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Formation of the Future Teacher's Readiness for Project Activities based on the Educational Resource of the Innovative Infrastructure of Pedagogical Universities

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Abstract

The article is devoted to an urgent and largely new problem for Russian pedagogical education – the organization of project-based activities of future teachers using a specially created innovative infrastructure. Currently, multifunctional innovative infrastructures are being introduced to pedagogical universities virtually everywhere. The subject of the study is the organization of the process of formation of future teachers' readiness for project management, taking into account the specifics and educational opportunities of the innovative infrastructure. The initial basis for solving the problem is the substantiation of the competence structure of readiness for project activities in a set of key competencies of priority areas of professional training: project development; organization and methodological support of project work of schoolchildren; self-development by a future teacher of readiness for project activities. An expert assessment of the effectiveness of the subject-based learning and innovation infrastructure according to these priorities shows that the organization of the process of forming readiness for project activities faces problems of interdisciplinary integration and professional self-development of students. The paper shows that the solution to these problems involves the coordination of subject-based learning and innovation infrastructure using, firstly, an adequate logical and substantive basis for building interdisciplinary integration in each priority area, and secondly, group reflection on already completed project activities with an emphasis on the deficits of the competence structure of readiness for project-based activities.

Keywords: teacher's project activity, innovative infrastructure of a pedagogical university, competence structure of readiness for project-based activity, coordination of processes of formation of readiness for project activity, interdisciplinary integration, reflexive reconstruction of project activity.

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1. Introduction

The interest expressed to the problems of pedagogical design on the part of researchers and practical teachers is extremely high today. And this is not accidental. The most diverse pedagogical projects are actualized by complex processes of updating the socio-cultural sphere and regionalization of education, tasks of innovative development and modernization of educational organizations. The number of teachers and entire teaching teams engaged in innovation is constantly growing, which is directly related to pedagogical design. All this indicates that the quality of general education and the effectiveness of methodological tools for organizing project activities of schoolchildren are increasingly dependent on the readiness of teachers to plan and design projects.

Currently, significant results have been achieved in this area: the main tasks and content of the stages of pedagogical design have been identified (Beckett, 2002; Zhirkova, 2014; Kolesnikova, Gorchakova-Sibirskaya, 2005; Lazarev, Moskvin, 2019), the functions and potential of interdisciplinary interactions in the formation of teachers' readiness for project activities have been revealed (Busy`gina, Saraeva, 2011; González-Carrasco et al., 2016; Lazarev, Moskvin, 2019), the pedagogical conditions of the interrelation of project activities with other types of activities within the framework of teacher training of a particular profile are substantiated (Blomsø et al., 2023; Raeva, Asadullin, 2022), ways of including pedagogical projects and their fragments in the content of academic disciplines of various cycles are identified (Abramovskix, Smolenskaya, 2024; Knyaz`kova, 2013; Coleman, 1992), the consolidating capacity of collective project-based activity for the formation of a community in the field of teacher education are revealed (Jakhelln, Postholm, 2022), the methodological aspects of the process of motivating pedagogical planning and design in solving pedagogical problems are shown (Petra et al., 2017), etc.

At the same time, many key problems remain unresolved, including the problems of using the potential of the innovative infrastructure of pedagogical institutions (hereinafter referred to as the innovative infrastructure) to organize students' project-based activities in order to form and develop their professional competencies.

Currently, the innovative infrastructure based on pedagogical universities is used in various thematic areas of project-based activity: Moscow Pedagogical State University – Technomir (Pedagogicheskij..., 2024); Bashkir State Pedagogical University named after M. Akmulla – conducting the course "VR Development Technologies on the Varwin platform" (Texnopark..., 2024a); Novosibirsk State Pedagogical University – media polygon "Gamejam: Gaming practice in action": the development of media education and gamification (Texnopark..., 2024b); Ulyanovsk State Pedagogical University – development of theoretical, methodological and scientific methodological support for the processes of identifying and reducing professional and psychological deficits of a teacher using VR technologies (Texnopark..., 2024c), etc.

