PSICOLOGÍA POSITIVA: DESARROLLO Y EDUCACIÓN

PSYCHOLOGICAL CONDITIONS OF CONTINUING EDUCATION FROM SCHOOL TO UNIVERSITY

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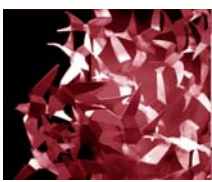
ABSTRACT

The article considers the problem of continuing education from school to university. It is shown, that Unified State Exam (EGE) is not the main factor of students' success in learning. It is experimentally proven, that at the beginning of learning the indicators of personal competence (personal qualities, motives, values, skills) of successful students were differ than those of the students, who were expelled from university during the first three terms. Recommendations for optimizing the process of continuity of education and improving student training determined.

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Keywords: psychological conditions, continuing education, higher education, personal competence, students, professional orientation, adaptation, personal competence, educational and professional motivation

INTRODUCTION

The concept of lifelong education has been transformed during the last ten years. In the XX century, lifelong education was perceived as additional training in cases of insufficiency of basic education. In the modern context, education is fundamentally regarded as incomplete (unfinished). On the other hand, the continuity of education means integrity and succession between educational stages.

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Continuing education means a life-long development of the personality in the process of acquiring knowledge, skills and experience in different types of educational, professional, social and community activities (Dave, 1973; [Darinsky], 1975; [Vladislavlev], 1978). Continuing education is of special importance in the EU now, as Europe has become «a knowledge-based society». It means that information, knowledge, and motivation to update them regularly have became the main factor in European development. Civil society participation is almost impossible without a successful professional career, as it leads to personal independence, self-respect and well-being, thus determine the quality of life. European Summit documents say that continuing education should be the main political agenda of civil society, social cohesion and employment. Europe's education and training systems need to adapt both to the demands of the knowledge society and to the need for an improved level and quality of employment (European Council Presidency Conclusions, 2000).

Continuing education is divided into two stages: 1) the continuing education of children and youth (training, education and personality development, prior to its entry into adult life - pre-professional stage), and continuing education of adults. Continuing education is characterized by horizontal and vertical integration. Horizontal integration includes educational cooperation of school, the community, the world of work, cultural institutions and mass media. Vertical integration implies interconnection of curriculum components at various levels of schooling as well as interconnection of school curricula with pre-school education and post-school learning. Orientation of self-growth means developing individual personality characteristics "that contribute to a long-term process of growth and development including realistic self-awareness, interest in the world and in other people, the desire to achieve, internalized criteria for making evaluation and judgments, and overall integration of the personality" (Skager and Dave, 1977, p.131).

In this article, we will consider the time aspect of education continuity, that is personal willingness of students to move to the next stage of education (school-higher school).

USE RESULTS AND SUCCESS OF LEARNING AT UNIVERSITY

Unified State Exam (EGE) is the only connecting link between school and higher education. As a result high-school students do not choose their future profession, instead they choose the exams to take. That is why it is difficult for most of them to determine which faculties and specialties to apply for.

In July 2012, we carried out a research among university entrants. We studied the conformity between a) the chosen area of training; b) professional interests; and c) professional skills among university entrants. The survey was conducted using the methodologies of "ORIENTIR", developed by the SE "Imaton" ([Solomin], 2006). 167 students took part in the survey; the results are in Table 1.

Faculty	The percentage of university entrants for whom we have found conformity			Creative professional activity in the future	
	I ↔ T	S ↔ T	I ↔ S	wish	abilities
Physics and Power Engineering	73%	100%	70%	93%	40%
Cybernetics	93%	93%	93%	57%	43%
Medicine	80%	85%	85%	50%	40%
Natural Sciences	31%	53%	59%	69%	31%
Social and Economic Sciences	45%	68%	50%	73%	55%

Table 1. Conformity a) chosen area of training (T); b) professional interests (I)
and c) professional skills (S) among university entrants

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We see, that the biggest percentage of the research participants, who demonstrated conformity between professional interests, skills and area of training (from 80 to 93%), were university entrants of Cybernetics Faculty and Faculty of Medicine. Therefore, modern school graduates understand the contents of professional activity of programmers and doctors better than the contents of professional activity of a nuclear power plant operator, an expert on radiation safety, bio-ecologist and manager. The last two columns of Table 1 show the percentage of the university entrants, who prefer creative professional activity in future, and the percentages of the university entrants, who are ready for creative activity. We observe, that in samples of university entrants of the Faculty of Medicine and of Cybernetics Faculty the gap between these columns is smaller than in the other samples. Students who have less clear ideas about the content of their future careers, want to do creative work, but are not capable of it.

