

**ISCKMC 2020****International Scientific Congress «KNOWLEDGE, MAN AND CIVILIZATION»****COGNITIVE-OPERATIONAL READINESS OF FUTURE  
PSYCHOLOGISTS FOR PROFESSIONAL ACTIVITIES**

Nadezhda Parfenova (a)\*, Elena Mititsina (b), Oksana Akimova (c)

\*Corresponding author

(a) Pskov State University, Pskov, Russia, nadezhdaparfenova@yandex.ru,

(b) Pskov State University, Pskov, Russia, pskovprof@mail.ru,

(c) Pskov State University, Pskov, Russia, oksi-oksana@mail.ru

**Abstract**

Most studies on the implementation of a competence building approach in education focus on evaluating the results of learning by identifying the practical skills of students. At the same time, it is known that success depends not only on the actual level of training, but also on the belief in one's ability to put it into practice, i.e. the level of self-efficacy. The purpose of this article is to study cognitive-rational readiness of students to work (by the example of future psychologists), which combines the abilities and skills necessary to master professional technologies and confidence in their ability to apply them in practice. The study of objective indicators of the cognitive abilities of students used (n=230) IST Amthauer, Raven's Progressive Matrices, Rusalov's Questionnaire of Formal and Dynamic Individuality Properties. Standardized scale of self-efficacy has been developed for students' self-assessment of their professional competence level. Factor analysis has made it possible to summarize numerous indicators of professional competence in areas such as social interaction skills, analytics-synthetic abilities and experience in psycho-diagnostic examination, knowledge of psychological support technologies and self-regulation techniques. At the same time, a significant number of students showed a negative or uncertain attitude to the emerging competencies, which determines the need to restructure methodical ways of their formation.

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## 1. Introduction

In the system of higher education, the article outlines a serious problem between the focus on improving the quality of training of future competent specialists and the insufficiently developed concept of the competence approach, which is being introduced into the practice of higher education. This situation raises a number of particular problems that are relevant both for the teaching staff, administrative staff, and for students. The state educational policy in modern Russia is aimed at modernizing education, taking into account the integration processes in European education, which are implemented at the value, content, and technical levels. Researchers emphasize the role of meaningful integration of education, which is aimed at forming a common understanding of social, multicultural, linguistic, informational, subject competences of student youth. On the one hand, globalization in the education system strengthens the links between different models in educational environments. On the other hand, it contributes to the emergence of security risks for the existence of specialized educational programs aimed at the formation of a professionally competent specialist, taking into account the regional needs of the labor market. At the same time, for modern education all over the world, an important trend is to strengthen the orientation towards the subjective experience of a student, reflective analysis of emerging competencies, use of intellectual, creative resources, and cognitive activity in the learning process.

## 2. Problem Statement

Attempts to determine the role of a competence-based approach in modern society (Raven, 1984) led to an introduction of a competence-based approach into the higher education system, which has been actively implemented since the end of the 20th century, especially in the field of assessing quality of education (Mulder, 2014; Zvonnikov & Chelyshkova, 2009). Studies that prove the need to modernize education (Bidenko, 2004; Zeer et al., 2005) and define the basic concepts – “competence”, “professional competence” (Kaslow, 2004; Zimnyaya, 2004), allowed us (Parfenova, 2011) to formulate the definition of competence. It is a knowledge-based, intellectually, and personally-conditioned experience of a person's social and professional life, including operational, motivational, ethical, and social components. From the point of view of the competence-based approach, professional competence is understood as an integrative criterion for the quality of vocational training and as a personality trait, which is characterized by high quality of performance of labor functions, a culture of work and interpersonal communication, an ability to proactively and creatively solve professional problems.

After the accumulation of experience in practical implementation of the competence-based approach, opinions on the advisability of further improving educational programs from the position of forming a competent specialist remain contradictory. Some scientists doubt the prospect of further advancement of the competence-based approach in the education system (Westera, 2001) or consider it in general terms – as an internal readiness and integrative ability to successfully act in a problematic professional situation (Andreev, 2014). Other authors propose to use new methods and technologies for the development of cognitive, communicative, and personal activity of students to form a competent graduate in all areas of professional education (Odarich & Gavrilova, 2017; Sundeeva, 2016).

Based on the analysis of foreign and Russian studies of psychologists and teachers regarding phenomenology, structural and substantive characteristics of the category of “competence”, as well as their own research, the authors consider professional and personal competence as a multidimensional phenomenon. It reflects the ratio of value-motivational readiness (professional interests and inclinations, educational and professional motives, the importance of emerging professional competencies for future activities, professional expectations and intentions), cognitive-operational readiness (synthesis of knowledge and skills for mastering professional technologies in practical and scientific – research activity), emotional and personal readiness (activity and responsibility in the formation of professional competence, self-regulation of emotional states and properties). They form a holistic complex and contribute to the orientation of the subject of the educational environment towards the acquisition of professional experience and the implementation of their professional capabilities in future professional activities.

