

**AMURCON 2021**  
**AmurCon 2021: International Scientific Conference****ANALYSIS OF THE POSSIBILITY OF CREATING A RESEARCH  
ENVIRONMENT FOR PEDAGOGICAL EDUCATION**

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**Abstract**

The implementation of the model of research education, the basic condition of which is the research educational environment of the university will form the willingness of the future teachers to perform their professional tasks successfully in schools that are in different socio-economic contexts. The article shows the results of two studies. The first to build the competence profile of the teacher-researcher considers the opinions of the heads of educational organizations of the Primorsky Territory. To build a competence profile, the focus group method was used, in which headteachers of the Primorsky Territory - curators of the "500+" project were involved. During the focus groups, the participants identified the key competencies that are formed within the framework of the research model of pedagogical education. The second one is related to the assessment of the potential for creating the necessary educational environment for the implementation of the research educational model. In the context of the second study, a cluster analysis of universities that were under the direction of the Ministry of Education of the Russian Federation was conducted. The data obtained during the first study show that there is a differentiation of universities that are under the direction of the Ministry of Education of the Russian Federation on such an indicator as to the potential to create the necessary educational environment for the implementation of the model of research education.

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## 1. Introduction

In our research (Nazarov et al., 2020, p.1) we mentioned that “professional motivation and the teacher's interest in the educational results of students is a key resource that allows educational organizations to minimize the existing inequality of educational opportunities for representatives of different social groups”.

In this article, we would like to continue the topic of training of teachers for the Far Eastern Federal District and Primorsky Krai particularly, paying attention to the fact that each general educational organization operates in a specific socio-cultural context. Therefore, it is important to pay attention to the problem of forming specific competencies (Burmistrova & Gushchina, 2018) in future teachers that will allow them to realize their professional potential not only in schools that are in favourable socio-economic conditions but also in those that are strongly influenced by negative factors (road and transport remoteness, territories with low economic potential, limited cultural and educational resources). We are talking about the teachers that can achieve higher educational results rather than results expected for a given system of conditions.

We proceed from the thesis that there is a need for a special educational environment in higher education institutions that provides training of teaching staff not only for "prosperous" schools but also for those that are in difficult social conditions. The implementation of the model of research pedagogical education, the basic condition of which is the research educational environment of the university, will form the wiliness of the future teacher to perform their professional tasks successfully in schools located in different socio-economic contexts (Bullough, 2012; Platonova et al., 2017).

A motivated teacher-researcher (Kalyar et al., 2018) will make a general educational organization significantly enrich its educational environment. As Savenkov (2018) mentions “a person with developed research abilities has better mobility both in the professional and social sphere. Being able to extract new information and assert that it is valid or not, a person is much less exposed to external destructive influence” (p. 66). Thus, such a teacher-researcher will be a resource for the school, reducing the influence of negative contextual factors. We are talking about resilience as a special characteristic of the school, which implies the prevention of the risks of low results in a negative social context (Bykova & Chirkina, 2020; Pinskaya, et al., 2018).

## 2. Problem Statement

Nowadays there is a significant number of scientific researches (Osipov & Matveeva, 2015) on the educational inequality caused by such features of the socio-economic context as road and transport remoteness, the low economic potential of the territory, and limited cultural and educational resources.

Frumin (2006) in his research analyzes the main approaches in educational policy aimed at reducing educational inequality. The "strong equality" strategy assumes that students' educational resources depend only on their natural characteristics.

This interpretation of equality of educational opportunities is close to the idea of resilient schools (Pinskaya et al., 2018) that are resistant to factors of disadvantage. In our opinion, the model of research

pedagogical education, the basic condition of which is the research educational environment of the university, is the best opportunity for the training of a teacher ready to work in such conditions.

The theoretical basis for the model of research education is the concept of the knowledge society by Peter Drucker, who identifies modern life as a "knowledge society" (as cited in Karpov, 2018a). Karpov (2018b) mentions that in this society, thinking of a product type, focused on the creation of scientific, technological, socio-economic and cultural innovations plays a crucial role. There is a transformation of education into such a form as research, which is a complex configuration of various educational environments that cultivate a special generative type of didactics (Karpov, 2020).

### **3. Research Questions**

Determination of the competence profile of a future teacher, taking into account the opinion of the main employer – the head of a general educational organization. To build a competence profile, the focus group method was used, in which headteachers of the Primorsky Territory - curators of the "500+" project were involved. The curators were divided into 12 groups (type of settlement\*type of school with low educational results). After that, the recommendations received during the discussion of the future teacher's set of competencies were combined into a united competence profile.

