



Original Contribution

PSYCHOLOGICAL AND PEDAGOGICAL SUPPORT OF AGRICULTURAL COLLEGE STUDENTS LEARNING

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ABSTRACT

The purpose of the research is depicting study progress of agricultural college students with different individual and typological peculiarities. The following methods were used for diagnostics: 1) study progress parameters were defined with the help of: a) «Complex diagnostics of students' preparedness for learning at a college» method (structural parameter); 2) qualitative analysis of academic progress during the assessment period (effectiveness parameter). The article states that individual and typological peculiarities of college students provide for characteristics of their study progress and preparedness for learning at a college. In the course of research, two parameters of study progress of first-year students were defined: structural parameter of study progress (developed psychological structure of learning activity) and effectiveness parameter of study progress (academic progress level). The article proves a certain interrelation between individual and typological peculiarities and good academic progress. Students with different individual and typological peculiarities have various levels of structural and effectiveness parameters of good academic progress: introverts tend to be more successful than extraverts. Considerable differences in organization of individual psychological structure of students' learning activity are shown. The research results will be useful for sorting out psychological types of students in order to provide for individualization and differentiation of higher education. The article gives basic recommendations on considering individual and typological peculiarities of agricultural college students in the process of learning.

Key words: Learning activity, success of learning activity, individual peculiarities.

INTRODUCTION

Professional development of people is one of the most vital problems of psychology and pedagogics today. Higher education faces the challenge of developing opportunities for students who will never be efficient in any trade without high development level.

Another peculiarity of today is the changing requirements to the process and quality of teaching college students as far as cognitive, motivational and social, and psychological development is concerned. This is reflected in research on preparedness to learning (1-4), on development of professional creative thinking (5), research of professional establishment and students' individual peculiarities (6-9). The increasing demands towards young people's social and

psychological, personality and cognitive characteristics on the stage of their involvement in learning and professional activity also make the research of correlation between parameters of cognitive and motivational aspects of the learning activity of this age group more urgent.

The subject of research is directly linked to such basic psychological notions as «activity», «learning activity», «psychological structure of activity», «success of learning activity», «individual peculiarities» etc. In view of this, some explanation on defining certain scientific terms should be given.

Scientific literature views three aspects of activity: 1) subject and activity aspect; 2) psychological aspect (individual personal qualities); 3) physiological aspect (10). The issue of psychological structure of learning activity on all levels of learning, parameters, criteria of its success, efficiency and pointing out its basic structural components is one of the major ones in modern psychological and

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pedagogical science. Psychological aspects of the essence of notion «learning activity» are subject of examination of many Russian and foreign researchers. According to system-genetic concept, activity structure is an «integral unity of components and their comprehensive ties which realize this activity» (10). Psychological structure of learning activity (PSLA) is defined as an integral unity of academically important qualities and their comprehensive ties, which stimulate, programme, regulate and realize activity (11). The authors define five functional sets of academically important qualities (AIQ) which compile the psychological structure of learning activity (11): 1) personality and motivation set: attitude towards oneself, need for achievement, empathy and sociability; 2) set of accepting learning task: AIQ – task acceptance and professional orientation; 3) set of notion of the content and ways of implementation of learning activity: introductory skills component; 4) set of activity information base: logical memory, verbal memory, attention voluntariness, logical thinking and thinking flexibility; 5) set of activity management: teachability and voluntary activity regulation.

Yu. P. Povarenkov divides the course of study at a pedagogical university into two basic periods of students' professional development: learning and academic period (1-3rd years) and learning and professional period (late 3rd, 4-5th years) during which the activity orientation is changed from learning and academic to professional and pedagogical (12).

Within the framework of this research, we have proved that the success of college students learning activity should be shown through two parameters: resultant (academic progress level) and structural (the development level of learning activity psychological structure). Learning activity is considered successful when these two parameters correlate with standard: the resultant parameter is defined by the federal state educational standard for higher education and revealed in the students' academic progress level (students' intermediate attestation results), while the structural one is defined by the development level of learning activity psychological structure, i.e. presupposes the integral unity of academically important qualities included (13).

