

Psychological and pedagogical conditions for professional motivation of pedagogical specialties students

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Abstract

In our rapidly developing modern world, where there are trends of high growth in science and technology, there is an acute need for professionally motivated and highly qualified specialists. This article discusses the features of professional motivation of students of pedagogical specialties. To determine the specifics of the formation of professional motivation of future teachers, an experimental study was conducted. The research consisted of 256 third-year students in natural sciences at the Abai Kazakh Pedagogical University in Kazakhstan. In forming the structure of professional motivation of students of pedagogical specialties in our research, we relied on the motivation structure developed by Ilyin. The data obtained made it possible to determine the features of the formation of professional motivation of students of pedagogical specialties, depending on the features of vocational training.

Keywords: competence-based approach; professional motivation; paradigm of education; project-based activity.

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1. Introduction

In our rapidly developing modern world, where there are trends of high growth in science and technology, there is a particularly acute need for professionally motivated highly qualified specialists. This problem is the most urgent one in the field of education (Afanasiev et al., 2018). The main tool for the upbringing and training of the individual in the field of education raises questions about the important life motives and positions a teacher at a modern school should have.

The system of professional training of future schoolteachers, with a sufficient level of special training aimed at mastering a wide range of subject knowledge, does not sufficiently contribute to forming students' understanding of the pedagogical activity, interest in its semantic content, and tasks. As a result, by the time of graduation from a pedagogical university, a large number of students are not ready to professionally perform pedagogical activities.

The study of the psychology of motivation takes quite a long period, but it remains complex and relevant in its understanding. The complexity and the multifaceted nature of the problem of motivation causes different approaches to understanding its essence, structure, nature, mechanism, as well as ways and methods of studying it. Leontyev (2011) believes that while in the middle of the twentieth century the subject, boundaries, and specifics of the psychology of motivation were quite clear, now this area has turned out to be divided between personality psychology, psychology of regulation of activity, and self-regulation and psychology of cognitive processes.

The “motivation” term was first introduced by philosopher Arthur Schopenhauer. Subsequently, this term was used to explain the reasons for the behavior of humans and animals. Analyzing the motives of professional activity as one of the types of motives, Markova (1996) identifies the following groups: motives for understanding the purpose of the profession, professional activity, professional communication, manifestation of personality in the profession. It is exactly a combination of various motives in the individual that creates the internal determination of professional behavior. Markova et al., (2009) argue that professional activity motivation only prepares the focus of labor activity. Their implementation is ensured by the process of the target formation.

1.1. Purpose of study

The formation of professional motivation of students of pedagogical specialties is a psychological and pedagogical process that requires special, scientifically-based methods of diagnosis, analysis, and development. The solution to this problem, which is relevant in general, is important for students of pedagogical specialties of the Abai Kazakh National Pedagogical University since it is important for the future. Thus, there are high goals of upbringing and training for the younger generation of Kazakhstani society. As part of this research, we identified the motivational sphere of students of pedagogical specialties, the motives of educational and professional activity, and personal values through psychological diagnostics and subsequent psychological and motivational training.

2. Materials and Methods

When forming the structure of professional motivation of students of pedagogical specialties in our research, we relied on the motivation structure developed by Ilyin (2011), which includes the demand unit, the “internal filter” unit, and the target unit. As the main motives of professional activity, Ilyin (2011) distinguishes the following: social motives, obtaining certain material benefits, meeting the need for self-actualization.

The block of needs includes biological and social needs, awareness of the need, duty; the “internal filter” block includes moral control, assessment of the external situation, assessment of their opportunities, preferences; the target block includes the image of the object capable of satisfying the need, the objective action, the goal of the need, the representation of the process of satisfying the

need. When studying the features of students' professional motivation, we also relied on the substantial dynamics indicated by V. I. Kovalyov, namely, changes through the transformation of the structure of professional motives, changing their strength and stability (Kovalev, 2004).

2.1. Data collection

This research was conducted as an experiment. Data was collected using the observation method and an interview at the beginning and the end of the experiment.

2.2. Participants

The research consisted of 256 participants. At the first stage of the experiment, preliminary testing was performed to identify the initial data, the structure of motivation of third-year students. This was applied to 256 people divided into control and experimental group. At the stage of the ascertaining experiment, the structure and features of professional motivation were studied as a factor in the development of personal and professional qualities of third-year students in natural sciences (chemists, biologists, physicists, mathematicians) and humanities (psychologists, historians, philologists) fields.

2.3. Procedure

The dynamics of professional motivation in the university divide the entire training period into three stages.

The first stage covers the period of student training in the first year. It is characterized by high-level indicators of professional and educational values, which act as motives controlling the educational activities of students. The professional values of the teachings of first-year students at the first stage are somewhat idealized and are determined by the understanding of their social significance rather than personal meaning, and the entire system of motivation does not yet form an integral hierarchical structure (Nesterova, 1984).

The second stage covers the second and third years and is characterized by a general decrease in the intensity of motivational components. Professional and cognitive motives cease to control the educational work of second-and third-year students.

The third stage covers the fourth and the fifth year. At this stage, the degree of awareness and integration of various forms of motivation of training into a single holistic system structured according to the level of their generalization will increase (Nesterova, 1984).

2.4. Analysis

We relied on the qualitative characteristics of professional motivation developed by Chugunov's (1985) work in our thesis:

- The dominant character, in which there is a focus on the content of the professional activity, creativity in it, selective activity for business, a consistently high level of claims.
- Situational nature, in which there is a dependence of activity on circumstances, focuses on external factors (earnings, place of residence), performance activities.
- Conformist character, in which there is dependence on the environment, emotional instability, discomfort (Chugunov, 1985).

