

To the potentiality of students' typology creation by the criterion of academic motivation

F. M. Podshivajlov*

Boris Grinchenko Kiev University, Kiev, Ukraine

*Corresponding author. E-mail: teodormp@gmail.com

Paper received 17.07.15; Accepted for publication 28.07.15.

Abstract. Article is devoted to the description of students' typology creation by the criterion of academic motivation. The results of motivational sphere peculiarities and closely-related personality features research are presented in the work. Among them are: academic motivation, achievement motivation, locus of control, orderliness, anxiety, adaptiveness and perfectionism. On the basis of academic motivation peculiarities the students' typology, consisting of four types, is proposed. With the help of single-factor analysis of variance application the differences between these types by studied parameters are shown.

Keywords: *academic motivation, students' typology creation by the criterion of academic motivation, orthogonal correlation of personality characteristics, achievement motivation*

The only condition of modern human's success is his ability to study over a period of whole life, as society and technologies development became to advance the digenesis. If the set of knowledge, skills and practices does not qualitatively change in time, in a few years they become antiquated and the worker becomes not required by the society. Modern society more demands the specialists with higher education, able to solve tasks with original ways. Openness to cognition, that is dominating of cognitive motivation in personality's motivational sphere, is the indispensable condition of such abilities gaining. That is why the main purpose of a modern higher educational establishment is to "teach to study" by the means of cognitive motivation development. The modern youth's consumer orientation comes into a conflict with this purpose.

Social life conditions considerably influenced on the motives of entering a higher educational establishment. It is significantly evident from the data, gained by S.V. Bobrovitskaya. The loss of prior values and life orientations, difficult position of educational system and army led to the new motives of entering a higher educational establishment. Only 43% of the pedagogical university first year students' sample had a profession mastering orientation. At the same time only the half announced, that they like to work and communicate with children. The others (among the orientated on pedagogical profession) came to the pedagogical higher school only because they like certain discipline or with the purpose of intellectual level increasing. The second group of students, that is majority (57%), entering a higher school, didn't set a purpose of pedagogical education gaining and didn't want to work by trade. The motives of entering a pedagogical higher school (probably like any other) were: easiness, from their point of view, of entering, unwillingness to go to the army (through young men), possibility to communicate with contemporaries, necessity to have some time for self-determination, prestigiousness of the university diploma (certainly a diploma, but not an education) [2]. The last is an evidence of higher education's devaluation. Not a knowledge and education becomes a value, but a document. Yet there are some other points. In compliance with F.G. Rahmatullina's data, on all courses the first place by value was taken by the "professional" motive. The second place on the first course was taken by the "cognitive" motive, but on the further courses this place was taken by the social motive and "cognitive" motive was driven to the third place. "Utilitarian" (prag-

matic) motive on each course was at the fourth place. It is typical, that from younger to elder courses its rating was falling, while rating of a "professional" motive, as a "social", was rising [8].

With the purpose of more deep study of modern student personality's motivational sphere we studied it empirically. In the research 235 I-IV year Ukrainian higher school students took part. The respondents were 16-22 years old. Psychodiagnostic research included 8 diverse methodics.

1. Methodic "Higher school study motivation" (T.I. Iljina) [7, p. 433-434].
2. Methodic "Multidimensional perfectionism scale" (P.L. Hewitt and G.L. Flett, I.I. Grachjova's adaptation) [6, p. 73-80].
3. Methodic "Adaptiveness self-estimation" (S.I. Boltivets methodics' modified version) [10, c. 53-57].
4. Methodic of goal and success gaining motivation study (T. Ehlers) [1, p. 513-515].
5. Methodic of failure avoidance motivation study (T. Ehlers) [1, p. 515-517].
6. Methodic of personality anxiety defining (Ch.D. Spielberg, Yu.L. Hanina's adaptation) [10, p. 62-63].
7. Test "Your orderliness" (E. I. Komarov) [10, p. 75-79].
8. Test SLC – subjective localization of control (S.G. Pantileev's and V.V. Stolin's modification of J. Rotter's scale) [10, p. 79-83].