Individual and typological peculiarities of people as a separate psychological and pedagogical issue became subject of scientific research only in the second half of the XIX c. The rise of interest in the issue was caused by

the growing number of psychological research while psychology was becoming a separate branch of science. Theoretical analysis of various approaches showed that the issue in question was subject of different theoretical and practical research in the course of psychology of individual peculiarities, differential psychology etc. In the course of these branches of psychology establishment and development, their set of concepts was defined: for instance, such basic constituent concepts as «individuality», «individual peculiarities», areas of practical research of human individual peculiarities were defined. To differentiate between various types of individual peculiarities, certain psychic qualities were accentuated such as character, abilities, motivation, peculiarities of intellect, psycho-physiological peculiarities (nervous system properties, psycho-dynamic properties, cerebral hemispheres lateralization peculiarities) etc. The current research attempts at analyzing steady individual peculiarities which provide for placing people into a certain category or group with non-overlapping, inborn, inherited and stable individual characteristics, i.e. with different level of individual and typological peculiarities evidence.

METHODS AND MATERIALS

Work goal – research of study progress of agricultural college students with different individual and typological peculiarities. The goal was pursued within the framework of psychological and pedagogical support of agricultural college students in view of their individual and typological peculiarities.

RESEARCH TASKS

1. Finding out values of structural and resultant parameters of learning activity progress and specific learning activity psychological structure among introvert students.
2. Finding out values of structural and resultant parameters of learning activity progress and specific learning activity psychological structure among extravert students.
3. Analysing individual values of learning activity psychological structure among introvert students.

Object of research – successfulness of learning activity of agricultural college students.

Subject – psychological and pedagogical support of learning activity of agricultural college introvert students.

Hypothesis: there is a specific relationship between individual and typological peculiarities (psychodynamic peculiarities) and resultant and structural parameters of

agricultural college students' successful learning activity.

Methods: 1) parameters of successful learning activity were defined with the help of: a) «Complex diagnostics of college students' preparedness for learning» method of N. V. Nijegorodzeva (structural parameter); b) qualitative analysis of academic progress during intermediate and final attestation (resultant parameter) 2) individual and typological peculiarities of students were researched with H. J. Eysenck questionnaire to define psychodynamic personal characteristics: extraversion.

Research base: empiric research was held at federal state-financed higher education institution «Yaroslavl State Agricultural Academy». The research was held in the period of 2007-2011. The choice of research base was defined by the fact that Yaroslavl State Agricultural Academy is the only institution of higher education in Yaroslavl Province, which trains agricultural specialists and has had a half-century history of agricultural production development of great theoretical and practical value. The main specific feature of the academy is that students are involved in professional activity from their first year of studies.

The following methods were used for mathematical and statistical processing and interpretation of the empiric research results: methods of primary descriptive statistics, parametric methods of data analysis (independent samples Student's t-test), Kolmogorov-Smirnov K-S test, Kruskal-Wallis H-test. Correlation analysis method: Pearson's correlation coefficient. Also used were statistic method express χ^2 and structural analysis by overall index – index of qualities coherence, index of differentiation and index of structural organization (14).

Since the research sample group consisted of students of various departments and majors, before analysing the total of empiric data obtained during psycho-diagnostic examination, it was necessary to make sure that distribution of individual and typological peculiarities in the groups of students of various departments and majors was homogeneous and not different. Introvert students made 27.8% of sample group, while extravert – 72.2%.

For proving the hypothesis Kruskal-Wallis H-test was used, which enabled to define individual and typological peculiarities of students of different departments and majors. Experimental data content had been

normalized, so the distribution of individual and typological peculiarities in all sample groups was even. The following results were obtained: by «introversion-extraversion» parameters: $H=4.648$ at $p>0.05$. Therefore, the sampling was at statistically homogeneous level. In view of that, pooling and general analysis of the data obtained in sample groups classified by different majors in one was possible.

RESULTS

At the first stage of work, the level of resultant parameter (RP) of the success of learning activity in groups of introvert and extravert students was defined. RP is marked by grades the first year students got at intermediate attestation and exams: the general level of academic progress, as well as academic progress in core and secondary subjects (mean value). The following results were obtained:

- Introverts: core subjects – 4.04, secondary subjects – 4.05, general level of academic progress – 4.04.
- Extraverts: core subjects – 3.85, secondary subjects – 3.84, general level of academic progress – 3.85.

Statistical significance of differences in RP levels was evaluated with Student's t-test. The analysis done allows for certain conclusions.

1. It was revealed that introvert and extravert student groups have different values of resultant parameter of learning activity success (with the value of general academic progress of $t=2.540$ at $p\leq 0.05$, academic progress in core subjects - of $t=2.081$ at $p\leq 0.05$, academic progress in secondary subjects - of $t=2.647$ at $p\leq 0.01$). The values of t-test prove that academic progress of introverts is better than that of extraverts. The obtained result correlates with the data from scientists who state that introverts on the whole get higher academic results during their course of university studies. In our opinion, this can be due to the specifics of adaptation period during which the new academic and learning and professional activity is established, its structure reformed, while the university student identity is shaped requiring from him or her a rather high level of concentration, involvement in the activity, as well as high self-control.