Despite its seemingly informal status, innovative infrastructure is an important part of the professional training of a future teacher and, with proper planning and organization, performs significant educational functions:

(1) expansion and consolidation of professional and pedagogical knowledge and skills in accordance with universal, general professional competencies in accordance with the requirements of the Federal State Educational Standard of Higher Education for such educational areas as 44.03.01 and 44.04.01 "Pedagogical education", 44.03.05 "Pedagogical education (with two training profiles)";

(2) systematization and structuring of project knowledge and skills in the experience of conceptual modeling of project-based activities and independent implementation of projects in the field of vocational education;

(3) creating conditions for mastering the functional-and-role content of project activities, which is fundamentally important for collective problem solving, including involving students and teachers from educational organizations;

(4) expanding the space for business and creative cooperation with researchers, teachers, practitioners, heads of educational organizations in the process of implementing various projects.

Many researchers point out to similar possibilities of the innovative infrastructure of a pedagogical university (Ryabova, 2012; Fomikh, 2023, etc.).

The most urgent problems of studying the educational resource of innovative infrastructure should, first of all, include the socio-cultural and vocational educational status of this kind of infrastructure; regulatory parameters of the innovative infrastructure of pedagogical universities

and priority directions of its development; approaches to modeling and forecasting of innovative infrastructure; conceptual foundations for the organization of project activities of future teachers; principles and conditions for the organization of joint activities future teachers and students in the implementation of projects; systematics of thematic clusters of design; modular structuring of clusters of project activities; meaningful content of clusters and cluster modules of project activities, etc.

In order to achieve a generalized understanding of the role and specifics of project activities in the training of future teachers based on the innovative infrastructure of a pedagogical university, it is necessary:

– First, to determine what constitutes a teacher's readiness for project activities, on which key professional competencies it relies;

– Secondly, to assess the interdisciplinary potential of the educational process and the possible contribution of innovative infrastructure to the formation and development of the future teacher's readiness for project activities. Note that without solving this problem, it is impossible to decide in which part of the implementation of certain projects can students rely on the potential of the educational process, and in which part can they rely on the potential of the innovative infrastructure.

2. Methodology

The research methodology is aimed at identifying the organizational foundations of the unity of two components of the process of professional training of future teachers for project activities – subject-based training within the framework of the higher pedagogical education program and the innovative infrastructure of a pedagogical university, taking into account its specifics and resource capabilities. The essence of the issue is, first of all, to identify the goal-functional setting of preparation for project activities (competence approach, method of value-semantic specification), the reduction of which allows one to assess the effectiveness of training in priority areas (the method of expert assessments), and then to carry out consistent coordination of various parts of the educational process (the method of conceptual modeling). The practical implementation of the planned approach is regulated based on specially developed logical and substantive foundations of interdisciplinary integration and a system of reflexive situations aimed at critical analysis and meaningful generalization of all stages of the completed project in the context of the tasks of professional training of a future teacher (integrative approach, method of decomposition and modeling of complex systems).

3. Discussion

Let's turn out attention to the category of readiness for practical activity. This category has a detailed argumentation as a value-oriented orientation of professional training of a modern teacher (Tyunnikov, 2013). Let's take notes of the main aspects.

Usually, goal-setting in the vocational education system occurs in the range of such concepts as professional competence, professional abilities, professional qualifications, professional mobility, motivation for innovation, the ability to make responsible decisions, professional knowledge, skills, and abilities. It is these concepts that can most often be found in the formulations of the target orientation of educational programs for the professional training of future teachers adopted today.

However, if we consider goal-setting from the perspective of socio-pedagogical requirements (requirements of social necessity and pedagogical expediency), then we should turn to the category of professional pedagogical readiness. This should be done, first of all, because the readiness of a modern teacher is actually a derivative of all the above-mentioned professional qualities. Consequently, in the general case, professional and pedagogical readiness appears as a set of basic (universal) and auxiliary competencies.