We will mean the following as the professional motivation of students of pedagogical specialties in our thesis study: Professional motivation of students of pedagogical specialties is a set of interrelated conscious motivations that determine professional activity, interest, ability, and personal value comprehension to the implementation of professional-pedagogical activity within the scope of the selected specialty

3. Results

Formation of professional motivation of students of pedagogical specialties based on the initial testing will take place through the following:

- formation of educational and professional motivation through incentive mechanisms aimed at mastering the pedagogical profession and achieving professional self-fulfillment of the future teacher.
- formation of educational and professional motivation through incentive mechanisms aimed at obtaining the required professionally significant knowledge, skills, and abilities,
- motivation for professional-pedagogical activity is expressed through incentive mechanisms aimed at mastering the features of the teacher’s profession in educational institutions (school, college, gymnasium).

The analysis of psychological and pedagogical literature and scientific and experimental research on the problem under consideration shows that the main characteristics of professional motivation of students of pedagogical specialties are its structure and dynamism. This suggests that there are differences in the formation of professional motivation of students depending on the direction of specialization and the psychological and pedagogical conditions of its formation. In this regard, it seems necessary to identify the specifics of the formation of professional motivation of future teachers of natural sciences and humanities at the undergraduate courses in Abay Kazakh National Pedagogical University.

It should be noted that identification of professional motivation and individual qualities of the personality of students was performed at the educational and professional stage of training immediately before the start of the long-term pedagogical (professional) practice at school. The experimental data obtained during the ascertaining experiment showed how students of different areas of special training differed from each other in their motivational attitudes. The data was obtained from the results of the survey of students (Appendix 1), using the method of scores, which were averaged for each group of subjects and checked for the significance of the difference in the Student’s t-test.

The data obtained from the second questionnaire shows that students of the direction of the natural sciences have socially attractive motives at the forefront. Third-year students are not afraid of deductions because they already have the skills necessary for the study itself. The motivational profile in terms of the motive for choosing the profession of a schoolteacher showed low results. After analyzing the dynamics of the indicators on questionnaire 3, we can say that the assessment of the prospects for own professional growth remains high only for students of the Psychology and Pedagogy Faculty with the continuing assessment of the level of professional training.

The average indicators of motives for choosing a university, motives for educational activities, and motives for choosing the teacher’s profession are presented in Table 1. The analysis of dynamics of motives for choosing a university shows that the personal data of students of various specialties does not show significant variety (Table 2). According to the data obtained from the first questionnaire, we can say that the questions were socially attractive for students, and they were happy to answer the questions. There was also the desire to look better, which we judged by inflated estimates.

Table 1

Average indicators of motives for choosing a university, teacher’s profession, and educational activity of the 3rd year students of pedagogical specialties (points)

No.	Motives	directions (faculties; groups; points)							
		Natural sciences				Humanities			
		Ch/Bio		Ph/Math		Psy/Ped		Hist/Phil	
		K ₁	E ₁	K ₂	E ₂	K ₃	E ₄	K ₄	E ₄

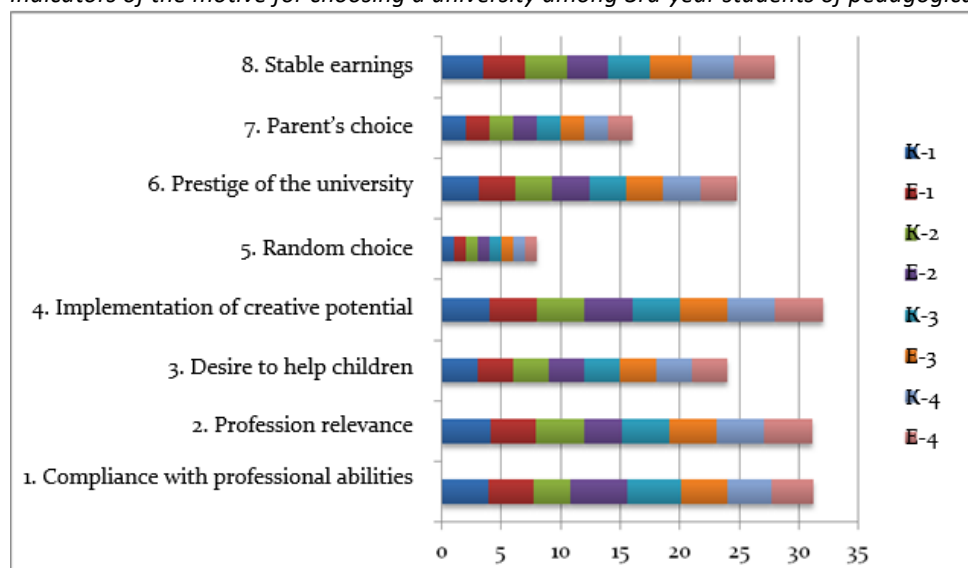
I.		<i>Motive for choosing a university (1 questionnaire)</i>							
1. Compliance with professional abilities		3.9	3.8	3.1	4.8	4.5	3.9	3.7	3.5
2. Profession relevance		4.1	3.8	4.1	3.1	4.0	4.0	4.0	4.0
3. Desire to help children		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4. Implementation of creative potential		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
5. Random choice		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
6. Prestige of the university		3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
7. Parent's choice		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
8. Stable earnings		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
II		<i>Motive for educational activities (2 questionnaires)</i>							
1. Training is the basis for professional growth		4.3	4.1	4.7	4.2	4.7	4.5	4.2	4.1
2. Striving to be the best		4.5	4.3	4.3	4.1	4.8	4.6	4.5	4.2
3. Not to be expelled		3.2	3.0	3.5	3.1	3.6	3.2	3.8	3.1
4. Responsibility to the parents		3.8	3.7	3.8	3.6	3.9	3.8	3.8	3.6
5. Obtain a scholarship		4.8	4.5	4.8	4.1	4.5	4.3	4.7	4.5
III		<i>Motive for choosing a schoolteacher's profession (3 questionnaires)</i>							
1. Vocation		3.7	3.5	3.2	3.0	4.5	4.3	3.5	3.4
2. Profession demand		3.2	3.0	3.1	3.0	4.3	4.1	3.4	3.1
4. Motive of power		3.5	3.0	3.2	3.0	3.6	3.5	3.2	3.0
5. Altruistic motive		3.8	3.5	3.5	3.0	4.0	3.9	4.0	3.8
6. Prestige of the profession		3.7	3.5	3.6	3.3	4.6	4.3	3.8	3.3
7. Cognitive motive		4.3	3.7	4.6	4.3	4.4	4.2	4.3	4.0
8. Solving own problems		3.7	3.3	3.2	3.0	3.7	3.5	3.8	3.6

where Ch/Bio-Chemistry and Biology Faculty; Ph/Math — Physics and Mathematics Faculty; Psy/Ped — Psychology and Pedagogy Faculty; Hist/Phil — History and Philology Faculty; K — control group; E — experimental group;

