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SOCIAL PARADIGM OF RUSSIAN FLAGSHIP UNIVERSITIES

N.A. Knyazev (a)*, R.G. Buyankina (b), R.A. Zukov (c), S.Y. Piskorskaya (d)

*Corresponding author

(a) Resetnev Siberian State University of Science and Technology, prospect imeni gazety "Krasnoarskii rabochii",
31, Krasnoyarsk, Russia, 660037, email: knyazev@sibsau.ru, tel. 8-960-774-47-13

(b) , Krasnoyarsk State Medical University named after Prof. V.F. Voino-Yasenetsky, Partizana Zheleznika St., 1,
Krasnoyarsk, Russia, 660022, email: buyankinar@mail.ru

(c) Krasnoyarsk State Medical University named after Prof. V.F. Voino-Yasenetsky, Partizana Zheleznika St., 1,
Krasnoyarsk, Russia, 660022, email: zukov_rus@mail.ru

(d) Resetnev Siberian State University of Science and Technology, prospect imeni gazety "Krasnoarskii rabochii",
31, Krasnoyarsk, Russia, 660037, email: piskorskayasu@sibsau.ru

Abstract

This paper explores the social nature of the Russian flagship university, a new player in the process of regional innovative development. This type of university is meant to implement close interaction among higher education institutions and government, society, and entrepreneurship. In the context of the growing social role of the newest social practices, there is, inevitably, a reassessment of research approaches, the search for effective means and promising trends in the field of building and managing complex social structures. In this context, the paradigmatic approach has now proven itself as an influential research trend. It has become particularly applicable for analyzing so called 'creative collectives' (usually research and development teams that are capable of developing their own innovative products and strategies). The objective of this paper is to reveal the social and cognitive foundations of the Russian flagship university. We intend to determine the functional role of its research and educational activities in the overall innovative development of the Russian region. This study is characterized by the relevance of the topic and the absence of modern systematic investigations. The methodology for exploring the paradigmatic nature of the flagship university is based on the theory of the postindustrial development of society and the principle of interaction between the cross-sectoral and interdisciplinary types of integration of scientific and engineering knowledge.

The active participation of flagship universities in solving the issue of social engineering determines its special status. University staff is responsible for substantiating communication, distributing information flows for the newest social practices.

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1. Introduction

Current advances in social reality, particularly in the context of increasing influence of the diversity of its newest social practices, increasingly dictate the need for new approaches in research. This is due to the methodological need for the constantly accumulating scientific and numerical potential of certain creative groups (or collectives), large and small scientific teams, which are engaged in new research and development projects. A paradigmatic research approach is now emerging as one such influential trend. Its relevance is related to the specifics of the activities of creative teams that are able to independently develop their own scientific strategies. Such collectives are in a state of justified expectation to develop the latest methodological proposals from the social engineering theorists. In these expected methodological proposals, adequate science subjects, adequate methods and methods for their investigation (including in relation to the same studied objects) should be formulated. The socio-economic position of countries in the modern world largely depends on the level of their innovative development, on their ability to respond quickly to the emergence of ever-new types of social practices generated by the dynamics of technological development and global informatization processes.

A special place in the solution of this state task is given to higher education, training of engineering personnel. To this end, major universities have been transformed into so-called flagship universities. The flagship university is an element in the regional innovation system, having an objective of organising close interaction among higher education and the government, society, economy, and entrepreneurship. Unlike other types of universities, the flagship university coordinates the processes of building up the engineering potential of the region as a whole and improving the standards of living using modern science and educational technologies.

We understand the paradigm as a stable conceptual structure that is accepted by all members of a creative team and who support long-term scientific traditions in the team. A careful examination of academic literature allows us to enrich the theoretical arsenal of the paradigmatic research approach in its principle and bring its disparate characteristics into the system. The result of our study is expressed in the following points, which form the basis of the social content of the flagship university paradigm:

- stable functional interactions between the flagship university and the system of economic and socio-cultural management of the region's innovative development;
- implementation by the flagship university of a complex of interdisciplinary and cross-sectoral interactions both in the field of scientific and educational technologies, and in the relationship with the social and economic structures of the region;
- implementation of the interactive principle of the university's relationship with its socio-economic environment, which is a process of joint knowledge generation and mutual learning.

The active participation of the flagship university in the virtual space of business information enables us to determine its special status. The university prioritizes the approach, which stimulates learning areas of communication, in which information flows are directed so that they provide a responsible and constructive process of the formation of the newest social practices.