Researchers consider readiness as a complex holistic education, a dynamic phenomenon determined by internal and external factors; as a system of integrated structural components. In psychological and pedagogical works, there are two main approaches to understanding the structure of readiness: functional and personal. From the point of view of the functional approach (A.G. Kovalev, N.D. Levitov, V.A. etc) Readiness is defined as the pre-start activation of mental functions, and its structure correlates with the structure of a certain type of activity, including cognitive, emotional, motivational and volitional components. From the standpoint of a personal approach (V.A. Krutetsky, A.I. Shcherbakov, V.A. Slastenin, V.V. Stolin, etc.) readiness is

considered as the presence of personal prerequisites for the effective implementation of a certain activity, and its structure correlates with the structure of personality, including motivational, orientation, operational, volitional, evaluative, moral components.

Without departing far from the interpretations proposed by representatives of the personal approach, we will understand by the professional and pedagogical readiness of a teacher for project activity a certain synthesis of professionally significant abilities and needs that determine the quality of his professional functions. Readiness for design should be considered as a structural component of a teacher's qualification and, consequently, to form it in an independent status as a key factor of his socio-professional stability.

Currently, the curricula of the pedagogical bachelor's degree programs in the areas 44.03.01 “Pedagogical Education”, 44.03.05 “Pedagogical education (with two training profiles”) implemented by pedagogical universities include the module "Educational research and project activities" (15+ credits), focused on the formation of students' readiness for pedagogical design. The master's degree programs in the field of training 44.04.01 “Pedagogical education” include the discipline “Designing educational programs in educational organizations of various types”. Obviously, such disciplines (modules) of project content, especially at the initial stage of pedagogical education, play a significant role in the professional development of a future teacher.

At the same time, it is well-known that the formation of such a complex quality among students, such as professional and pedagogical readiness for project activities, cannot be limited only to the scope of tasks of individual disciplines or modules. To achieve the desired result, a specially organized structure of interdisciplinary integration is required. The main feature of such integration is that it should be based on a very specific logical and substantive basis and solve the tasks set at the proper level. Finding such a logical and meaningful basis is complicated by the fact that project activities and readiness for them have multiple characteristics.

It seems to us that the task of determining the logic and content of interdisciplinary integration should not be set at the level of an exhaustive enumeration of specific characteristics of readiness for project activities, but, above all, at the level of holistic personal and activity structures, which are professional competencies. And further, based on the substantive characteristics of specific professional competencies, consider them as the main units of interdisciplinary integration. Moreover, it is necessary to do this taking into account the interdisciplinary resource and subject learning, and the innovative infrastructure of the pedagogical university.

The structural and functional analysis of the teacher's professional and pedagogical readiness for project activity allows us to talk about three main forms of its practical implementation:

(1) project development (first of all, these are pedagogical projects related to the development of a system of pedagogical goals, the content of educational programs, educational technologies for a given purpose, teaching tools and pedagogical diagnostics, etc.);

(2) organization and methodological support of the project work of students of secondary schools;

(3) self-development of professional and pedagogical readiness for project activities.

Therefore, in the competence structure of a teacher's readiness for project activities, it is necessary to distinguish three relatively independent groups of professional competencies (PCs):

– PCs of a design and technological nature that ensure the development of projects;

– PCs of a didactic and methodological nature that ensure the construction and organization of project-based education for schoolchildren;

– Self-educational PCs that ensure self-development of readiness for project activities.

This distinction is prompted by the fact that the PCs of each group have distinctive professional functionality and their own logic in terms of practical implementation, which means that they have different effects on the professional and personal development of the future teacher. In particular, the activity of a teacher in organizing the project activities of schoolchildren involves special work to transfer them to the position of the subject of cognition, work and communication. This, in turn, involves teaching students how to plan project activities based on interdisciplinary interrelation, setting goals, organizing individual design stages, and evaluating the results obtained. Communication and exchange of experience with other design participants is also important. The very fact of the “dialogical” content of the project activity presupposes the active interaction of all project participants. Separately, it should be said about the PCs related to the reflection of the process and the result of project activities, which creates the necessary

prerequisites for the process of mutual development and self-development of each participant in the project.