According to the comparative analysis, it can be concluded that the professional motivation of third-year students of all specialties is at a low level. Figure 1 shows the averaged indicators of the motives for choosing a university (the data were obtained from questionnaire No.1).

Figure 1

Indicators of the motive for choosing a university among 3rd-year students of pedagogical specialties

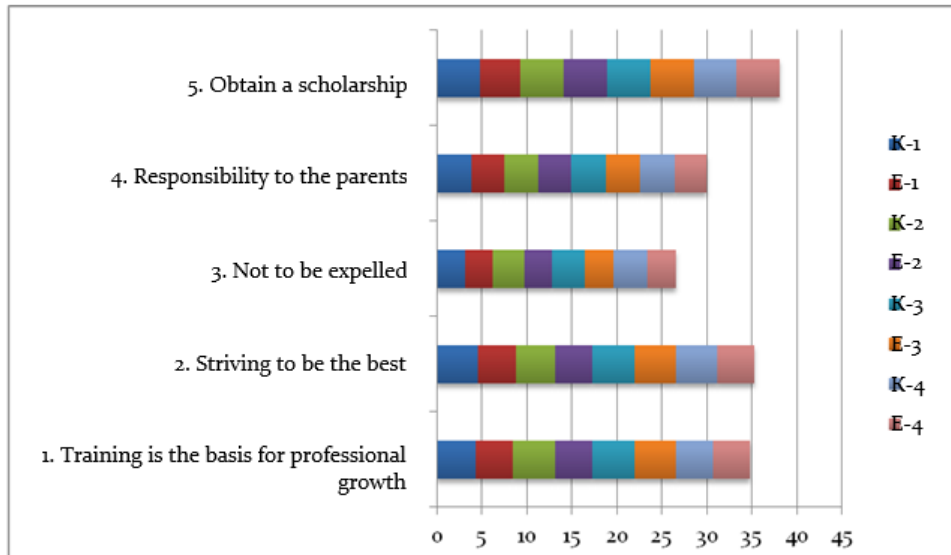


When analyzing the results obtained through the questionnaire, it can be noted that most of the questionnaire indicators do not express significant differences. The exception is the indicators of students of the Psychology and Pedagogy Faculty, which showed higher indicators in all respects than students of other faculties. The difference between the groups was $\chi^2 = 14.132$ at $\alpha = 0.002$.

The results obtained from the second survey (questionnaire No.2) showed that the motives for the educational activities were related to obtaining the scholarship and the desire to be better than others. The indicator “responsibility to parents” showed low results, except for students of the Psychology and Pedagogy Faculty. This indicator is important for us, so it shows responsibility in general. It should be noted that students understand that training is the basis for professional growth. The values are much higher than others for this indicator. The difference between the groups in this survey was $\chi^2 = 14.132$ at $\alpha = 0.002$. The motivational focus concerning educational activities is shown in Figure 2.

Figure 2

Average values of educational activity motives for 3rd-year students of all pedagogical specialties

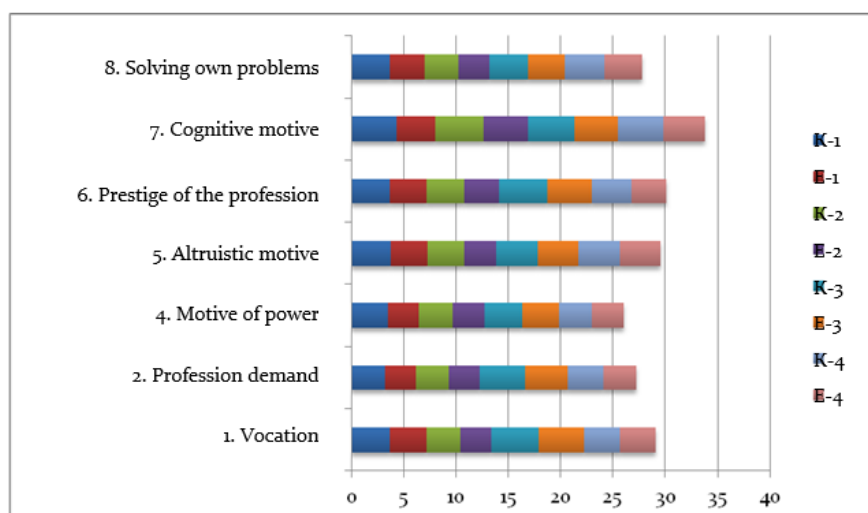


According to the criterion of “obtain a scholarship” too, there are high points. This indicates the material interest of students in the direction of the natural sciences. When analyzing the dynamics of the motives of educational activity, no significant differences were revealed for most indicators. The exception is the “Not to be expelled” indicator ($\chi^2 = 18.152$ when $\alpha = 0.001$). Since students are already studying in the third year, this indicates that they have already acquired the skills necessary for the educational activity itself.

According to the third criterion — the motive for choosing a profession — the profession of a schoolteacher showed the following results (questionnaire No. 3). The control and experimental groups of the third-year students of pedagogical specialties were asked to evaluate why they chose the profession of a schoolteacher, whether they are ready for pedagogical activity. The motivational profile for each specialty is shown in Figure 3.

