Creative potential and school performance in medical universities

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ABSTRACT

Introduction. Creativity is a concept of individual differences which is intended to explain why some people have higher potential to provide new solutions to old problems than others. In turn, creative achievement refers to the actual realization of this potential in terms of real-life accomplishments (such as having made a scientific discovery, making a device, drug, diagnostic, treatment, therapeutic intervention, writing specialist books etc.). **Objectives.** Assessing the potential of creative students and school performance. **Method.** It was used a questionnaire based on the review of those used by various authors. **Subjects.** The research was attended by a number of 160 students, second year of study, Faculty of Dental Medicine, Bucharest. **Results.** Analysis of the results highlights the high levels of creative potential perceived by most students enrolled in research. **Conclusions.** Harnessing the creative potential of students presupposes educational process orientation for the development and practical application of such skills in the practical work, as well as the revaluation of the deontological on reducing occupational risks in critical situations.

KEYWORDS:

Creativity, creative potential, questionnaire, descriptive and inferential statistics.

INTRODUCTION

Creativity is an innate human characteristic to think, to act, to produce a new, in work, private or public stage (1). Creativity may not only describe a product or action but also a pattern of thinking processes employed by an individual. Definitions of creativity can classify in a four groups, depending on the subject of creativity a process, a product, an

environmental factor or a person (9).

Popescu Neveanu (6) defines the potential as being "what exists latent without manifest currently in action" (p. 540). Creative potential refers to the individual's ability to generate something novel and useful and reflects a normally distributed trait.

Efficiency is ratio of expressing and effort into a task. School efficiency equals the

product of the school, with the results of the student in school, whether in notes. The efficiency is defined and the term "performance" and expresses the optimal results in an optimal time in normal activity condition, obtained of a student gifted with skills necessary for learning. School efficiency is determined by several factors, anatomical-physiological, temperamental, intelligence, motivational, character, social and school environment, teacher and training methods.

The assessment represents the means by which the information is obtained on the conditions and the manner in which it conducted the process of training and education, on the basis of which decisions shall be taken as the work then to be optimized. In differential approaches of creativity have been used often two criteria. The first is represented by mental processes associated with a performance (4, 8, 10). The second criterion is represented by the methods of structuring the personality traits (2, 5, 7).

OBJECTIVE AND RESEARCH METHODOLOGY

The main objective of this research is to evaluate the creative potential in relation with to school performance of students academic medical dental. The research was attended by a number of 160 students from second year, Faculty of Dental Medicine, University of Medicine and Pharmacy "Carol Davila", Bucharest. Self-assessment questionnaire of creative potential is composed of 60 statements relating to external factors, personal, social behaviours. Responses to questionnaire items were given on a Likert-type scale, differentiated according to the dimensions assessed, thus 1 = Always untrue for me; 2 = to a great extent untrue for me; 3 = Sometimes true for me; 4 = to a great extent true for me; 5 = always true for me.

RESULTS OF RESEARCH, ANALYSIS AND INTERPRETATION

Statistical analysis of the results was made using computer program SPSS, version 21. Before moving on to the statistical analysis of the results of research carried out to determine the fidelity of the questionnaire used in the research. Fidelity's internal

evaluation questionnaire collectibles creative potential is high, α of Cronbach is 0.89.

In the table no. 1 is given the relative frequency of subjects in the relation of their gender.

Table no. 1

The relative frequency of subjects in relation to the gender factor

Gender	Relative frequency
Female	77.00
Male	23.00

Data from table no. 1 indicates that the majority of the subjects covered in this research are female (77.00%), compared to those of the male gender (23.00%).

In the table no. 2 are presented data on the frequency of the subjects covered in the research in relation to the factor of environment.

Table no. 2

The relative frequency of subjects in relation which the place of origin

The place of origin	Relative frequency
Urban	95.40
Rural	4.60

Data from Table no. 2 indicates that the majority of subjects in research coming from urban areas (95.40%) compared to those in rural areas (4.60%).

In the table no. 3 data concerning yields (evaluation) of the subjects covered in the research in different periods of the school: Mean notes secondary school; Mean notes Baccalaureate exam; Assessment score for the admission in University; Mean notes in the first year, as a student at the Faculty of Dental Medicine

Table no. 3

Indicators of descriptive statistics on the assessment of school efficiency

Indicators	Min	Max	Mean	s
Mean graduation College	7.00	9.97	9.21	.59
Mean Bacculaureate	6.01	9.99	8.81	.71
Admision University	51.00	98.00	82.44	9.55
Mean notes in the first year of University	6.02	9.48	7.60	.78

The values of the standard deviation (s) of these indicators shows the differences between the results obtained by the school subjects at various times. To highlight this situation present how the distribution of subjects in relation to the ranges of values recorded by the indicators analyzed.