Let's observe the competence structure of the teacher's readiness for project activities:

The first group includes PCs 1-5:

– PCs-1: mastery of the skills of value-semantic definition of project activities;
– PCs-2: knowledge of the information basis for project activities;
– PCs-3: knowledge of the operational basis for project activities;
– PCs-4: mastery of communication skills in project activities;
– PCs-5: proficiency in diagnosis of project activities.

The second group includes PCs 6-10:

– PCs-6: proficiency in modeling project activities;
– PCs-7: knowledge of project management organization;
– PCs-8: mastery of project management regulation;
– PCs-9: knowledge of project activity motivation;
– PCs-10: mastery of the skills of monitoring and evaluating project activities.

The third group consists of PCs 11-12:

– PCs-11: mastery of reflection of project activity;
–PCs-12: mastery of self-development skills of readiness for project activities.

The competence structure of readiness for project activities is formed, on the one hand, due to the very specific relationship of design procedures with other procedures for training future teachers and, above all, with the methodology of school education, and on the other, due to their figurative and conceptual reflection in the form of situations and scenarios that are fixed in professional pedagogical experience and the experience of professional self-development. At the same time, each direction of the formed readiness is based on its characteristic interdisciplinary integration, which is mastered in a logically ordered set of knowledge and operations.

The 1st priority is project development. This direction is designed to form students' design and technological PCs. The logical and substantive basis of interdisciplinary integration is project activity, its informational and operational content: functional and role positions, external and internal determinations, structure and content, methodology of organization and execution, methods and forms of design. It is important not only to put the necessary elements of project activity into professional training, but also to establish significant relationships between them. Depending on the tasks set and the problems that arise, the project activity describes the projected reality in three key meanings: the object of analysis, the object of modernization, and the object of management.

The projected reality is considered as an object of analysis in the characteristics of socio-cultural strategizing and, in this regard, from the standpoint of the socio-cultural significance of the readiness of a modern teacher for project activities. Interdisciplinary integration in this case forms practical and technological PCs for the future teacher with an emphasis on revealing the essential aspects of the design object, demonstrating its role and place in the system of professional functions, familiarization with the problems of predictive evaluation of design ideas and solutions.

An important feature of the projected reality as an object of modernization is that a constructive principle is introduced into it, aimed at its modeling and transformation, taking into account the peculiarities of external and internal factors. The PCs group being formed is directly related to the practical tasks of project activity and, consequently, to its informational and operational basis, including conceptual guidelines, methodological principles, empirical description of internal and external factors, analytical, search and design schemes, methods and techniques for upgrading various facilities.

As an object of management, the projected reality reveals itself in the characteristics of planning, organization, control and development according to its changes over time. At the same time, the integrative interactions of subject-based learning, pedagogical practices and research work of students focus on the formation of practical and technological PCs, taking into account the problems of project development management.

The 2nd priority is the organization and methodological support of the project work of schoolchildren. The interdisciplinary process of formation of didactic and methodological PCs is being developed on the logical and substantive basis of pedagogical activities for the organization and methodological support of project activities of schoolchildren. And there is a significant difference here. Project activity is considered pedagogical as an object of didactic and methodological implementation. In this case, interdisciplinary integration changes its perspective,

since the main thing is to demonstrate the features of the practical use of project activities for pedagogical purposes, in educational, methodological and logistical resources necessary to obtain the required pedagogical result. The purposeful formulation and solution of the tasks of organizing and teaching students project activities involves the creation of the necessary conditions for the development of professional readiness of future teachers in a methodological sense.