Methodics "Higher school study motivation" is proposed by T.I. Iljina. It consists of three scales. "Knowledge acquisition" (aspiration for some knowledge gaining while studying); "Profession mastering" (aspiration for a gaining of skills and practices, that may be useful for a future profession); "Getting of a diploma" (aspiration for getting of a diploma as a formal indication, avoiding lines searching in situations of knowledge acquisition control). Composite score on this methodic presents a level of academic motivation in general. Methodic "Multidimensional perfectionism scale" (P.L. Hewitt, G.L. Flett) enables to measure a level of perfectionism and to define a character of its components correlation). Methodic's authors describe three components of perfectionism: self-oriented perfectionism (SOP), others-oriented perfectionism (OOP), socially pre-defined perfectionism (SPP). That is why this methodic consists of three subscales. Each of them measures one of the perfectionism components' levels. With a high level of SOP a person is inclined to raise very high self-demands; with a high level of OOP – very high requirements for oth-

ers. With a high level of SPP a person considers demands, made by the surroundings, as steep and unrealistic. Composite points, scored by a respondent at all three methodic subscales, display a general level of perfectionism. Standardization of the Russian-language methodic variant was made by I.I. Grachjova on the sample of Russian youth [6]. Methodic "Adaptiveness self estimation" (S.I. Boltivets methodic modified version) is usually used by academic groups' curators with the purpose of students' level of adaptation for study defining. Methodic of goal and success gaining motivation study (T. Ehlers) is applied for the subject's orientation for success gaining degree defining. Methodic of failure avoidance motivation study is directed, in turn, on the defining of striving of a person for avoidance, running from failure. Methodic of personality anxiety defining (Ch.D. Spilberg, Yu.L. Hanina's adaptation) helps to define personal sensitivity to different stress situations, propensity for anxiety, fear. Test "Your orderliness" (E.I. Komarov) enables to estimate the level of student's inclination for rational organization of his activity. Test SLC – subjective localization of control (S.G. Pantileev's and V.V. Stolin's modification of J. Rotter's scale) helps to define a locus of control – internal or external. In the first

case a man considers, that all events, occurring in his life, first of all depend on his personal qualities and are the result of his own activity. In the second case a man is convinced, that his successes or failures are the result of external forces influence. The more points a subject scored on this methodic, the higher level of internality he possesses.

Primary data were processed with the help of correlation analysis applying Spirman's rank correlation coefficient (table 1). It will be recalled that, as E.V. Sidorenko points out, there are two systems of correlations classification by their force – general and particular. General is based on correlation coefficient value (r), and particular – only on the significance level (p) with given sample size [9, c. 203-204]. Usually it is accepted to use a particular classification system, and in the aggregate with a large sample sizes it is a slick pass of a researcher – as often with a large sample sizes correlation coefficient value even about 0,15 is significant. That is why considering the proposed table we recommend to pay attention on the coefficient absolute value ($r \geq 0,6$ – strong correlation; $0,3 < r < 0,6$ – moderate; $0,2 < r < 0,3$ – weak; $r < 0,2$ – very weak, correlation mostly lacking), but not on the number of "asterisks" by it.

Table 1. The results of correlation analysis of students' personality motivational sphere characteristics

	adaptiveness	academic motivation	knowledge acquisition	Profession mastering	getting of a diploma	orientation for success	fear of failure	anxiety	orderliness	internality
perfectionism	0,12*	0,17**	0,15*	0,03	0,14*	0,41**	-0,03	0,13*	0,18*	0,09
adaptiveness	-	0,22**	0,20**	0,12*	0,09	0,32**	-0,08	-0,47**	0,43**	0,26**
academic motivation	-	-	0,69**	0,62**	0,54**	0,23**	0,13*	-0,12*	0,27**	0,31**
knowledge acquisition	-	-	-	0,22**	0,08	0,18**	0,20**	-0,11	0,25**	0,26**
Profession mastering	-	-	-	-	0,03	0,18**	-0,01	-0,16**	0,09	0,16**
getting of a diploma	-	-	-	-	-	0,13*	0,02	0,05	0,14*	0,13*
orientation for success	-	-	-	-	-	-	-0,04	-0,14*	0,39**	0,23*
fear of failure	-	-	-	-	-	-	-	0,20**	0,20**	0,03
anxiety	-	-	-	-	-	-	-	-	-0,18**	-0,29**
orderliness	-	-	-	-	-	-	-	-	-	0,32**