Each type of readiness included in the structure of professional competence implies the presence of structural components that imply the manifestation of more specific abilities in a more specific subject area of practical, pedagogical, scientific research that are realized when performing specialized labor functions.

Given the integrative nature of professional competence, the problem of diagnosing degree of its real development arises. Difficulties in determining the level of the operational competence component are gradually being solved by increasing practical orientation of the educational process and introducing expert assessments during monitoring. However, tracking changes in the personality components of competence is still difficult. At the same time, researchers note (Richardson et al., 2012) that it is the belief in one's own competence, and not the skills and abilities themselves, that acts as a motivating condition and determines the degree of perseverance in mastering, and later in the performance of specific professional actions. Thus, the success of the activity depends not only on the actual level of training, but also on the confidence in one's ability to implement it in practice, i.e. on the level of self-efficacy.

Following the author of the theory of self-efficacy, Bandura (1993), most researchers describe this construct as a cognitive determinant of self-regulation of activity and define it as a person's conviction that he has the ability to successfully carry out behavior and achieve a goal. There are works that highlight professional self-efficacy, which the authors understand as ideas about their professional competence (Mititsina, 2014; Timofeeva, 2015).

### **3. Research Questions**

The methodology of our study of professional competence is based on the system-subjective approach in psychology, on the theory of relations (Myasishchev, 1998). Myasishchev (1998) considers the relationship as a connection between the subject and the object, emphasizes its integrity, but at the same time sees the possibility of highlighting its individual aspects, which determine the differentiated interaction of a person with the world. Researchers also consider knowledge, skills and attitudes as part of competence (Kaslow, 2004), emphasize their integrative nature and develop methods of measurement, assessment and self-assessment (Kachlov et al., 2014), note that competence can combine knowledge,

professional experience, understanding in a specific area, the ability to apply knowledge and experience in specific activities (Krūmina & Mihailovs, 2017). Difficulties in the study of competence are noted by both Russian and foreign authors, they emphasize that competence acts as a cognitive structure that promotes certain behavior. On the operational side, it includes knowledge, skills, attitudes, metacognition, strategic thinking (Westera, 2001).

As a result of the analysis of the methodological approaches of foreign and Russian psychologists and teachers, we consider cognitive-operational readiness a system-forming component of professional competence, represented by the synthesis of knowledge and skills for the practical mastery of professional technologies, which are manifested in the ability and readiness for practical and research activities.

#### **4. Purpose of the Study**

The purpose of our research is to determine the cognitive-operational readiness of students for professional activity (using the example of future psychologists), which combines abilities and skills necessary to master professional technologies and confidence in their ability to apply them in practice.

#### **5. Research Methods**

Since professional development includes a large number of basic abilities, we used methods of Amthauer's TSI and Ravenn's Progressive Matrices for the study of objective indicators of cognitive abilities (humanitarian, mathematical, technical). Activity in the intellectual and communicative spheres was identified using the Questionnaire of Formal Dynamic Properties of Individuality developed by Rusalov.

For the subjective assessment by students of the degree of formation of their own basic professional competencies, students were presented with standardized scales of professional self-efficacy. These scales were developed in accordance with the list of professional competencies of the future psychologist based on the requirements of the state educational standard adopted in the Russian Federation. Scales ("Knowledge", "Skills", "Possession", "Ability and readiness for practical activity", "Ability and readiness for scientific research activity") were tested according to psychometric criteria for the effectiveness of psychodiagnostic tools (analysis of the frequency distribution by the integral indicator of the scale; study of internal consistency of indicators based on the alpha-Cronbach criterion; analysis of the internal structure of the scale and levels of generalization using factor analysis; analysis of the frequency distribution of empirical indicators included in the structure of the scale, clarifying the levels of generalization, as well as empirical indicators that additionally reveal the content of the scale).

The proposed measurement procedure is based on the theory of general systems and the probabilistic laws of reflexive forecast. It allowed us to reveal the positive, negative, uncertain attitude of students to emerging competencies and the degree of cognitive-operational readiness for future professional activity.

The study was conducted on a representative sample of 3rd and 4th year psychology students of the Pskov State University (2011, n = 112; 2019, n = 118).

## 6. Findings

Based on the results of monitoring with the help of factor analysis and the application of the statistical package SPSS 22.5 for Windows, we obtained ratio of the following generalized and specific components of students' cognitive-operational readiness. In 2011, as a generalized factor in the structure of professional competence of psychology students, 1 factor “Ability and readiness for future professional (practical and research) activities of a psychologist” (19.5 % of the variance) was identified, including the variables: ability and readiness in practice to implementation of interactive methods, psychological technologies focused on personal growth and health protection of individuals and groups (0.787); ability and readiness in research activities to conduct bibliographic and information retrieval work with the subsequent use of data in solving professional problems and preparing scientific articles, reports, conclusions (0.677), to participate in psychological research based on the application of general professional knowledge and skills in various scientific and scientific-practical areas of psychology (0.657); ability and readiness in practical activities for educational activities among the population in order to increase the level of psychological culture of society (0.643), ability and readiness in research activities to understand and formulate professional tasks in the field of research and practical activity (0.560), professionally profiled the use of modern computer technologies and the Internet system in practical professional activities (0.428); knowledge of the main approaches to the psychological impact on the individual, groups and communities (0.425). In 2019, the generalized factor is the 1st factor “Analytical and synthetic skills and experience of practical psychodiagnostic examination”.