Figure 3

Average values for the indicator — the motive for choosing a profession — the profession of a schoolteacher (3rd-year students of pedagogical specialties).



The average indicators of academic performance, self-assessment of the success of professional training, and prospects for professional growth among different specialties students did not have striking differences ($\chi^2 = 38.164$ when $\alpha = 0.000$). Against the background of all specialties, the mindfulness of the Psychology and Pedagogy Faculty students' answers drew particular attention.

Thus, based on the results of the comparative analysis, it can be concluded that the professional focus of the motivational sphere of third-year students of pedagogical specialties is at a low level. Although the students are in the pre-graduation course and their academic performance is at a satisfactory level, their professional motivation showed low values.

For a more complete understanding of the motivational structure of 3rd-year students of all studied pedagogical specialties experimental groups, we conducted testing at the second stage of the ascertaining experiment using the questionnaire "Motivation structure" (Eliseev, 2003) . This technique was used only for the students of experimental groups. The data obtained as a result of the testing became the basis for identifying the levels of professional motivation of experimental group students before the beginning of the formative experiment and the beginning of professional practice at school.

The motivational sphere level of experimental group students was studied according to the following indicators: cognitive motive, competitive motive, the motive for success, internal motive, the motive of the results value, the motive of the task complexity; the motive of initiative, the motive of self-assessment of volitional effort, self-mobilization motive, the motive of personal potential self-assessment, the motive of personal comprehension of work, the motive of positive personal expectations. The data obtained are provided in Table 2.

Table 2
 "Motivation structure" of third-year students of experimental groups before training

No.	Motives	Average value				χ^2	Compare value
		Ch/BioE ₁	Ph/Math E ₂	Psy/PedE ₃	Hist/Phil E ₄		
1.	Cognitive motive	3.97	3.92	4.31	3.48	5.620	0.085
2.	Competitive motive	4.77	3.09	5.90	4.90	3.697	0.441
3.	Motive for success	3.43	3.15	4.54	3.00	18.12	0.002
4.	Internal motive	3.0	3.45	5.00	3.67	3.218	0.374
5.	Motive of the results value	3.29	2.91	5.85	3.14	3.400	0.334
6.	Motive of the task complexity (subjective assessment)	3.59	3.63	4.19	3.10	4.916	0.178

7.	Motive of initiation (initiative)	3.47	3.65	5.42	3.05	3.536	0.304
8.	Motive of self-assessment of volitional effort	3.77	3.49	5.48	3.57	6.595	0.086
9	Self-mobilization motive (for volitional effort)	3.43	3.46	5.10	3.00	4.019	0.259
10	Motive of personal potential self-assessment	3.27	3.32	5.42	3.14	1.493	0.684
11.	Motive of personal comprehension of the work (personal meaning)	3.02	3.60	5.31	3.10	17.20	0.001
12.	Motive of positive personal expectations	3.71	3.72	5.79	3.62	0.298	0.960

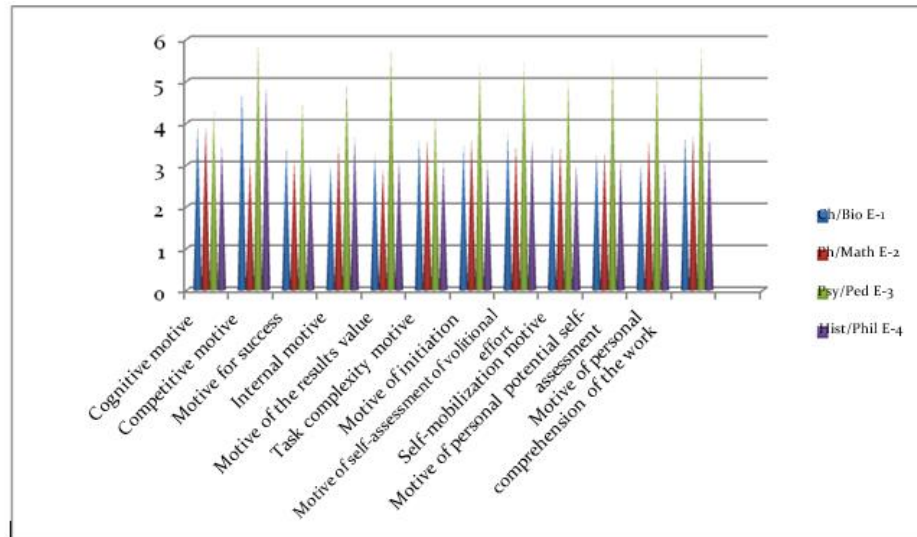
The concept of “Motivation structure” in psychological and pedagogical science is used when it comes to dominance, the hierarchy of motives, allocation of their main groups, and subgroups. The hierarchical motivational structure determines the focus of the student's personality, which has a variable character depending on which motives in their content and structure have become dominant.

As can be seen from the Table, the achievement motivations of the third-year students of the experimental groups showed the lowest results for the cognitive motive (3.48), the motive for success (3.00), the internal motive (3.0), the motive of the value of the results (3.14), the motive of the task complexity (3.03), the motive of initiative (3.05), the motive of self-assessment of volitional effort (3.3), the motive of self-mobilization (3.00), the motive of personal potential self-assessment (3.2), the motive of personal comprehension of work (3.01), the motive of positive personal expectations (3.3).

In general, we can say based on the results obtained that all experimental group students, except the Psychology and Pedagogy Faculty students, showed a low level of motivation structure. This situation should be alarming for university teachers since motivation is a state that is closely associated with the success of educational and professional activities. If a person does not have a proper level of motivation, the success of the activity he/she performs is very problematic. People motivated to avoid failures often do not find on their own such an area of activity where they could realize their potential. It is possible to ensure a change in intrapersonal motivation by rebuilding activities through the creation of a situation of success, this will contribute to a certain restructuring at the personal level. Such a person can get involved in activities independently, striving to achieve success. The results obtained using the motivation structure methodology are clearly shown in Figure 4.