2. Students with maximum introversion degree tend to have lower academic progress than those with medium and low values on introversion scale. This result can be explained through the notion of introversion development optimum, where the highest academic progress level is defined by the medium level of introversion rather than the highest possible one.

At the second stage, specifics of psychological structure of learning activity of introvert and extravert students were researched. Structural parameter of academic success is the value of index of individual preparedness (IIP) for university studies. IIP is calculated as levels of academically important components (considering the significance of each).

In accordance with the instruction of the chosen method, structural parameter of the learning activity success may vary within the range 0-56, therefore its mean value (Mx) is 28.5. The distribution of results was analysed in order to standardize the obtained ones and point out groups of students with low IIP. Low level of preparedness corresponds with values of IIP lower than 25 percentile in normalized diagnostic result distribution. Medium values of IIP are in the range between 25 and 75 percentile. High level of preparedness corresponds to the values over 75 percentile. The value of individual index of preparedness for university studies being above or below the average means that the individual development of the student at that stage does not quite correspond to the contents of education at the early university stage: in case of high preparedness, the student's abilities are above the programme requirements; low preparedness signifies not quite formed psychological structure of learning activity.

Distribution of values of individual preparedness for university studies index in this research was checked with Kolmogorov-Smirnov K-S test. No considerable deviation from normal distribution of data was noticed. Due to this, within the framework of our research, students with low value of structural parameter of successful learning activity have the value of structural parameter within the range of 13-25.5, those with the medium value – within the range of 26-32.5, those with the high value – 33-38.

The structural and functional analysis held allowed for making the following conclusions:

1. Introvert students have higher structural parameter (SP) values: while with extraverts it is 27.17 (mean value), with introverts it is 28.53 (mean value) but significantly different $t=1.471$ at $p\leq 0.05$.

2. Psychological structure of introverts' learning activity at statistic level is less developed, i.e. it is less integrated and organized, with «weaker ties» between components prevailing. Dynamics of structural indices in students groups is rectilinear: coherence, divergence and organization of psychological structure of learning activity

grow with extraversion increase. Structure organization index among introvert students is 6, integration index is 38 and differentiation index is 32; while among extravert students organization is 14, group integration is 48 and differentiation parameter is 34. That is, we may conclude that structural parameters are insignificantly different.

3. Both introverts and extraverts have the same set of basic and major AIQ. The basic AIQ for both groups is «introductory skills» component. This proves that first year students with different psychodynamic peculiarities have common ideas of university studies specifics and ways of fulfilling learning and professional activity. Basic AIQ for extravert students are also «logical memory», «verbal memory»; with introvert students they are «need for achievement» and «accepting learning task». The high level of development of these AIQ provides for successful university studies.

4. Such academic quality as «teachability» in PSLA among students of both groups is ambiguous: 1) statistically reliable differences were found out in the AIQ development level – $t=2.552$ at $p\leq 0.05$ (average for introverts = 0.90, average for extraverts = 0.69), and its value in extraverts PSLA was high. PSLA of introverts did not include «teachability».

DISCUSSING RESULTS

The obtained result may be explained by the fact, that at high values of resultant parameter of successful learning activity (academic progress) introverts reveal the effect of imaginary structure disintegration, the reason of which is considerable individual differences in organization of individual psychological structure of learning activity of each introvert student. The high level of mastering is achieved by these students in various ways, often inadequate towards learning goals, but giving the desired result. In order to prove this hypothesis, the existence of the supposed individual psychological structure of learning activity among introvert students was checked. It was done during diagnostics of the level of formed psychological structure of learning activity, observation and analysis of first year students' academic documentation during their first semester studies. Checking the existence of individual psychological structures of learning activity was done while comparing the AIQ structure of several introvert students.

Thus, results of individual and typological peculiarities diagnostics allowed for including a certain student Natalya V., aged 18, in the group of introvert students. Analysis of

academic documentation showed a high resultant parameter of successful learning activity. The average grades of the student in core subject, secondary subjects and general academic progress level was 5.0. Results of psychodiagnostic examination showed the student's high level of formed PSLA of 36.

Observation results proved that at classes Natalya possessed skills of organization and managing her own activity. Well-developed flexibility of mind allowed her to find the answers to the questions not requiring the factual knowledge, but rather aimed at students analytical abilities. At seminars and laboratories, the student did not show initiative, though she was always well prepared for each time, thus not showing a highly developed need for achievement. She got excellent grades for all the exercises and tests. She always gave detailed and well-proved answers at any (oral or written) tests, making good references.