(18.9 % of the variance), including the following variables: the ability to predict changes in the functioning of various components of the psyche in the norm (0.873) and with mental disorders (0.798), selection and application of psychodiagnostic techniques that are adequate to the goals, social position of respondents, followed by mathematical and statistical data processing and their interpretation (0.740), experience in psychoprophylactic and psychocorrectional classes (0.688), the ability to analyze psychological theories of personality from the standpoint of approaches existing in domestic and foreign science (0.627), observe and analyze the activities of a specialist psychologist in the implementation of psychological intervention and influence in order to optimize mental functioning individual, group, community in various fields of activity (0.581).

The presented data allow us to assert that during the implementation of the competence-based approach in the training of psychologists at Pskov State University during this period. There has been a shift in the contents of the generalized component of cognitive-operational readiness towards the practical content of activity. At the same time, the distribution of students by both factors described is almost identical in 2011 and 2019 and corresponds to the normal distribution. 28 % of students in 2011 and 22 % of students in 2019 showed a high degree of self-efficacy according to these factors. 28 % of respondents each have negative self-efficacy in the field of practical, research and psychodiagnostic activities of a psychologist. 44 % and 50 % of students (2011 and 2019 respectively) find it difficult to state with certainty both presence and absence of the ability and readiness for future professional activity (zone of uncertainty of reflexive judgments).

Second and less generalized factor is represented in both samples by cognitive-operational skills, but in the first sample they are aimed at interacting with others, in the second – primarily at self-

regulation and then at others. Cognitive-operational skills are interconnected with conceptual thinking ( $r = 0.742$ , at  $p \leq 0.01$ ), with activity in the intellectual sphere ( $r = 0.847$ , at  $p \leq 0.01$ ).

Factor 3 specifies the image of the research psychologist. Comparative analysis of diagnostics in 2011 and 2019 indicates that students are more actively using computer technologies and the Internet in psychological research. The penetration of information technology skills into the research activity of a psychologist is accompanied by a reliance on intellectual abilities. Significant interconnections of the third factor with indicators of non-verbal intelligence ( $r = 0.634$ ,  $p \leq 0.01$ ), reflecting the ability to perceive certain forms, grasp their features, character and mutual relations; with indicators of mathematical ability ( $r = 0.616$ ,  $p \leq 0.01$ ), requiring the ability to handle mathematical symbols and numbers; with indicators of spatial abilities ( $r = 0.534$ ,  $p \leq 0.05$ ), reflecting the technical orientation of intellectual abilities. General professional knowledge and skills in various scientific and practical areas of psychology complement the professional competence of a research psychologist based on the results of diagnostics in 2019 (factor 4).

The factors “Possession of practical technologies aimed at helping and supporting others”, “Knowledge of psychological phenomena” are specific characteristics of professional competence and do not require combinatorial abilities ( $r = -0.728$ , at  $p \leq 0.01$ ).

The level of self-efficacy for all factors except factor 1 in 2019 showed a greater degree of certainty compared to 2011. There is a significant decrease in the uncertainty of statements based on reflexive analysis regarding the specific components of professional competence “Cognitive-operational skills”, “Possession of practical technologies aimed at helping and supporting others” and “Knowledge of psychological phenomena and possession of self-regulation methods” (up to 33 %). On the contrary, there is an increase in the number of students who know the relevant technologies (30 %) and those who consider their professional competencies to be unformed (36 %). Such a distribution, testifying to the contradictory process of mastering and practicing skills and abilities, should alert teachers and strengthen the orientation towards practical technologies in teaching students.

## 7. Conclusion

Taking into account the accumulated practical experience in the scientific and educational environment, the article presents opposing views regarding the prospects for introducing the competence-based approach into the practice of education, which have been observed for two decades.

Our study allowed us to reveal a fairly pronounced dynamics in the ratio of the structural-level components of the cognitive-operational readiness of future psychologists based on the results of two measurements in 2011 and 2019. Based on the students' assessment of their professional self-efficacy in the field of various labor functions of a psychologist, it was proved that vocational training changes focused on practice the structure of the operational-cognitive readiness of a specialist. Generalized approaches in research activities are being replaced by more confident mastery of the skills of applied psychodiagnostic examination. The role of information technologies and the Internet in the implementation of professional activities is growing. In the process of helping a client, specialists pay more attention to self-regulation of their activities and mental states. The most significant correlations of the main factors of cognitive-operational readiness were shown with the intellectual abilities and activity of students in the intellectual sphere.

At the same time, the study revealed insufficiently high marks by many students of the main components of cognitive-operational readiness during the formation of professional competence, which indicates the need for further improvement of the competence-based approach methodology.

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