These results suggest that not every freshman had even very basic understanding of the profession, and as a result, has immature educational and professional motivation. A student with a low level of motivation, as a rule, is not inclined to studying hard, to overcome the difficulties a freshman usually faces during the period of adaptation to training in higher school ([Leonova], 2010). Most first-year students suffer both from difference of educational methods in secondary school and university as well as from great amount of new difficult information. These hardships may lead to disappointment at the occupation chosen among first-year students. Every year there are a lot of students who are expelled from university after the first exams because of academic debts ([Leonova], 2011).

We analyzed the USE results of 125 students of Physics and Power Engineering Faculty, who entered the University in 2010. By the end of the second year (April 2012), 60 students were expelled because of academic debts, 65 students continued their education. We analyzed the results of USE (summary score in mathematics, physics, Russian language) in the following categories of students: excellent mark students, good mark students, mediocre students, expelled students (according to a 100-point rating scale: excellent mark (90-100), good mark (75-89), mediocre mark (60-74) (Table 2).

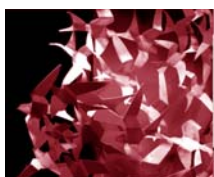| categories of students	n	USE results			
		M	SD	Min	Max
excellent	9	212,5	29,6	187	281
good	22	181,9	18,4	150	209
mediocre	34	175,5	19,5	124	203
expelled	60	155,9	23,6	94	205

Table 2. The results of USE of categories of students

The statistical analysis of the differences in these categories of students (U-test) shows that there are statistically significant differences:

   a) between the samples of students, who continued their education, and the students, who was expelled (U = 799.5, p = 0.00);
   b) between the samples of excellent mark students and good mark students (U = 34, p = 0.005);
   c) between the samples of excellent mark students and mediocre students (U = 27, p = 0.0002).

Also, the variance of USE total results is higher in samples «excellent mark students» (F = 2,4, p <0.05) and «expelled students» (F = 1,52, p = 0.06) compared to the variance in the combined sample (both good mark students and mediocre students).

For the categories of «good», «mediocre», «expelled» students we calculated the percentages of students whose USE results were within the same range as USE results of students with better academic performance. The results are presented in Table. 3.

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Categories of students	Percentages of students whose USE results were within the range		
	excellent (i.e. more than 187 and less then 281)	good (i.e. more than 150 and less then 209)	mediocre (i.e. more than 124 and less then 203)
good	55%		
mediocre	38%	88%	
expelled	15%	58%	93%

Table 3. Percentages of students whose USE results were within the range USE results of students with better academic performance
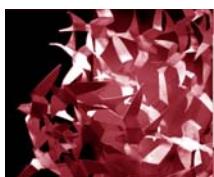
The analysis of the data presented in Table 3 leads to the conclusion that USE results of successful students were not higher, and often much lower than USE results of their less successful in learning classmates. Thus, the result of the unified state examination, being, in fact, the only criterion gaining admission to university, is important, but it is not the only significant factor leading to successful learning at university.

PSYCHOLOGICAL FACTORS OF STUDENTS' SUCCESS

The present study was conducted in 2010-2012 in Obninsk Institute for Nuclear Power Engineering. Psychological factors of students' success have been studied. 125 students of Physics and Power Engineering Faculty, who entered the University in 2010, took part in the research. We tested the hypothesis that **a necessary condition for the students' successful learning is the formation of personal competence, the structural components of which are: individual psychological characteristics, motivation and values components, component of learning activity and communicative component**.

To estimate these components, we used the following tests: 16PF Questionnaire (Cattell, Eber, Tatsuoka, 1970; [Rukavishnikov], [Sokolova], 2003); "Personal adaptive potential" ([Maklakov], 2001), "Motives for learning activities of students" ([Rean], 2001) in our modification; "Purpose-in-Life Test" (Crumbaugh, Maholick, 1969; [Leontyev], 2000). To study the educational activity, we used the questionnaire (developed by us) and documentation analysis. The results of the psychological survey at the beginning of the first term (October 2010) are shown in Table 4.