In fig. no. 1 is presented distribution to the subjects in raport with school efficiency.

Fig. no. 1 Distribution of subjects in relation with school efficiency in the period of College.

Asymmetrical distribution of subjects present in Fig. 1 is determined by the fact that most subjects obtain notes between 9 and 10 values. In fig. no. 2 is presented distribution the subjects in relation to the performance obtained in the Bacculaureate exam.

Fig.2.Distribution of subjects in relation to the performance obtained at the Bacculaureate

Analysis of the data presented in fig. 4 indicates that most subjects obtained his Bacculaureate exam notes between values 8 and 10.

In fig. no. 3 is presented the subjects distribution in relation to the performance obtained at admission into the University.

Fig. no. 3.Distribution of subjects in relation to the performance obtained at admission into the University

Analysis of the data presented in fig.3 shows a normal distribution curve, most subjects obtaining points between 75 and 85 values.

In fig. no. 4 is presented the subjects distribution in relation to the performance obtained in the first year of University.

Fig. no. 4. Distribution of subjects in relation to the yield obtained in the first year of University

The form of distribution frequencies shown in Fig.4 is bimodal: a high proportion of students being evaluated with the notes within the range of values 6-7.30; and another with the notes contained within 7.30-9.00. Analysis of the data presented in Figure 6 indicates that most subjects get notes from values 6.30 and 8.30.

Based on these data we can say that subjects admitted to University have a high level of efficiency in previous periods of school learning.

The table no. 4 presents means, the standard deviations of school assessments in relation to subjects gender and the values of the test of significance of differences between means (t-test).

Table no. 4
Values statistical indicators on the performance of the school in relation to subjects gender

Indicators	Gender	Mean	S
Mean graduation College	Male	8.85	.76
	Female	9.33	.48
Mean Baccalaureate	Male	8.44	.82
	Female	8.91	.64
Admision University	Male	79.85	11.29
	Female	83.04	9.04
Mean notes in the first year of University	Male	7.34	.95
	Female	7.67	.72

Analysis of the data of table 4 highlights the fact that feminine subjects obtain higher yields, compared with those masculine at all indicators of school performance. The values of the standard deviation (s) recorded indicate differences between the subjects of the two categories of school performance.

In the table no. 5 are presented values of significance test of differences between school efficiency scores in the report subjects gender (t-test).

Table no. 5
The values of the test t between the random school scores means in relation to subjects gender

Indicators	t	df	p
Mean graduation College	-3.74	103	.000
Mean Baccalaureate	-3.48	153	.001
Admision University	-1.57	140	.12
Mean notes in the first year of University	-2.25	156	.26

Analysis of the data from table 5 highlights the following are significant differences between the average high school graduation variables ($t = -0.01$, $p < 3.74$); at the baccalaureate ($t = -3.48$, $p < 0.01$). The differences recorded highlights razultate best of feminine subjects compared to those of the male gender concerning the respective measurements. Also, analysis of the data in table 5 indicates with are not significant differences between yields of the two categories of subjects relating to University Admission Points variables ($t = -1.57$, $p > 0.05$); The average graduation year ($t = -2.25$, $p > 0.05$).

In the table no. 5 are presented values of the correlation coefficient Spearm between the school performance obtained subjects in the different evaluation periods.

Table nn. 6

Analysis of the relationship between obtained from subjects in different moments of the performance evaluation of school

Indicators	Mean graduation College	Mean Baccalaureate	Admission University	Mean notes in the first year
Mean graduation College	1			
Mean Baccalaureate	.46**	1		
Admission University	.27**	.32**	1	
Mean notes in the first year	.14	.33**	.49**	1

**Correlation is significant at the level of $p < 0,01$.

Analysis of data from table no. 6 highlights of significant relationships between high yields (assessments) subjects relating to the following variables: Mean graduation College and Mean Baccalaureate ($r = 0.46$, $p < 0.01$); Mean graduation College and Admission University ($r = 0.27$, $p < 0.01$); Mean Baccalaureate and Admission University ($r = 0.32$, $p < 0.01$); Mean Baccalaureate and Mean notes in the first year ($r = 0.33$, $p < 0.01$); Admission University and Mean notes in the first year ($r = 0.49$, $p < 0.01$). Also, data analysis contained the table no. 6 indicates that no there are significant relationships between variables Mean graduation College and Mean notes in the first year ($r = 0.14$, $p > 0.05$). This situation can be caused by several factors: nonadapt some of the subjects at the University System; extension of the period of adjustment to the new social conditions, physical teaching and learning; using a new custom rating system by each teacher.

