientific research to upgrade two sciences areas in the center of which a man in his physical and psychological terms.

Third, the results of this study will give even a small contribution in the overall problem that accompanies military lifestyle and work. Fourth, the research methodology can be partially or fully used in studies of different age groups, the division by occupation or health status.

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## KORELACIJE I RAZLIKE U PSIHOLOŠKIM ZNAČAJKAMA I FUNKCIONALNIM SPOSOBNOSTIMA KADETA SRPSKE VOJNE AKADEMIJE

### Sažetak

Ovo istraživanje se bavi sličnostima i razlikama ljudske psihologije i njegovih funkcionalnih sposobnosti. Predmet istraživanja su psihološke karakteristike i funkcionalne sposobnosti kadeta Vojne akademije. Problem istraživanja predstavljaju korelacije i razlike psiholoških karakteristika sa funkcionalnom sposobnošću kadeta Vojne akademije. Cilj istraživanja je utvrđivanje korelacija i razlike psiholoških karakteristika i funkcionalnih sposobnosti. Uzorak ispitanika je činilo 164 kadeta oba spola Vojne akademije uzrasta 21 godinu ( $\pm 2$  godine), 126 ispitanika i 38 ispitanica. Podaci su obrađeni u statističkom programu SPSS 11.5. Podaci dobiveni mjerenjem su obrađeni deskriptivnom statistikom (aritmetička sredina - AS i standardna devijacija - SD), utvrđivanje korelacija izvršeno je Pirsonovom korelacijskom analizom, a utvrđivanje razlika univarijantnom analizom varijance (ANOVA). Došlo se do podataka prema kojima postoje sličnosti na razini značajnosti  $p > 0.05$ . Značaj istraživanja je taj što se na temelju objavljenih podataka može utjecati na proces valorizacije kadeta Vojne akademije, kao i na eventualno mijenjanje i usklađivanje bodovnih vrijednosti u pojedinim varijablama; pružen je temelj za daljnju znanstveno-istraživačku nadgradnju dva znanstvena područja; i na kraju metodologija istraživanja se može koristiti u istraživanjima različitih starosnih grupa, podjela po zanimanju ili po zdravstvenom statusu.

**Ključne riječi:** sposobnost, psihologija, vojska

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