Is it possible based on empirical data to assert, that the key role in the training of future teachers should be given to the formation of those competencies that allow the implementation of the gnostic component of pedagogical activity?

Pedagogical universities that are under the direction of the Ministry of Education of the Russian Federation differ in their capabilities for implementing the model of research education. In this regard, a comparative analysis of educational institutions of higher education in the Russian Federation use open data of the system for monitoring the effectiveness of educational organizations of higher education.

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

During the research, two main objectives were set.

The teacher-researcher will solve their professional tasks in the specific conditions of the educational organization. Therefore, the implementation of the model of research pedagogical education cannot take place without considering the opinion of headteachers, whose task is to manage the personnel policy of their organization. In this case, making a competence profile of a future teacher, taking into account the opinion of the main employer – the head of a general educational organization, is an important condition to form the training programs for teacher-researchers.

Pedagogical universities that are under the direction of the Ministry of Education of the Russian Federation differ in their capabilities for implementing the model of research education. In this regard, a comparative analysis of educational institutions of higher education in the Russian Federation that use open data of the system for monitoring the effectiveness of educational organizations of higher education, data from the official websites of Russian universities, and statistical collections becomes relevant.

## 5. Research Methods

To build a competence profile, the focus group method was used, in which headteachers of the Primorsky Territory - curators of the "500+" project were involved. The total number of participants was 59 people. The curators were divided into 12 groups (type of settlement\*type of school with low educational results). After that, the recommendations received during the discussion of the future teacher's set of competencies were combined into a united competence profile.

In the context of the second study, a cluster analysis of universities that were under the direction of the Ministry of Education of the Russian Federation was conducted. The indicators such as the place in the National University Ranked by "Interfax", the average score of The Unified State Exam (USE), number of dissertation committees, number of dissertation committees in pedagogy and psychology, number of students of the educational program "Pedagogical Sciences". SPSS and Loginom software packages were used to process the data collected during the study.

## 6. Findings

As part of the first research objective, the competence profile of the teacher-researcher was compiled, taking into account the opinions of the head teachers of educational organizations of the Primorsky Territory. According to the participants of the focus group the future teacher should have the following components.

The key role in the training of the future teachers should be given to the formation of those competencies that allow the implementation of the gnostic component of pedagogical activity. This group included:

Whether the teacher is ready to assess critically their activities. The focus group participants emphasized the need for such abilities as "criticality" (Seryakova & Nikitovskaya, 2020), "ability to analyze pedagogical activity", "creativity". Head teachers also attributed to this group such qualities as "striving for self-development and self-education", "being mobile" and "pedagogical image".

Knowledge of the subject, as well as knowledge of pedagogy, psychology and teaching methods. Such formulations as "knowledge of your subject", "pedagogical technologies", "knowledge of age-related psychological characteristics of students" were used. The need to work with children with disabilities was emphasized, as well as the willingness to work in a modern digital educational environment.

The next important issues were the competencies that provided the communicative component of pedagogical activity: "the ability to establish relationships with students", "pedagogical tact", "oratorical skill".

The competencies related to organizational activity ("management") and constructive activity ("setting a goal", "forecasting", "planning") were also highlighted.

It is also noticed that the focus group participants put in the first place those competencies that were primarily related to the teacher's ability to carry out a critical analysis of their teaching activities. This assumes that such teachers have a searching productive activity (Strokova & Volosnikova, 2017) focused on gaining new knowledge. They should have a high level of independence in solving the

problems that arise in the educational process, be able to set research goals, be able to select the necessary tools for evaluation the results. All of this can be formed within the framework of the research education model.

As a result of the cluster analysis, five clusters were identified among the pedagogical universities of the Russian Federation, that differ according to following indicators: the place in the National University Ranking by “Interfax”, an average score of The Unified State Exam (USE) of first-year students, the number of dissertation committees, the number of dissertation committees in pedagogy and psychology, the number of students in specialized programs (the major “Education and Pedagogical Sciences”).

The first cluster is formed by 15.15% of pedagogical universities. The main characteristics are that there are no data on the place of universities in the national ranking, the USE score and the number of dissertation committee is the lowest.

The second cluster includes 45.45% of organizations. The average value of the cluster in the national ranking of universities is 283. The USE score is higher than in the first cluster. Moreover, the value of the indicator “the number of dissertation committees in pedagogy and psychology” is higher.