The 3rd priority is self-development of readiness for project activities. This direction is designed to form students' self-educational PCs. The logical and meaningful basis of interdisciplinary integration in this case is the reflective activity of students, centered on the process and results of a previously completed project. The tasks of professional self-development close the process of forming a future teacher's readiness for project activities. With proper organization, this area performs an important structure-forming function in coordinating PCs with each other. PCs for project development and PCs for organizing project activities of schoolchildren are complemented by PCs for self-development of readiness for project activities precisely in the key of the integrity of the formed readiness. In particular, the information obtained during self-analysis allows students to draw more reasonable conclusions about possible gaps in their project activities and plan further steps to overcome them. In the process of purposeful self-education, the content of preparation for project activities appears as a system of knowledge and actions that is methodologically enriched with methods of introspection and self-control.

What are the characteristic features of the process of forming readiness for project activities in the context of subject-based learning and in the context of innovative infrastructure?

In subject-based learning, the logic of forming students' professional and pedagogical readiness for project activities is based on the principle of “from part to whole”, in other words, from individual elements of the PCs to the integral structure of professional and pedagogical readiness for project activities. In order for academic disciplines to merge into a single content, they must have a common object of formation, including its specific properties, functions, mechanisms, patterns, etc.

In the context of an innovative infrastructure, the logic of formation and development of readiness for project activities is fundamentally different here – "from the whole to the part", since students from the very beginning, as they say, from the first steps of immersion in the project get a fairly complete idea of what information and operational elements of project activities are necessary for successful work on the project. In this case, the processes of formation of didactic-methodical and self-educational PCs are superimposed on the logic "from the whole to the part".

It should be noted that, obviously, in this case, junior and senior students will be in completely different conditions when working with the project. This circumstance must be taken into account when organizing methodological support for project activities.

In order to identify and analyze the impact of the subject-based learning system and the impact of innovative infrastructure on the process of forming students' readiness for project activities, it is necessary, first of all, to assess the level of formation of those PCs that are necessary for the implementation of this readiness. To do this, it is necessary to develop a logical and semantic construct that establishes dependencies between professional competencies and functional signs of the formed readiness. Each such dependence reveals the readiness for project activity in a certain aspect, from the most significant side for solving a particular practical task (Figure 1).

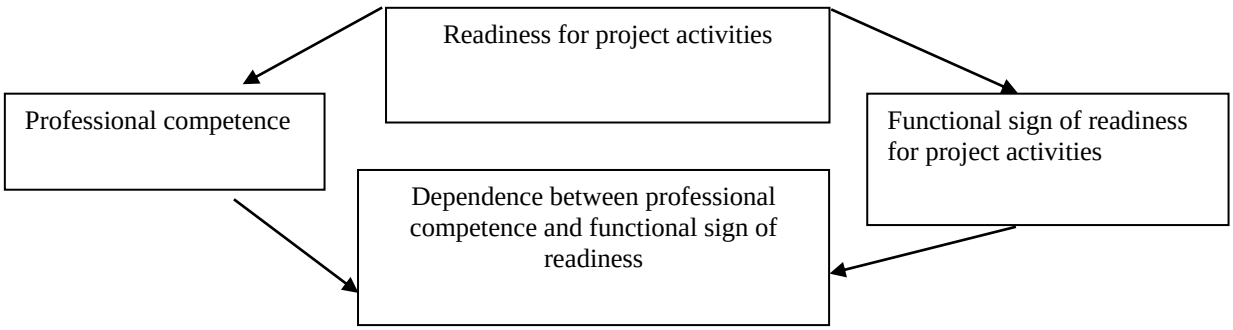

Fig. 1. Logical-semantic construct for diagnosing the competency structure of readiness for project activities

An important feature of the logical and semantic construct should be emphasized. The selection of the most significant essential feature allows not only to reduce the overall set of PCs characteristics and thereby avoid undesirable redundancy when considering them, but also significantly simplify the procedure of the analysis.

Here are the dependencies between the PCs and the essential signs of professional and pedagogical readiness, which, in our opinion, are crucial for assessing the impact of the subject-based learning system and the impact of the innovative structure of a pedagogical university on the training of future teachers in this field.