* – $p \leq 0,05$; ** – $p \leq 0,01$

Those correlations are rather interesting:

- between perfectionism and orientation for success – $r = 0,41$ (high level of perfectionism is frequently intended by the high level of success achievement motivation);
- between adaptiveness and orientation for success ($r = 0,32$), adaptiveness and orderliness ($r = 0,43$), adaptiveness and anxiety ($r = -0,47$; invert correlation: high adaptiveness is intended by low anxiety);
- between the locus of control internality level and the academic motivation level ($r = 0,31$), internality and orientation for success ($r = 0,39$), internality and orderliness ($r = 0,32$), internality and anxiety ($r = -0,29$).

The table shows, that correlation between cognitive motivation level and profession mastering motivation level is very insignificant ($r = 0,22$). At the same time, considering logical correlation of these factors, we can forecast a presence of nonlinear correlation. As it was mentioned before, the fact of significance of this correlation coefficient value ($p = 0,001$) is only the evidence, that we can trust this result, but not the evidence of a considerable linear correlation. In our previous publications method of nonlinear correlation analysis between connected psychological parameters was proposed and approved. Therefore the statement of

M. Covington about quadripolar (orthogonal) correlation of orientation for success and failure avoidance was proved [12] (review of Atkinson's bipolar model) [3], and also an orthogonality of adaptiveness and perfectionism correlation was found [13]. The essential point of this method is in putting forward a hypothesis about orthogonality of researching parameters' correlation, that is about the existence of four conditional personality types on the assumption of this two parameters' exposure levels – orthogonal character of correlation is considered as a criterion for the typology construction. Further with the help of analysis of variance basing on the data about other psychological characteristics is defined if the types differ. If the differences are considerable and statistically significant, hypothesis about an existence of nonlinear correlation is confirmed. In so doing we get a ready typology, which is on practice facilitates a psychological work with the representatives of described types.

Sample representatives were attributed to four conditional types of personality's motivational sphere basing on the results of the scales "knowledge acquisition" and "profession mastering" of the methodic "Higher school study motivation". The first type (type I) includes students with

low levels of cognitive and profession mastering motivation, the second (type 2) – with low level of cognitive motivation, but high level of profession mastering motivation, the third (type III) – with high level of cognitive motivation and low level of profession mastering motivation, the

fourth (type IV) – with high levels of cognitive and profession mastering motivation. To the type I we refer 18,72 % of the respondents, to II – 19,15 %, to III – 17,87 %, to IV – 44,26 %. We present the table of the average values of all studied characteristics for each type below (table 2).

Table 2. Average values of studied characteristics for student’s types, defined by the criterion of academic motivation

Psychological characteristics	Theoretical range of methodics’ score (min – max), s.	I	II	III	IV
academic motivation	0 – 30	13,02	17,06	17,95	21,81
knowledge acquisition	0 – 10	3,22	3,18	7,3	7,47
profession mastering	0 – 10	3,52	7,29	3,73	7,70
getting of a diploma	0 – 10	6,27	6,59	6,92	6,64
perfectionism	45 – 315	173,32	171,76	180,17	174,79
self-oriented perfectionism	15 – 105	61,14	63,89	68,02	68,39
others-oriented perfectionism	15 – 105	56,36	52,47	55,29	52,14
socially predefined perfectionism	15 – 105	55,82	55,40	56,86	54,25
adaptiveness	8 – 40	27,52	28,27	28,17	29,04
orientation for success	0 – 32	15,05	15,96	15,5	16,67
fear of failure	0 – 30	13,14	11,93	14,14	14,44
anxiety	20 – 80	46,34	43,44	44,12	44,30
orderliness	0 – 78	42,61	42,73	46,00	46,04
internality	0 – 26	14,73	16,33	17,17	17,67

Further we compared this types by all measured characteristics (naturally, excluding a cognitive motivation and a profession mastering motivation levels) with the help of single-factor analysis of variance (on the basis of SPSS Statistics 20). The task of this statistical method application in our case was to define if a random variance in studied characteristics inside the type is more intensive, than variance between the types. The results a displayed in table 3. Indicator of a variance is F-Fisher’s criterion: $F = \text{Type-specified variance} / \text{Random variance}$. The higher F value, the lower p value, accordingly the result is more significant; with $p \leq 0,05$ characteristic is one of the type’s features.