Figure 4

Average values according to the methodology “Motivation structure” in experimental groups before training



Professional motivation is the most important type of motivation of a future teacher. And according to many researchers, the fate and position of a person in a society largely depend on it. However, we must not forget that if motivation is a state that reflects the level of desire of the subject to implement certain motives, then the personal characteristics of a person can also determine the motivation (Leontiev et al., 2011).

According to the results of the ascertaining experiment, it can be concluded that students are mainly engaged in achieving success and successful educational activities, while professional motivation, perspective vision of themselves at school as a successful teacher is low. Based on the results obtained during the survey, it seems that students of all pedagogical specialties, except the Psychology and Pedagogy Faculty students, have a low-level professional motivation and the motivation has not acquired much value during the entire period of training at the university.

The formation of motivation is not a simple increase in a positive or negative attitude to teaching, but rather a complication of the motivational sphere structure of intentions included in it. The work with the experimental groups of students of pedagogical specialties continued at the third stage of the ascertaining experiment. Before we start implementing a program for the formation of professional motivation of students, we have to study more fully the structure of the motivational and value sphere of experimental group students depending on their professional focus.

To measure the hierarchy (subordination) of motives and their place in the structure of professional motivation, we conducted a diagnosis using the methodology "Diagnosis of the motivational structure of a person" Milman (1990). The method made it possible to differentiate the motivational factor by groups of supporting and developing motives. This technique is used to determine some stable personality tendencies. These include general activity, communication, social status, comfort.

Milman's (1990) methodology helped us:

- 1) To determine the motivational and emotional personality profiles of students of experimental groups.
- 2) To establish educational, professional, and general everyday motivational focus of the personality of experimental group students.
- 3) To identify the levels of professional motivation of students in experimental groups: high; medium; low.

4) To determine the characteristic features of the identified levels of professional motivation of experimental group students

According to the instructions of the methodology, “Diagnosis of the motivational structure of the personality” by Milman, we offered the test students 14 statements regarding life aspirations and some aspects of lifestyle. The test students had to express their attitude towards them for each of the 8 possible answers, affirmative or negative. Based on the results of the study of the motivational structure of the personality of experimental group students, we obtained data that characterize the educational, professional, and general everyday focus of the personality of the students. The acceptance of the profession generates a certain deterministic tendency and serves as the moment of the activity psychological system formation (Shadrikov, 2003) .

The process of adopting a profession includes an analysis of the motives which are essential for the activity. The formation of motivation is based on a complication of the structure of the student's motivational sphere. Comparing the profiles of the motivational structure of students of experimental groups in the educational field, we found that they belong to the type of impulsive, as they are characterized by sharp changes in the profile line. The results obtained on the diagnosis of the motivational sphere of students of experimental groups are provided in Table 3.

Table 3

Average indicators for educational, professional, and general everyday motivational focus of the personality of students of experimental groups before training

No.	Scales	Average value				χ^2	Compare asymptote value	
		Ch/BioE ₁	Ph/MathE ₂	Psy/PedE ₃	Hist/PhilE ₄			
1.	Life support	L	15.5	16.7	17.3	16.9	10.99	0.013
2.	Comfort	C	15.7	12.0	14.9	14.8	10.35	0.017
3.	Social status	S	17.9	12.4	17.2	12.8	9.440	0.026
4.	Communication	O	16.1	12.4	19.2	18.9	7.969	0.047
5.	Overall activity	D	14.0	12.5	18.4	15.5	14.75	0.004
6.	Creative activity	DR	13.3	14.8	16.5	15.1	11.85	0.009
7.	Social utility	OD	12.9	13.7	15.3	13.7	11.23	0.011
<i>General everyday motivational focus (L, C, S, O)</i>			48.2	47.7	43.2	49.9	9.450	0.026
<i>Educational and professional focus (D, DR, OD)</i>			42.7	41.8	49.8	42.8	7.979	0.047

A comparative analysis of the “ideal” and “real” state of motives revealed (Table 4) a tendency to differences in the experimental group's Ch/BioE₁; Ph/MathE₂; Psy/PedE₃; Hist/PhilE₄ in the educational and professional field by indicators of the following scales. “General activity” (χ^2 -14.75; value -0.004), “Creative activity” (χ^2 -11.85; value -0.009), “Social utility” (χ^2 -11.23; value -0.011). These scales are represented by developing motives. The ideal state is defined as a motive-goal, that is, a focus on achieving something, this is the level of aspiration, intention. Data based on “general activity” indicate the importance of creating and doing good - this is typical for all students of experimental groups. The difference was found only in terms of motivation for acquiring knowledge, learning, and receiving material benefits, students were more pragmatic in this matter. The experimental groups showed low rates, which indicates a reluctance to strive for a good job, a position, and no desire to show their abilities.

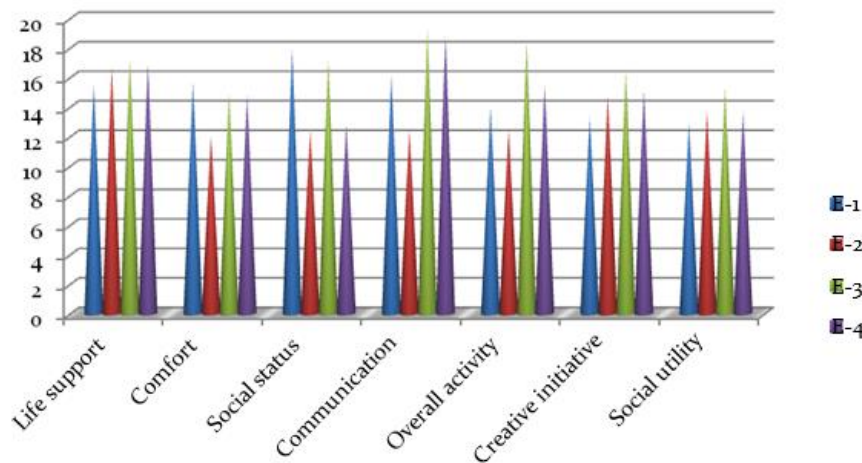
The data obtained on the sixth scale of “creative activity” express the following trends: the desire to invent new things, constantly improve, have a creative job, strive for high success and achievements.