2. Problem Statement

Let us consider that the social nature of flagship universities, which have been established to coordinate all the innovative activities in a certain region, is an urgent and complex issue that has immediate effect on the development of the region's engineering potential and an array of novel practices. This aspect of the university as an institution has not yet been fully discussed in academic literature. Among the more important problematic aspects of this activity is the study of the social (subjective) foundation of the relation of the flagship university to the diversity of the economic and multidisciplinary environment of a region. Currently, this environment is becoming more complicated. The relationship between this environment and the university should be a subject of specialized theoretical research. The university should find its designated place in mechanisms regulating scientific activity, which should manage the manifold process of generating and using data.

Another important corpus of investigation tasks is discussed in a novel setting and a new solution for the research and methodological problems relevant to the topic of the interactive relations between the different types of integration in various interdisciplinary and cooperation between different industries.

3. Research Questions

The flagship university is a complex structure being an object for social investigation. The content of this structure is conditioned by the integrative relationship of higher education with the region's government, society, and economy. The solution of contextual issues of this relationship provides the foundation for building optimal relations between creative collectives as well as the search for methods of their interrelation depending on the selected synthesis for contacting with various business groups, educational facilities, and other types of contact. We have focused on these issues in our earlier publications, drawing certain conclusions from the conducted research (Knyazev, Buyankina, & Zukov., 2017; Knyazev, Buyankina, & Savelyeva, 2018). However, these studies paid attention to only two aspects. The first aspect consists in the revealing with the help of a paradigm-based research approach of such functional parameters that are typical for each specific university. The second aspect relates to the objective cohesion between knowledge necessary for the realization of regional projects and knowledge obtained during the course of studying in a higher education institution; this includes both professional skills and fundamental courses. The evolution of finding solutions for research tasks is seen in the systematic studying of academic materials relevant to interdisciplinary and multilevel integration, which involves tasks from various areas of local industry. Concerning the aspect of a research approach that is based on paradigm, we find it necessary to search for a solution to determine the subjective foundations of the flagship university. A paradigm is understood as a stable conceptual structure, which is accepted by the community of a specific group, which is engaged in the process of research or manufacturing; the paradigm guarantees a lasting tradition of scientific or academic research.

The subject foundation for the foundation of a flagship university is a designated theme for academic discussion. The paradigmatic research approach reveals the real potential and true capabilities, based upon the subjective factor, to enable cognitive and social integration in terms of interdisciplinary academic collectives and innovative activities.

A principally novel scientific and methodological approach in such research groups (or collectives) is related to activities that enable us to examine the interdisciplinary and cross-sectoral integration as a process of joint production of knowledge and mutual learning. Particular attention is paid to the study of social practices in the aspect of the mechanisms in them in the formation of individual scientific and technological groups that are able to independently develop integration strategies. It is assumed that in such strategies two variants of integration relations should be reflected. In one of them, the principle of planning models of preliminary interdisciplinary discourse is being implemented, and in the other, preference is given to searching for beneficial cooperation with large research organizations operating on either a budgetary or commercial basis.

The solution of the research problems formulated by us should help to identify fundamental changes in the sphere of interaction between scientific knowledge and information. These changes will positively affect the innovative state of social practices. Such results are important in the aspect of developing higher education and improving the quality of life of the population. The methodological criterion for obtaining these results is the provision that scientific knowledge has now become the basis for the production and consumption of information for technological purposes.

4. Purpose of the Study

The purpose of this paper is to reveal the main provisions of the social paradigm of the phenomena of flagship universities in Russia, to determine the functional role of its research and educational activities in the entire innovation process of the region's development. Understanding the scientific and educational functions of this type of university, which plays the role of a coordinating link in relation to the innovative activities of the region, is a necessary aspect of the development of engineering education. A problematic study of the flagship university in a broad systematic format has not yet been available in Russian publications.

5. Research Methods

The methodology of the research is based on the theory of the postindustrial type of society and its central concept - the 'information society'. The paper also applies interdisciplinary, systemic and structural-functional approaches for disclosing the essence of the analyzed phenomena of the flagship university. This research methodology has been chosen in accordance with one of the priorities – the domination of interdisciplinary and interdisciplinary types of integration in the development of scientific and engineering knowledge.

6. Findings

The social foundations of the relationships between the flagship university and the cross-sectoral and interdisciplinary processes of the dynamically developing region has become a key factor in understanding the essence of the complex integrations that occur in the system of forming the newest social practices. The subject factor of the whole system of multilateral relations of the flagship university now determines the main directions of communication, according to which information flows take their place in the process of forming novel social practices.

To denote this particular and fundamentally important subject of our research, we use the term 'subject basis'. It records the whole aggregate of integration interactions of the flagship university. The subject basis of interdisciplinary and cross-sectoral relations of the flagship university in the conditions of the dynamic development of the region has become a key factor in understanding the essence of various complex integrations, occurring in the system of new social practices.