Dependencies of the first group of PCs:

– mastery of the skills of value-semantic definition of project activity – building the concept of project activity;

– knowledge of the information basis of project activities – a systematic description of the project object;

– knowledge of the operational basis of project activity – transformation of the project object;

– mastery of communication skills of project activities – exchange of experience in project activities;

– knowledge of diagnostic skills of project activities – assessment of the quality and result of project activities.

Dependencies of the second group of PCs:

– mastery in modeling project activities – definition of the logical structure of project activities;

– mastery in the organization of project activities – organization of teamwork;

– mastery of the skills of regulating project activities – creating an atmosphere of collective creativity;

– knowledge of project activity motivation skills – stimulation of project activity;

– proficiency in the control and evaluation of project activities – identification of barriers to project activities.

Dependencies of the third group of PCs:

– mastery of the skills of reflection of project activities – generalization of the results of self-reflection of project activities;

– mastery of self–development skills of readiness for project activities – determining the priorities of professional self-development.

4. Results

As an illustration, we present the results of an expert assessment of the competence structure of the readiness of future teachers for project activities, obtained in pedagogical universities of 9 territories of the Russian Federation (Altai Region, Amur Region, Volgograd Region, Krasnoyarsk Territory, Moscow, Sverdlovsk Region, Tula Region, Chechen Republic, Yaroslavl Region) (Table 1 and Figure 2). The selection of experts is carried out according to the methodological recommendations (Cherepanov, 2006). The expert assessment is performed on a 6-point scale in the range of values from 0.0 to 5.0. The results of the examination of the potential of the subject-based learning system and the potential of the innovative infrastructure of the pedagogical university are reflected in the petal diagram. The obtained results of the expert assessment, in our opinion, allow us to conduct a comparative analysis of the extent to which students' readiness for project activities is formed through the integration of subject-based learning, and to what extent through the resources of the innovative infrastructure of the pedagogical university, and in this regard to talk about their specifics, as well as about the work that needs to be done to eliminate the gaps.

Table 1. Results of an expert assessment of the competency structure of future teachers' readiness for project activities

Level of Professional Competences formation	Professional competencies in the structure of students' readiness for project activities											
	PCs 1	PCs 2	PCs 3	PCs 4	PCs 5	PCs 6	PCs 7	PCs 8	PCs 9	PCs 10	PCs 11	PCs 12

Level of PC formation in subject training	4,19	4,19	4,02	4,21	3,86	3,81	4,02	3,93	4,07	3,93	3,90	3,93
Level of PC formation in the innovation infrastructure pedagogical university	4,05	4,31	4,12	4,29	4,14	4,19	4,24	4,02	4,12	4,19	4,21	4,29