All these trends are more pronounced among students of the Psychology and Pedagogy Faculty. Students of the Philology Faculty have this parameter insufficiently satisfied and not implemented. Indicators on the sixth scale “social utility” are expressed among students of the Psychology and Pedagogy Faculty, which means that students of the experimental group E-3 strive to do good, even if it is expensive, they want to do work that will benefit everyone. There was a slight discrepancy in the answer to the question about the sense of their usefulness, students of all specialties except psychology students found it difficult to answer this question. It should also be noted that students from all experimental groups wanted to gain the respect, prestige, and gratitude of others, but did not know how to do it.

It follows from the data provided in the Table that the experimental group E-3 - students of the Psychology and Pedagogy Faculty are characterized by higher indicators characterizing the desire for development, the desire to create new things, to take initiative, the desire to communicate, the manifestation of activity in socially useful activities, focus on the future, than for students of other experimental groups. Figure 5 shows the ratio of all scales identified by the diagnostics of the motivational frame of the personality of the students of experimental groups of pedagogical specialties.

Figure 5

Average values of educational and professional and everyday motivational focus of the students before the training

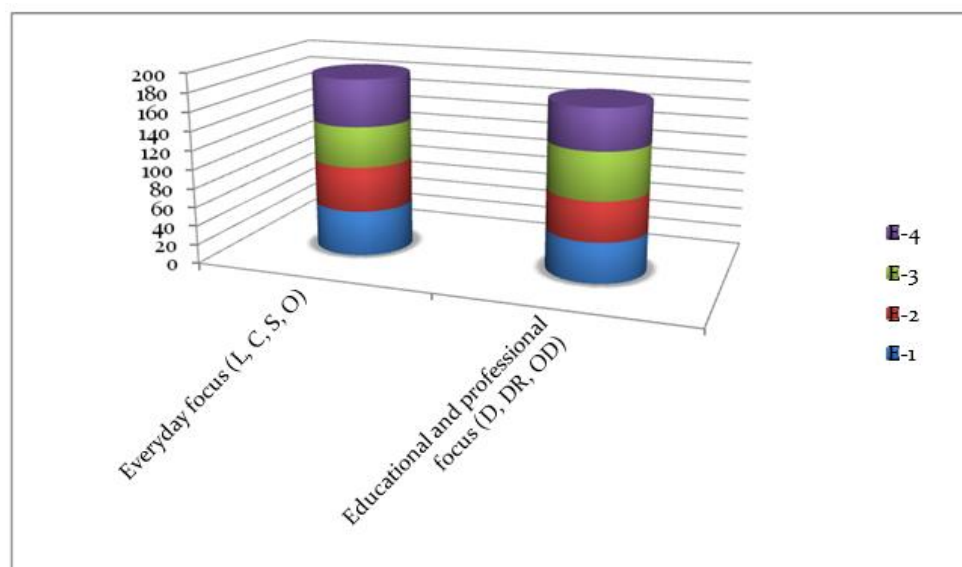


The high indicators demonstrated by the students of the Psychology and Pedagogy Faculty can be explained by the specific character of the training typical of these students. According to the goals and objectives of the psychological and pedagogical training: theoretical and practical mastering of the knowledge and methods of formation of communication and interaction with people under different conditions of their living environment. It should also be noted that studying at the Psychology and Pedagogy Faculty is aimed not only at mastering the ways of transforming the behavior and mindset of other people, but mainly at the ability to transform oneself. Therefore, according to the results of the experiments held, the third experimental group students (Psychology and Pedagogy Faculty students) have more developed sociability and communicative competence.

The study of motivational focus is important in terms of understanding the potential possibility of a student's personality development. Figure 6 shows the ratio of the everyday and educational and motivational focus of the students of experimental groups of pedagogical specialties.

Figure 6

Motivational profiles of the students in experimental groups before the training



A comparative analysis of the educational sphere of the “real” state of the motive demonstrates a tendency to the difference between the experimental groups in the everyday motivational focus according to the indicators of the following scales: “Maintenance of life support” (χ^2 - 10,99; value - 0,013), “Comfort” (χ^2 -10.99; value -0.013), “Social status” (χ^2 -9.440; value -0.026), “Communication” (χ^2 -7.969; value -0.047). Students of the third experimental group also demonstrate high values in this area. The resulting ratio expresses different attitudes to material wealth and health. If students find it difficult to study in their free time, this indicates a low level of motivation. The students spoke up for preventing conflicts, striving to provide themselves with a calm environment. The students want outdoor activities and entertainment, to work in a good and friendly team. Based upon their responses, the students of experimental groups of natural sciences faculties avoided active recreation but sought solitude. Many students chose the answers that it was necessary to work hard to get their place in the sun, they do strive for normal social climbing, and expressed a desire to be well-regarded and respected by others.

They tested students of the experimental group of the physics and mathematics faculty did not seek to establish new connections and acquaintances, for their authority and prestige held little meaning, they kept to themselves when in a team. According to the fourth “Communication” scale (19.2), the students of the Psychology and Pedagogy university showed a high level of communication, a desire to have many friends, expressed an optimistic attitude to life, wanted to have a good family, while the respondents of the experimental group of the Chemistry and Biology Faculty showed a reluctance to make special efforts in this regard, family traditions meant little to them. Thus, comparing the results obtained, it can be said that at the level of the stating experiment, the everyday motivational focus and educational and professional motivational focus of the students of experimental groups of pedagogical specialties stays at the stage of development.