In table 7 is presented and analyzed the frequency of subjects in relation to the scores obtained at the Self-assessment of creative potential Questionnaire.

Table no. 7

Frequency of subjects in relation to scores - the Self-assessment of creative potential Questionnaire

Scores-value range	%
- 146	0.70
147 – 156	6.50
157 – 166	13.90
167 – 176	15.00
177 – 186	12.80
187 – 196	21.00
197 – 206	13.90
207 – 216	6.40
217 – 226	5.70
227 – 236	2.10
237 – 246	2.10
247 -	0.70

Data from table no. 7 indicates that most subjects (75,60%) obtained scores within the range of values 157-206. A higher proportion of 7.20% of subjects get low scores, within the range of values 137-156, and a higher proportion of 16.30% obtained very high scores, within the range of values 207-256. Distribution of subjects in relation to the scores obtained from the questionnaire of potential creativity is shown in Fig.5.

Fig. no. 5 The distribution of subjects in the report scores obtained from the questionnaire the creative potential

The shape of the frequency distribution of subjects in relation to the scores obtained at the Self-assessment of creative potential Questionnaire is similar to the normal curve.

In table 9 is presented analysis descriptive statistics indicators of the scores obtained at the Questionnaire.

Table no. 9

Values of descriptive statistics regarding the scores you obtained at the Questionnaire

Variable	Min	Max	Mean	s
Questionnaire	137.00	252.00	186.53	22.02

The obtained scores of subjects are distributed on a high range of values (between 137-252). The standard deviation of the values obtained scores of subjects are large (22.02), indicating a differentiation of subjects.

In table 10 are given descriptive statistics indicators concerning the scores obtained at the Questionnaire in the report with subjects gender.

Table no. 10

Descriptive statistics indicators relating to scores obtained from Questionnaire

Variable	Gender	Mean	s
Score creative potential	Male	186.77	25.51
	Female	186.47	21.26

Analysis of data from table 10 highlights that feminine subjects obtain yields about equal to those of the male gender from potential creativity Questionnaire ($m = 186.77$, versus $m = 186.47$).

In table 11 are given the values of the t-test between the scores of the questionnaire in relation to the gender of subjects.

Table no. 11

The values of the t-test between the scores of the questionnaire in relation to the gender of subjects (t-test)

Variable	t	df	p
Score creative potential	0.06	137	0.95

T-test values contained in table 11 indicates insignificant differences between the two groups of subjects ($t = 0.06$ $p > 0.05$).

In the table no. 12 are determined correlation coefficients between the questionnaire scores researched and evaluated in subjects yields different periods of schooling.

Table no. 12

The values of the coefficients of correlation (r) between the school efficiency indicators and the scores obtained from the questionnaire for the evaluation of creative potential

Indicators	Score creative potential
Mean graduation College	-0.07
Mean Baccalaureate	-0.05
Admission University	0.12
Mean notes in the first year	0.04

Analysis of the correlation coefficients values contained in table no. 12 indicate insignificant relationships from statistically between the measured variables. It can be noticed the higher correlation coefficient between Admission University and the potential for creativity ($r = 0.12$). Also, the correlation coefficients the negative sense between of the score obtained by the subjects at Mean graduation College and Score creative potential ($r = -0.07$), Mean Baccalaureate and Score creative potential ($r = -0.05$). Even if the values of the coefficients of correlation are low, their analysis suggests the following concerning variable Score creative potential is observed the tendency of negative relationships with Mean graduation College ($r = -0.07$) and Mean at the Baccalaureate ($r = -0.05$). This result can be interpreted in such a proportion as the yield is higher school, creative manifestation of perceived potential is lower. Also, data analysis indicates a positive relationship trend variable Admission University ($r = 0.12$) and Mean notes in the first year ($r = 0.04$). This result can be interpreted in such a proportion as the yield is higher school, the manifestation of the creative potential is perceived to be higher. The results confirm that the Admission University matters relating to prognosis capacity creativity of students.

CONCLUSIONS

In the medical dental environment there is a high level of creative potential. The claim is supported by the media high scores obtained by subjects ($m = 186.53$) on the creative potential and the fact that a high proportion (61,90%) recorded values of scores higher than average (see table 6 and 10). Also, the assertion is supported by the fact that a higher proportion of 16.30% of subjects obtained very high scores, within the range of values 207-256. The standard deviation of the scores is high ($s = 22.02$), indicating a high differentiation between subjects relating to the level of creative potential (highlighted and shape distribution of scores, fig. 7). It should be noted that the university admissions exam matters concerning prognosis and prediction ability of creativity of the students. Harnessing the creative potential of students presupposes educational process orientation for the development and practical application of such skills in the practical work, as well as the revaluation of the deontological on reducing occupational risks in critical situations.

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