Category / Scales	excellent		good		mediocre		expelled	
	M	SD	M	SD	M	SD	M	SD
Motives for learning activities of students								
Acquiring knowledge	6,67	0,56	5,98	1,37	5,92	1,34	5,89	1,42
Mastering a trade	6,89	0,33	6,78	0,34	6,55	0,59	6,26	1,18
Obtaining a diploma	5,89	1,05	6,45	1,18	6,76	0,61	6,25	1,59
Learning process	5,93	0,68	6,03	0,83	5,93	0,90	5,44	1,45
Approval of others	5,50	0,99	5,66	1,34	5,41	1,45	5,18	1,58
Scholarship	5,44	1,42	5,77	1,63	5,94	1,43	5,45	1,98
Purpose-in-Life Test								
Goals	32,57	8,75	35,19	5,81	33,47	6,57	32,00	6,04
Process	31,29	8,90	33,38	4,14	32,69	4,16	30,67	6,36
Result	24,29	5,88	27,43	4,08	27,72	3,90	26,86	4,53
Locus of Control – I	21,00	3,87	21,95	2,89	22,00	3,60	20,56	4,09
Locus of Control – Life	32,29	6,52	33,48	5,08	32,97	5,21	31,60	5,41
Meaningfulness of life	105,29	21,84	112,38	12,19	109,59	14,21	104,89	14,89
Personal adaptive potential								
Veracity	5,56	1,74	4,11	2,18	4,06	2,14	3,84	2,36
Neuro-psychic stability	29,11	15,18	31,84	12,03	27,55	15,67	31,96	14,96
Communication skills	12,89	3,59	13,63	3,30	14,06	4,16	14,16	4,58
Moral normativity	9,67	4,21	10,16	3,55	8,94	3,80	10,84	3,38
Personal adaptive potential	51,67	20,72	55,63	15,99	50,55	20,04	56,96	17,93

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16PF Questionnaire								
A	5,67	1,22	5,73	2,07	5,82	2,05	5,40	2,23
B	6,11	1,62	5,91	1,74	5,41	1,92	4,68	2,31
C	7,00	1,41	6,91	1,72	6,50	1,54	6,21	1,46
E	5,00	1,41	4,55	1,50	5,18	1,09	5,04	1,40
F	4,89	1,36	4,95	1,73	5,68	1,85	5,38	1,92
G	7,56	1,01	6,59	1,56	5,97	1,66	5,36	1,85
H	6,22	1,79	6,59	2,24	6,56	1,60	6,43	1,94
I	4,22	1,39	4,05	1,56	4,53	1,89	4,68	1,97
L	4,56	1,74	5,09	2,11	5,15	1,86	4,94	1,84
M	5,33	2,18	5,00	1,80	5,21	1,95	4,89	1,82
N	6,67	1,50	7,55	2,04	6,29	1,92	6,30	2,21

Table 4. The results of the psychological survey at the beginning of learning
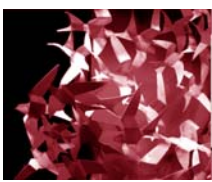
In the fourth semester (April 2012), we compared the results of the survey in a group of students who successfully continuing education and a group of students expelled by the results of three terms. Table 5 shows the results of a statistical analysis.

Components of personal competence	Assessment methods	The revealed differences
Individual psychological characteristics	16PF Questionnaire	B (U=1340.5, p=0,03), G (U=170, p=0,002), Q4 (U=1339, p=0,04).
Motivation and values	"Motives for learning activities of students" in our modification;	«mastering a trade» (U=1294, p=0,06) «learning process» (U=1374, p=0,07)
	"Purpose-in-Life Test"	«Goals» (U=1340, p=0,04), «Process» (U=1355, p=0.05) и «Meaningfulness of life» (U=1353, p=0.05)
	"Personal adaptive potential"	Moral Normative Scale (U=1130.5, p=0.05)
Learning activity	Questionnaire method	independent educational activity, (φ*=2,05; p=0,02); time management (φ*=1,74; p=0,04)
Communicative abilities	"Personal adaptive potential"	Communicative Abilities Scale: we did no reveal any statistically significant differences

Table 5. The results of statistical analysis of personal competence:

As a result of the comparative analysis of personal competence, we have found that students who successfully master the educational program, at the start of training at university had the following indicators of personal competence:
 – abstract thinking, general mental capacity, motivation to intellectual work, fast learning;
 – conscientiousness, dutifulness, and responsibility;
 – a higher level of motivation to learning, the prevalence of motives "mastering a trade", "learning process", (whereas the motive of expelled students was "obtaining a diploma");
 – the presence of future goals, more meaningful life, the perception of life as interesting, filled with meaning;
 – high level of moral normativity;
 – the abilities to independent educational activity and to time management.

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Next, we compared the components of the personal competence in the following categories of students: excellent mark students, good mark students, mediocre students, expelled students.

1. Analysing of individual psychological characteristics of the three student subgroups we revealed statistically significant differences in the N factor of 16PF (U = 251.5, p = 0.04) between "good" and "mediocre" students. The "good mark students" sample is characterized by greater shrewdness and diplomacy since the start of learning at university, than the "mediocre mark students" sample. Also, the students of "good" sample are more open to change, free-thinking, liberal, flexible, as compared with "mediocre" and "excellent" samples (the Q1 factor of 16PF: U = 255.5, p = 0.04). It should be noted, that those qualities, as a rule, are typical of a creative personality.