The next step in professional motivation research we considered the formation of educational motivation since this type of motivation plays an important role in the professional training of future teachers. Educational motivation is influenced by many factors that enhance the effectiveness of the quality of higher education. Analyzing the motivational attitudes and the structure of the motivational sphere of the students of pedagogical specialties, it is important to identify those dominant motives that will reveal the true incentive aspects, answering the question of why a person has come to study

at a university, what goals he pursues, what kind of specialist he will become in the future. It is important to understand and remember that the motivational focus of a student not only determines his activity but runs through all areas of mental activity (Dementy, & Malenov, 2018).

In the process of using the methodology “Studying the motives of students educational activity”, we have studied and identified the features of educational and professional motivation of students through identification of the main motives: communicative, avoidance motives, prestige motives, professional, motives of creative activity, educational, cognitive and social motives (Rean,2001; Yakunin, 1994).

Students of experimental groups were invited to undergo a study by the methodology “Studying the motives of students educational activity” in two stages: the first stage was to evaluate each of the proposed motives in scores, the second one was to rank the presented motives. We evaluated the test questions based on a 5-score system: 1 score is for the minimum significance of the motive, 5 scores are for the maximum one. When processing the test results, the average value for each scale of the questionnaire was calculated.

As a result of the testing and ranking of the data obtained, we analyzed 7 motivational scales (Table 4).

Table 4
Quantitative characteristics of the educational motivation of the students of the experimental groups before the training

No.	Groups of motives	Average value				Compare	
		Ch/BioE ₁	Ph/MathE ₂	Psy/PedE ₃	Hist/PhilE ₄	χ^2	value
1.	Communicative motives	3.49	3.33	3.85	3.40	3.620	0.013
2.	Avoidance motives	4.88	4.56	4.17	4.63	2.520	0.023
3.	Prestige motives	3.34	2.85	3.98	3.09	3.320	0.014
4.	Professional motives	3.15	3.14	4.83	3.16	4.420	0.006
5.	Motives of creative self-realization	3.45	3.63	3.99	3.41	3.520	0.018
6.	Educational and cognitive motives	3.07	3.27	4.09	3.32	3.820	0.010
7.	Social motives	3.78	3.67	3.56	3.99	3.620	0.012

When studying the significance of the motives for the students of different faculties, the results were ranked, which showed the most significant and least significant motives within each experimental group of students. The results obtained allow concluding that avoidance motives and social motives occupy a larger place in the motivational structure of most students of the experimental groups (Table 7). Thus, we can conclude that professional, educational, and cognitive motives are at a low level. At the same time, these are exactly the motives that should be led during training at the university. The motives of creative self-realization and communicative motives are also at a low level.

Such indicators once again convince us of the need to form professional motivation that can motivate a future schoolteacher to demonstrate the desire for training and further self-development and professional growth. Based on the experimental data, the tested students of experimental groups were divided into three groups with different options for combining the degree of the occupational motivation criteria (Table 5).

Table 5
Distribution of the students in experimental groups by levels of the professional motivation formation

No.	Number of students, %			
	Ch/BioE ₁	Ph/MathE ₂	Psy/PedE ₃	Hist/PhilE ₄

	Professional motivation levels	Abs.	%	Abs.	%	Abs.	%	Abs.	%
1.	High	5	16.2 %	4	13.5 %	8	25 %	6	18.7 %
2.	Medium	12	36.9 %	12	37.6 %	14	43.7 %	10	31.2 %
	Low	15	46.9 %	16	48.9 %	10	31.2 %	16	48.9 %

The identified levels of professional motivation were identified by us as follows:

- 1) High level of professional motivation (this includes 16.2 % -E1; 13.5 % -E2; 25 % -E3; 18.7 % -E4).
- 2) The average level of professional motivation (36.9 % -E1; 37.6 % -E2; 43.7 % -E3; 31.2 % -E4).
- 3) Low level of professional motivation (46.9 % -E1; 48.9 % -E2; 31.2 % -E3; 48.9 % -E4).

The results of the establishing experiment on the study of the professional motivation of the experimental group students revealed the levels of professional motivation formation in experimental groups students:

According to the first experimental group of the students (Ch/BioE₁), 46.9 % (15 students) had a low level, 36.9 % (12 students) had an average level, and only 16.2 % (5 students) had a high level.

In the second experimental group of students (Ph/MathE₂), 48.9 % (16 students) showed the low level, 37.6 % (12 students) showed the average level, the high level was shown by 13.5 % (4 students).

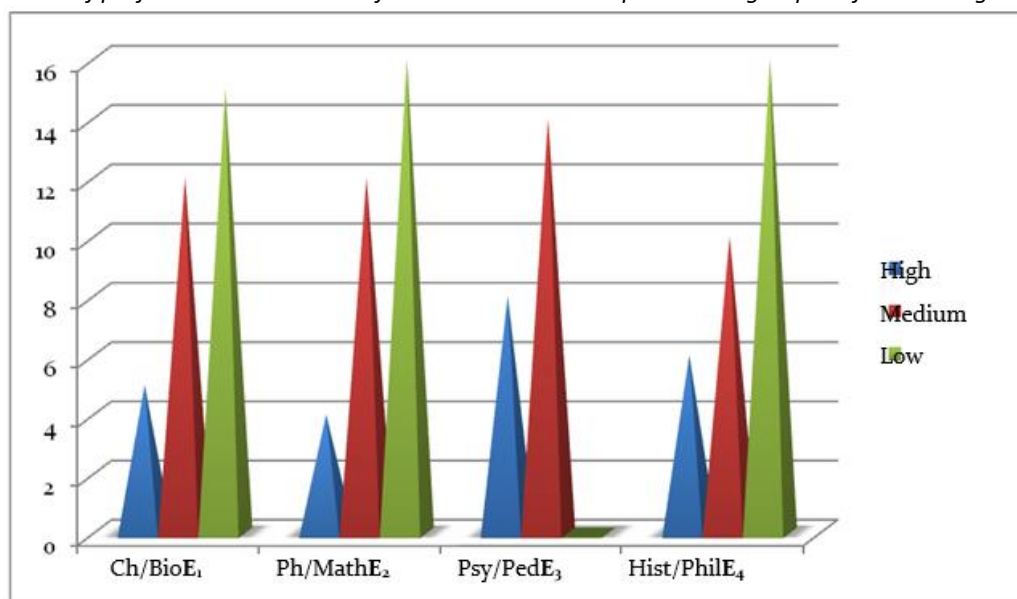
In the third experimental group (Psy/PedE₃), the low level of subjective control was shown by 31.2 % (10 students), the average level was shown by 43.7 % (14 students), the high level was shown by 25 % (8 students).