Table 3. The results of single-factor analysis of variance of the researched characteristics’ measures

Psychological characteristics	F	p
perfectionism	0,53	0,66
self-oriented perfectionism	2,44	0,06
others-oriented perfectionism	1,39	0,25
socially predefined perfectionism	0,43	0,73
adaptiveness	1,57	0,20
getting of a diploma	0,56	0,64
orientation for success	2,33	0,07
fear of failure	3,62	0,01
anxiety	0,95	0,42
orderliness	1,89	0,13
internality	6,49	0,00

In the table we observe, that between the personality’s motivational sphere types there are variances in the level of self-oriented perfectionism, the level of success achievement motivation and failure avoidance motivation; there are moderate variances in the level of orderliness. There are considerable differences between types in the locus of control. There are no considerable variances in the level of perfectionism in general, others-oriented perfectionism, socially predefined perfectionism, adaptiveness, anxiety and the level of getting of a diploma motivation.

Sketches of students’ types psychological portraits are presented below (table 4). It is necessary to specify, that if it is stated in the table, that some parameter has high or low level, we mean not it’s absolute value, but conditional (comparing with the other types).

So the first type (a low level both of knowledge acquisition and profession mastering motivation) is characterized by the lowest level of self-oriented perfectionism, low level of success orientation, low orderliness, and mean level of failure avoidance motivation. Locus of control is the most internal among all the types. Besides almost all characteristics of the first type negatively influence on studying efficiency, this type possesses some potential of psychological health (low self-oriented perfectionism, low fear of failure and externality enable personality not to practice excessive "self-disparagement" and calmly perceive failure in study).

The second type representatives (only profession mastering oriented) possess mean level of self-oriented perfectionism, mean level of success orientation and ambivalent locus of control. They possess the lowest fear of failure, but, as the first type, low orderliness.

Table 4. Sketches of students’ types psychological portraits

The level of psychological characteristics	I	II	III	IV
self-oriented perfectionism	low	mean	high	high
orientation for success	low	mean	mean	high
fear of failure	mean	low	high	high
orderliness	low	low	high	high
internality	low	mean	high	high

The third type (oriented only on cognition) possess high levels of all characteristics, but the level of success orientation, that is mean.

Besides the fourth type (high motivation both of knowledge acquisition and profession mastering) possesses high levels of all characteristics, that allows him to be the most successful in study process. At the same time, high levels of success orientation and failure avoidance in fourth type's representatives indicate, that the most representatives of this type are "overstrivers" by M. Covington's typology [4]. Such students are capable, assiduous and scrupulous, but at that are unsure of own abilities, often susceptible to high anxiety and possess unstable self-esteem. Also, in our research [11] of IQ levels in different types by M. Covington's typology "overstrivers" demonstrated the lowest IQ level (this problem was mentioned in due time by M.D. Dvorjashina: "It is possible to forecast studying successes by the criterion of intellect in 56% of young ladies and in 35% young men" [5]).

On the assumption of theoretical and empiric research results we may propose following psychological-pedagogical recommendations for the presented typology's application in the work with described type's representatives. Found out correlations of the typology with such psychological phenomena as orderliness, locus of control, achievement motivation, give an opportunity to fasten (certainly, with some losses in validity) psychodiagnostic observation of the educational process' participants. If to study the respondent's academic motivation and to attribute him to one of the types, it is possible not to study the rest of psychological features, related to this type. It will be very useful for psychologists of educational system, who often deal with

multitude of students.