   We revealed statistically significant differences in the G factor of 16PF (U=61.5, =0.005) between "excellent" and "mediocre" samples of students. "Excellent mark students" are characterized by greater conscientiousness, dutifulness, and responsibility since the start of learning in the university, than the "mediocre mark students" sample. We have also found a significant correlation (by Spearman) between the students' performance (rating score) and the indicators of G factor (r_s=0.33, =0.008), and between the students' performance (rating score) and USE results.
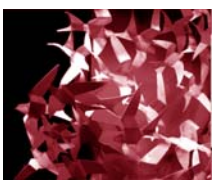
2. Analysing of motivation and values indicators in "excellent", "good" and "mediocre" student samples we came to the following conclusions. The dominant motive of students from the "excellent" sample at the start of training was "acquiring knowledge" and "mastering a trade", while the dominant motive of students from the "mediocre" sample was "obtaining a diploma". We revealed statistically significant differences in the motive "obtaining a diploma" between "excellent" and "mediocre" samples of students (U=81, p=0.006) and between "excellent" and "good" student samples (U=105.5, p=0.05). We also found a significant correlation (by Spearman) between the students' performance (rating score) and the indicators of motive "mastering a trade" (r_s=0.27, =0,03) and negative correlation between the students' performance (rating score) and the indicators of motive "obtaining a diploma" (r_s= –0.27, p =0,03).

3. The analysis of learning activity component showed that 18.4% of "good" students and 29.4% of "mediocre" students had problems with homework since the beginning of training, in contrast to the "excellent" students, who not only always made their homework, but also read additional literature (66.7%). The difference between percentages of "excellent" and "mediocre" students is statistically significant (*=2.395, <0.01). We also found the statistically significant difference between percentages of "excellent" and "mediocre" students, who both look for and read the educational and scientific literature on professional issues themselves (55,6% and 11% respectively, *=2.619, <0.01).

4. We didn't find any statistically significant differences between samples in the communicative component of the personal competence in this research.

SUMMARY AND CONCLUSIONS

As a result of the research we have found the initial psychological differences (called the components of personal competence) between

   a) the group of students who successfully continue education and the group of students expelled during the first three terms;

   b) following categories of successful students: excellent mark students, good mark students, mediocre students.

Students who successfully master the educational program, at the start of training at university had the following indicators of personal competence:

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– abstract thinking, general mental capacity, motivation to intellectual work, fast learning;
– conscientiousness, dutifulness, and responsibility;
– a higher level of motivation to learning, the prevalence of motives "mastering a trade", "learning process" (whereas the motive of expelled students was "obtaining a diploma");
– the presence of future goals, more meaningful life, the perception of life as interesting, filled with meaning;
– the high level of moral normativity;
– the abilities to independent educational activity and to time management.

The survey results show that students with different academic success at the time of entering university had different psychological characteristics.

"Excellent mark students" are characterized by conscientiousness, dutifulness, and responsibility since the start of learning at university. Their dominant motive since the start of training was "acquiring knowledge" and "mastering a trade". Most of them not only always made their homework, but also read additional literature, looked for and read the educational and scientific literature on professional issues themselves.

The "good mark students" sample is characterized by shrewdness and diplomacy since the start of learning at university, they are open to change, free-thinking, liberal, flexible, which is typical of a creative personality. But some of them had problems with homework since the beginning of training.

"Mediocre mark students" are characterized by irresponsiblity and failure to comply with the rules. Their dominant motive since the start of learning at university was "obtaining a diploma". They had problems with homework and rarely read additional literature, looked for and read the educational and scientific literature on professional issues.

We have also found a significant correlation between the students' performance (rating score) and the indicators of "mastering a trade" motive.

Earlier we showed (Психолого-педагогическое обеспечение… [Психолого-педагогическое обеспечение…], 2011), that the success of the continuity of education is ensured by external and internal conditions. The external conditions of continuity of education are: the continuity of training programs, the resource base of school and university, the level of psychological and pedagogical competence of teachers, the continuity of teaching methods at school and university, psychological support at all stages of education. The internal condition of continuity of education is the personal competence of students that determine the success of adaptation and successful learning in a new university environment, even in the absence of external factors of continuity.

The results of the present study make it possible for us to specify the personal competence of students and determine recommendations for optimizing the process of continuity of education and improving student training.

The introduction freshman psychological and pedagogical support program into the educational process of university to improve learning, to increase professional motivation and to prevent academic problems of students.

The improvement of psychological and pedagogical competence of teachers and supervisors of student groups.

Systematic vocational guidance work with schoolchildren and entrants in order to attract university entrants who have formed professional intentions, as well as have cognitive and personal preconditions for success at university.

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