Psychological structure of learning activity of Natalya V. was compared to PSLA of Anna P. Results of psychodiagnostic examination revealed a high level of formed PSLA of 34. The average resultant parameter of successful learning activity of the student was as follows: the average in core subject was 5.0; in secondary subjects it was 4.462; the general academic average was 4.731.

Analysis of academic records showed that the student had entered the college after two years at a medical vocational school, due to change of professional interest and preferences. That is why her AIQ «professional orientation» development level is above average, and her academic progress in all core subjects results in highest grades.

The fact that Anna is now in the first year at the college after two years at vocational school proves that she has some idea of principles, ways and mechanisms of professional studies. She achieves good results due to her flexible mind, which allows her to use the already acquired knowledge in new learning situations. Anna is capable of adequately evaluating her goals and contents of knowledge given by professors and has the will to learn.

The results obtained prove the idea that psychological provision of learning activity (considering the role of its separate components in the general structure of learning activity) among introvert students is rather individual. The high level of knowledge acquisition and adaptation can be achieved in various ways, not always adequate to learning

goals. At the stochastic and statistic levels, it is revealed in disintegration of PSLA and its «breakup» into several substructures united with weak functional ties.

Therefore, the obtained empiric research data on individual parameters of psychological structure of learning activity prove the necessity to consider psychological peculiarities of college students in the organization of learning process, as well as importance of psychological support of learning. Further work in this field would allow for increasing both the resultant and structural parameters of successful learning activity.

Individualization of studies in order to optimize it and boost the success of learning activity is realized not only through working with poor students or those facing certain learning problems, but also with the bright enough ones.

Individualization is aimed at helping students comprehend their individual and typological peculiarities as the subject of learning activity; finding out its underdeveloped components; forming the optimal and adequate to the given situation psychological structure of learning activity as a whole.

The following general recommendations can be given: while noting and working out learning activity individual style peculiarities among introvert students, one should follow the following rules: not to put them in a situation requiring an immediate answer; give them enough time for thinking it over and preparing; during their preparation give them a chance to check and correct their answers; help them build their self-confidence through the correct tactics of quizzes and encouragement.

While dealing with introvert students, one should be kind, tactful and considerate, for extra strictness and sharp increase of demands would inhibit them even more and decrease their efficiency. It is very important to help them join the team, be included in the joint work and feel protected. During classes, such students should be asked more often, in the atmosphere of peace and calm. Psychological support in the form of approval, praise and encouragement is very important.

Extravert students, who show more modest progress during their first year than introverts, should be given a hand in developing persistence, purposefulness and diligence. Conscious and creative approach to work is one of the crucial conditions for these students

to acquire their individual style. They may work out their individual style only while looking for the best ways and methods to help them achieve greater success.

Extravert students involved in college public activities should be reminded that during their first year they are to concentrate mainly on their studies. At seminars and laboratories, one should kindly but firmly require that extravert students give quiet well-considered answers, be self-restrained in their behaviour and attitude towards other students, and be thorough and orderly in their work. It should be remembered that extravert students do not like monotonous and painstaking work. Still, their passion and reasonable initiative at work should be encouraged. Extraverts should have their professional orientation and logical thinking developed, for these components contribute to the success of learning activity. Introverts should be motivated and orientated at increasing their self-esteem and thinking flexibility.

CONCLUSION

The analysis of successful learning activity of agricultural college students possessing various psychodynamic peculiarities proved that organization of learning activity depends on the level of individual and typological peculiarities (introversion-extraversion) revealed. Changing of the introversion-extraversion level causes quality restructuring of all AIQ interconnection system, changes on the level of all learning activity system. Such individual and typological peculiarities as introversion and extraversion play the determining role in the success of learning activity, structural and integrative elements of its organization, and also have considerable influence on the process of adaptation (to the rhythm, methods and forms of work, as well as familiarization with academic work).

It should also be noted that the problem of increasing the efficiency and successfulness of first year college students through considering their individual and typological peculiarities is complex and multi-levelled. The work to be done involves not only all professors, but also the students themselves, prefects, college psychologists and dean's offices.

Analysis of the research results allows for pointing out the following fields of work as having good prospects: widening the analysis of cognitive and motivational components, as well as other personality peculiarities as parts of psychological structure of learning activity. Analysis of cognitive and motivational aspects of successful learning activity at different

stages of college studies: learning and academic; learning and professional. Another prospective field is related to specifying individual and typological peculiarities and successful learning activity among students of various majors; revealing specific individual and typological peculiarities and successful learning activity among students of different colleges and universities.

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