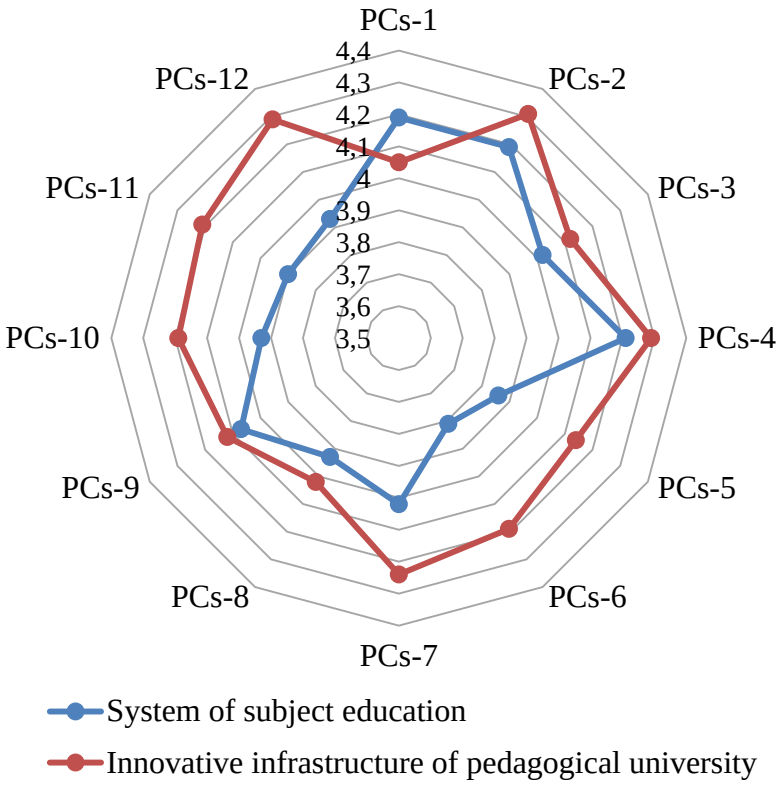

Fig. 2. Diagram of the influence of Professional Competences on the readiness of a future teacher to project activities in the conditions of subject teaching and in the conditions of the innovative infrastructure of a pedagogical university

The first thing that attracts attention is the problem of interdisciplinary integration, since there is a certain gap between the PCs being formed.

We are talking about the gaps of design-technological, didactic-methodological and self-educational PCs in the competence structure of project activities. Expert assessments show that the previously mentioned modules and disciplines on pedagogical design and, in general, interdisciplinary integration currently do not adequately ensure the formation of professional and pedagogical experience in project activities. First of all, this concerns design and technological elements and elements of conceptual representation of situations and design scenarios (for subject-based learning PCs-3, PCs-5, respectively, d3 = 4.02, d5 = 3.86; for innovative infrastructure PCs-3, PCs-5, respectively, d^i3 = 4.12, d^i5 = 4.14). In this regard, it should be noted that for a future teacher, it is not the methodology and technology of project activity in general that are important, but specific procedures, methods and techniques that can be used in their practical work. Of course, the established educational practice has a negative impact on the motivational and target orientation of project activities, algorithms and heuristic mechanisms for modeling socio-cultural and psychological-pedagogical reality. Experts note the low level of formation of didactic and methodological PCs related to the organization and modeling of project activities of schoolchildren (for subject learning PCs-6, PCs-8 and PCs-10, respectively, d6 = 3.81, d8 = 3.93 and d10 = 3.93; for innovative infrastructure PCs-8, PCs-9, respectively, d^i8 = 4.02 и d^i9 = 4.12).

Another central problem is the gap in the level of formation of those PCs on which the self–development of students' professional and pedagogical readiness for project activities depends (for subject-based learning, PCs -11, PCs -12, respectively, $d^i1 = 3.90$, $d^i2 = 3.93$; for innovative infrastructure, PCs-11, PCs-12, respectively, $d^i11 = 4.21$, $d^i12 = 4.29$). In this regard, it can be concluded that in the context of subject-based education, targeted work in this area of professional training is not carried out with enough efficiency.

Thus, the task of additional coordination of subject-based education with innovative infrastructure is put on the agenda. To solve this task, it is necessary to supplement the organization of project activities with special procedures that optimize interdisciplinary integration, primarily for those PCs that, due to low formation, prevent the transition of readiness for project activities to a new level of development. In this case, semantic configurations are used in each individual step of the design solution with internal support for integral units of interdisciplinary interconnection.