In the fourth experimental group (Hist/PhilE₄), the low level was shown by 48.9 % (16 students), the average level was shown by 31.2 % (10 students), and the high level was shown by 18.7 % (6 students).

The levels of professional motivation of experimental group students before the establishing experiment are graphically presented in Figure 7.

Figure 7

Levels of professional motivation of the students in the experimental groups before training



The psychological characteristics of each level of the formation of professional motivation were derived from the study of professional preferences, the structure of motivation, motivational focus,

individual typological characteristics, and communicative personality qualities of students of experimental groups of pedagogical specialties.

4. Discussion

At the present stage of higher pedagogical education development, the problem of future teachers' subject thinking, acquiring of skills, abilities, and knowledge of the subject specifics, assimilation of didactics, and tactics of training students are still in the focus. The attitude towards future teacher personalities, their motivational needs, which activate educational and professional activities, remains secondary. But after all, it is the future teacher professional motivation that determines and directs their activity in mastering professional knowledge and pedagogical activity skills.

The formation of a future teacher as a highly qualified specialist is possible only when he has the formed motivational and value attitude to his professional development (Markova et al., 1990). Motivation acts as a measure of the development of personality subjective psychological features and as a "motive-goal", fulfilling the educational activity itself with professional content (Ivanova, 2010). Verbitsky (1999) notes that the knowledge and skills acquired in the training process no longer act as a subject of training activity, but as a means of professional activity.

The point that the adoption of a profession generates a certain deterministic tendency and serves as the starting point for the activity psychological system formation is fundamental. Therefore, the process of the adoption of a profession includes an analysis of the motives which are essential for the professional activity. Training is not an impartial cognition, it is a subjectively significant comprehension of meaning, filled for the student with personal meanings, motives, values, attitudes recorded in his subjective experience. They are the driving forces of educational and professional activity (Ivanov, 1977).

The analysis performed at the stage of the establishing experiment made it possible to identify three levels of professional motivation of the students of experimental groups of pedagogical specialties

The **low level** of professional motivation formation is typical of the students focused on external negative motives (avoiding criticism, punishments), motivation of educational and professional activity is characterized by a hedonistic focus. For students of this group, consumer motives of pedagogical professional activity, which satisfy basic individual needs, are of great importance. The complex, hard work of a teacher, a high degree of responsibility, creative nature of the profession, constant state of activity, self-regulation, and self-improvement do not attract many students, but rather frighten and repel them from the pedagogical activity. Students with a low level of professional motivation did not strive for self-improvement, development, the realization of their abilities, and opportunities in professional activity (Frödén, 2021). In this regard, the educational and professional activity of students is determined by external motives. Due to the lack of self-regulation processes and the low level of motivation to achieve success, students of this group are characterized by low awareness of educational and professional goals, their insufficient detailing. The goals of training this group of students does not correspond to the ultimate goals of training at the pedagogical university. The values-based attitude to a teacher profession has not been formed. The educational and professional activity of these students is characterized by a low level of methodological, theoretical, practical, methodical types of readiness.

The **average level** of professional motivation formation has the following characteristics: it is characterized by a low level of internal motivation with a high value of positive external motivation and a high evaluation of consumer motives of the pedagogical activity. Material needs are the most important for them in their future professional activities. Professional plans are not more focused on carrying out professional activities, but on making a career, in connection with which special attention

is paid to the social significance of the teaching profession, obtaining a status of a specialist with higher education, the possibility of differentiated professional choices, narrow pedagogical specialization, etc (Afanasyev et al., 2019). Productive motivation, which contains moral motives, the desire to assist children, is at the middle level. In the teaching profession, students have an attractive opportunity to influence people, which offers the sublimation of the motive of power in their chosen professional activity. The educational and professional activity of this group of students is characterized by an average level of self-regulation. Seeking to acquire social status, career progression, students of this group are characterized by a low level of self-realization, interest in the content of the pedagogical activity, its values. This group of students is characterized by an average level of effectiveness of educational and professional activities, its implementation requires some time and effort.

A high level of professional motivation is characterized as follows: Predominance of internal motivation, interest in the pedagogical activity. External motives of professional activity play an insignificant role in the overall structure of professional motivation. The educational and professional activity of students is determined by productive motives that ensure the desire for high-quality acquisition of professional knowledge, self-realization in the future pedagogical activity, and its creative implementation, which is reflected in the high level of cognitive activity (Saidjalalova, 2020). Such students are characterized by progressive professional and personal development. The educational and professional activity of this group of students is characterized by a high level of self-regulation. They are characterized by an adequate assessment of their abilities and capabilities, setting educational and professional goals, and an optimal level of motivation for achievement.

5. Conclusion

Thus, the experimental study made it possible to distinguish the peculiarities of the formation of professional motivation of students of pedagogical specialties depending on the peculiarities of professional training. Features of professional motivation of future teachers will allow more successfully solving the problems of increasing the effectiveness of pedagogical education in the future: selecting students motivated to carry out the pedagogical activity; carrying out professional training of highly qualified specialists focused on self-realization in professional activities, self-improvement taking into account the individual characteristics of their professional motivation.

It should be noted that the results of studying the motivational aspects of professional training form the basis for further improvement of the learning process and self-development of an individual. The research results can be used to identify the categories of students depending on the motivation focus (with the dominance of external or internal motivation); to research the effectiveness of the training process in terms of finding reserves and ways to improve it.

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