The third cluster includes 18.18% of universities. The positions in the national ranking of universities are similar with organizations from the second cluster. The USE score is also similar to the ones from the second cluster, but the number of dissertation committees, including committees on pedagogy and psychology, is higher.

There are 12,12% of pedagogical universities in the fourth cluster. There is a significant gap between universities from this cluster and the previous ones in terms of their place in the national ranking of universities. The average value of such indicators as the USE score, the number of dissertation committees and dissertation committees in pedagogy and psychology, is significantly higher.

The fifth cluster is formed by 9.09% pedagogical universities – the leaders in this group are Moscow State Pedagogical University, Herzen State Pedagogical University, Tomsk State Pedagogical University. They are included in the hundred universities in the national university ranking: the average value of the cluster is 58.8. USE score: average value 73.7. The number of dissertation committees: the average for the cluster is 12.3. The number of dissertation committees in pedagogy and psychology: the average value for the cluster is 6.3.

The universities of 3-5 clusters, the number of which is 40% of the sample, have the highest values according to the analyzed indicators. Among them 9, 09% (fifth cluster) are such leading universities as Moscow State Pedagogical University, The Herzen State Pedagogical University of Russia, Tomsk State Pedagogical University, which are at the level of the country's leading universities: they are among the hundred highest ranked universities in Russia (average value for the cluster - 58.8). Their average score of the USE is 73.7, they have more than 10 dissertation committees at a university (average value for a cluster - 12.3), about half of which are in pedagogy and psychology (the average for the cluster is 6.3).

Pedagogical universities of 3-5 clusters, as well as leading multidisciplinary universities, have the highest potential for creating a research educational environment, which we consider to be a necessary condition for forming a new generation of teachers that are willing to self-educate and solve professional problems in the context of the goals of the national project “Education”.

At the same time, about 60% of universities of the first or second cluster (that include educational organizations that are under the Ministry of Education) have a significant gap from the universities of 3-5 clusters. It may signify the problems of the development of the research educational environment, that are potentially forming the risk of not achieving the quality of teacher training required at the current stage.

## 7. Conclusion

“Any education system performs two interrelated functions: external (providing educational services) and internal (providing conditions for its own functioning and development). The education system is as effective in solving its strategic tasks as it is capable of creating conditions for its own functioning and development, which is especially important during periods of serious changes and accelerated development” (Martynenko et al., 2020, p. 90).

One of these conditions is the solution of problems related to the staffing of general educational organizations cannot take place without taking into account the problems associated with the quality of higher pedagogical education. “Pedagogical education refers to such socio-cultural phenomena that have a decisive influence on the development of all aspects of the life of society, region, country. This influence is carried out through a person whose high-quality education, upbringing and development are the main goal and subject of the activity of graduates of pedagogical universities” (Bondarevskaya, 2014, p. 74).

The formation of a future teacher's striving for self-education and willingness to perform professional tasks in a rapidly changing world will contribute to the implementation of the model of research pedagogical education, the basic condition of which is the research educational environment of the university. The set of “external” indicators in the universities’ activities can be used to characterize the potential of creation and development of such environment.

An example of such research education model is the Forum of Teachers-Innovators, organized and hosted by the Far Eastern Federal University (FEFU) in cooperation with the Ministry of Education of Primorsky Krai. At the Forum, the teachers of the region got acquainted with the simulator for learning English, as well as the application “Physics. Magnetism” and “Virtual laboratory for chemistry”.

Developments in the field of practical application of virtual reality in education create the conditions for a new type of pedagogical solutions. Therefore, FEFU is becoming not only the center for the development of the Far East in the field of virtual reality, but also contributes to better training of a new generation of teachers who are ready to work with the technologies of the future. Thus, the integration of teacher education into the research space of the federal university makes it possible for future teachers to take a fresh look at the teaching profession.

However, the analysis of the potential for creating a research environment for pedagogical education has shown that 40% of universities that implement pedagogical educational programs have the required potential to create a research educational environment as a condition for solving professional tasks in the context of the goals of the national project “Education”. In this regard, the issues considering the forms of interaction between the leading universities and those that belong to the 1-2 cluster appears.

For the successful implementation of such network interactions, it is important to solve the following tasks:

- What educational content should be filled in online educational programs of higher education institutions with different research potential and ability to accumulate it?
- What qualifications should be placed on teachers of such networked programs in order to successfully prepare future teachers, taking into account the competence profile of the teacher-researcher?
- The readiness of schools to implement the model of research education.

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