At the same time, it is necessary to create conditions for thorough self-analysis and self-assessment by students of the experience they have already acquired. We are talking about a system of reflexive situations for the reconstruction of a previously completed design. Interacting with each other, like Lego blocks, such situations form semantic structures that restore the logic and content of not only individual stages or fragments of project activity, but also the entire design process in a characteristic set of applied knowledge and skills. Moreover, this is done directly under the conditions of an innovative infrastructure in the form of group reflection and by means of meaningful generalization, which serves as an important prerequisite for overcoming those gaps in the PCs that have a low level of formation. As our research shows, it is necessary to include in the set of reflexive situations:

– the situation of re-actualization of project activities. In this situation, students' reflection is focused on evaluating and analyzing the significance of the project. It is necessary to turn once again to the relevance of the project and restore the procedures by which the trends and factors influencing its choice (pedagogical, psychological, socio-cultural, economic, technological, etc.) were determined;

– the situation of restructuring project activities. Students' reflection in this situation is directed to self-assessment of the implementation of individual stages of the project; to self-assessment of the experience of owning a set of principles, methods and algorithms for organizing and methodological support of students' work on projects;

– the situation of reintegration of project activities. In a situation of reintegration, students recover and evaluate specific actions that are directly relevant to determining the interdisciplinary content of individual design stages. Students give a detailed self-assessment of how to develop a project based on the interrelation of various disciplines, ways of interdisciplinary integration in modeling and methodological support of project activities of schoolchildren;

– the situation of reception of readiness for project activities. The focus of the situation is on the knowledge and skills of students necessary to increase the effectiveness of design-technological, didactic-modeling, methodological and self-educational PCs.

We present the centralization of reflexive situations to fill the gaps in the competence structure of readiness for project activities in order to organize students' work on professional self-development (Table 2).

Table 2. The focus of reflexive situations to overcome gaps in the competence structure of readiness for project activities (based on the results of an expert assessment of pedagogical universities of 9 territories of the Russian Federation (Altai Region, Amur Region, Volgograd Region, Krasnoyarsk Territory, Moscow, Sverdlovsk Region, Tula Region, Chechen Republic, Yaroslavl Region)

Composition of reflexive situations in the logic of reconstruction of project activities	Focus of reflexive situations on overcoming gaps in the competence structure of readiness for project activities		
	Focus on design and technological PCs	Focus on didactic and methodological PCs	Focus on self-educational PCs

situation of re-actualization of project activities	PCs-1	PCs-6, PCs-8, PCs-10	PCs-11
situation of restructuring project activities	PCs-3, PCs-5	PCs-8, PCs-9	PCs-11
situation of project activity reintegration	PCs-3, PCs-5	PCs-8, PCs-9	PCs-12
situation of reception of readiness for project activities	PCs-3, PCs-5	PCs-8, PCs-9	PCs-12

Work on the reconstruction of previously completed project activities is organized in the form of group reflection with the involvement of all project participants (students, professional researchers, teachers and students of educational organizations, etc.). During the group discussion, students summarize the methods of project activity at all stages of project work, develop the ability to analyze and evaluate their own actions and the actions of other project participants. At the same time, individual and group reflection processes merge, since work takes place with each participant individually and with the group as a whole.

5. Conclusion

The above-mentioned ideas allow us to draw certain conclusions. In the competence structure of the readiness of future teachers for project activities, there are significant gaps in the PCs of a design-technological, didactic-methodological and self-educational nature. The main reason for low indicators is that of the full set of tasks of professional training of students for project activities, only those tasks that are directly related to the practice of developing the projects themselves are more or less successfully implemented. An important prerequisite for overcoming these shortcomings is the design and organizational coordination of the tasks of interdisciplinary integration, implemented in the context of subject-based learning and in the context of the innovative infrastructure of a pedagogical university. It is necessary to do this, first of all, due to a certain coordination of educational and organizational tasks in three priority areas of training future teachers for project activities – project development; organization and methodological support of project work of schoolchildren; self-development of readiness for project activities. The key importance for coordinating priorities among themselves is the adjustment of the process of forming the competence structure of readiness for project activities using an adequate logical and substantive basis for interdisciplinary integration, as well as the reconstruction of project activities in a special set of reflexive situations.

It is precisely this understanding of the resource capabilities of the innovative infrastructure of a pedagogical university and its relationship with the tasks of subject-based learning that seems to be the most adequate, since it sets the conditions under which the organization of project activities begins to function effectively and, therefore, can ensure the solution of the tasks set in a more complete manner.

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