It is necessary to create psychological support of the one or another type in such a way that, relying on his strong sides, to grade the negative influence of weak sides. Theoretically, correction of motivational sphere and related psychological features is possible, but it is long and delicate process. It is better to start with the outer conditions changing (for instance, educational process organization – to develop an individual approach in study, cooperation on the student-student, student-lecturer level and so on), but not with the influence on student's personality internal world in the process of trainings.

Further research of type's psychological features will show great amount of its strong and weak sides, at the same time typological approach application in some way may favour nonestimating attitude to human personality's displays. It opens the way to the accent transfer in educational system from the influence and development management to the creation of optimal conditions for effective display of available abilities, which even sometimes seem to be weak.

So, due to the finding of huge amount of statistically significant variances among types, the possibility of educational process participants' typology construction was proved on the basis of their orientation on cognition and profession mastering.

The research perspectives are very extensive: spectrum of the researching characteristics and respondent's categories widening, verification of the influence of gender-age parameters or social sphere conditions on the formation of one or another personality's type, research of the possibilities for optimization of some psychological features and many other.

REFERENCES

1. Basis of psychology: tutorial / Editor-composer L.D. Stoljarenko. – 4-th ed., supplemented and revised. – Rostov-on-Don: Publ. "Phoenix", 2003. – 704 p.
2. Bobrovitskaja, S.V. Some features of pedagogical higher school entering motivation / S.V. Bobrovitskaja // Educational psychological service: The materials of conference reports in Sochi. – SPb., 1997. – P. 47-49.
3. Covington, M.V. Need achievement revisited: Verification of Atkinson's original 2x2 model / M.V. Covington, C.L. Omelech // Stress and emotion. – NY: Hemisphere, 1991. – Vol. 14. – P. 85-105.
4. DeCastella, K. Unmotivated or Motivated to Fail? A Cross-Cultural Study of Achievement Motivation, Fear of Failure, and Student Disengagement / K. De Castella, D. Byrne, M. Covington // Journal of Educational Psychology. – 2013. – Vol. 105, № 3. – P. 861-880.
5. Dvorjashina, M.D. Intellectual development and education success / M.D. Dvorjashina, N.M. Vladimirova // Complex research of the problems of teaching and communistic education of the specialists with higher education. – L.: Publ. of Leningrad University, 1980. – P. 112-133.
6. Gracheva, I.I. Adaptation of P. L. Hewitt and G.L. Flett methodic Multidimensional perfectionism scale" / I.I. Gracheva // Psychological journal. – 2006. – № 6. – P. 73-80.
7. Il'in, E.P. Motivation and motives / E.P. Il'in. – SPb: Piter, 2008. – 512 p.
8. Rahmatullina, F.M. Motivational basis of personality's educational and cognitive activity: psychological service in higher school / F.M. Rahmatullina. – Kazan, 1981. – 262 p.
9. Sidorenko, E. V. Methods of mathematical processing in psychology / E. V. Sidorenko. – SPb.: "Speech", 2003. – 350 p.
10. Podoljak, L.G. Psychology of higher school: Tutorial / L.G. Podoljak, V.I. Jurchenko. – K.: Karavel, 2008. – 336 p.
11. Podshyvajlov F.M. Achievement Motivation and Intellectual Abilities Level of Senior Pupils / F.M. Podshyvajlov // Gifted Child Education and Development. – 2015. – № 4 (35) – P. 42-46.
12. Podshyvajlov, F.M. Correlation between motivation of success achievement and motivation of failure avoidance: from bipolarity in theory to quadripolarity on practice / F.M. Podshyvajlov // Actual problems of psychology: Scientific works collection of G.S. Kostiuk Institute of Psychology of NAPS of Ukraine. – K.: "Phoenix" publisher, 2014. – V. XII. Psychology of creativity. – Issue 20. – P. 284-293.
13. Podshyvajlov, F.M. Modeling of the typology of student's personality motivational sphere by the criterion of perfectionism and adaptiveness correlation / F. M. Podshyvajlov // Electronic journal "Society. Culture. Science. Education", 2015. – Is. 1. – URL: http://cipv.ru/static.php?mode=page_493