An analysis of literature on this topic has helped us to determine the main characteristics of the social paradigm of the flagship university.

In this connection, attention is drawn to a study conducted by a group of German academicians (Kröger & Schäfer, 2016). In their paper, the term 'scenarios' is used to represent a model of the primary stage of nucleation in typical situations of interdisciplinary integration. In the term 'scenarios' it is not difficult to find properties that are related to the notion of 'paradigm'. For example, in the formulation of the research task for which the 'scenario' method is directed, a concrete question is asked: "how and to what extent the interdisciplinary and collective stability of the cognitive and social aspects of integration can be ensured by the method of scenario development?" Another feature that indicates to the similarity between the concepts 'scenario' and 'paradigm' is the following collective imperative: integration is a process of joint production of knowledge and mutual learning. According to the idea of the authors of the examined paper, scenarios are created to solve three interdisciplinary tasks: (a) to facilitate the compilation and recombination of existing knowledge and the creation of a new common framework for previously shared knowledge; (b) to develop jointly a scenario that promotes social integration between researchers with different disciplinary bias and the maintenance of group activities; (c) to link the results of various sub-projects and researches to a joint product, which ultimately strengthens the integrative character of the project as such.

Analogies in relation to the concept of 'paradigm' can be found in other publications. Thus, a group of scholars in (Tang & Werner, 2017) applies interdisciplinary and intercultural approaches to determine ways of increasing the creative efficiency and a level of students' creativity in an environmental context. Subsequent studies have revealed the difference between the development stage of the learning model and the stage of self-evaluation. So, with relevance to the group of students and a group of young specialists, the following comparative results have been acquired: the young specialist had progressive growth, while in the student group the desire for a higher result of training was significantly reduced. The results of this test were discussed from the social and cognitive points of view, which indirectly point to the paradigmatic style of discussion.

The close relationship between university interdisciplinary environmental studies and administrative affairs of power structures is reflected in (Bark, Kragt, & Robson, 2016). Interdisciplinary research is often necessary to develop integrated knowledge systems, to manage complex environmental processes that policymakers face worldwide. This is done to broaden the understanding of environmental issues and obtain synthetic and practical knowledge for their solution. However, in interdisciplinary studies of this type, there are certain difficulties. It was revealed that in some thematic areas of education and geographical practices of regions, there is no tradition of conducting an educational discourse. In this connection, a set of necessary interviews was completed, containing analytical documents and other secondary data. The final results of these efforts compensated for the previous methodological errors in natural sciences and without the

participation of humanities and social sciences. The obtained results also testified that environmental studies with unequivocal problem solving problems are more preferable in comparison to abstract studies. However, the participation of theoretical and conceptual work is also necessary.

The paradigmatic style of these studies is, in our view, manifested in the fundamental nature of discussing scientific, institutional, and financial issues in an interdisciplinary format. The assessment of the result of this work is classified as the achievement of the interrelation of five practical management measures: the consistency of the conceptual model, the inclusion of an independent review, the support of synthesizers, the acceptability of internal communication and the organization of training. The work of Slovenian academicians on this matter is highlighted in (Rodela, Romina, & Alašević, 2017). It is interesting that the concept of the paradigm extends to the achievement of a stable unity (in the social and cognitive aspects) between natural and social sciences.

Other non-Russian publications relating to the psychological, environmental, educational, and medical orientation allow us to observe elements of the paradigmatic style of research. This refers either to the ability of the creative team to maintain long-term internal comfort related to the psychological climate (Klink, et al., 2017), or to the use of the modeling of interdisciplinary, cross-sectoral and multilevel integration in medical and environmental studies (Binot et al., 2015). Separately, it is possible to single out publications that reflect the unity of the production of scientific knowledge and interactive learning. This optimal combination of necessary activities in modern scientific and educational technologies is a necessary part of the paradigmatic characteristics in the context of interdisciplinarity and intersubject communications. So, a number of Russian scholars (Kachalov, Kornienko, Kvesko, Kornienko, Kvesko, & Chaplinskaya, 2015) consider the role of metaproject competencies in the development of higher education on the basis of an analysis of their integrative nature. The role of monitoring and indicators of students' knowledge assessment are obtained through the use of meta-subject competencies. The problems of interdisciplinary competencies are considered in the context of the formation of tolerance and minimization of risks in the society. Similar methods of interrelating knowledge and training have been applied by specialists in the field of demand fluctuations in the market (Marseu, Kolberg, Birtel, & Zühlke, 2016). Interdisciplinary engineering techniques for workers in different industries have been developed.

The complex problem of the balance between knowledge and training have to some extent been solved by architects. In this paper, studies of a multidisciplinary team of designers working in complex socio-cognitive and material conditions are presented. The researches have adapted an ethnographic approach aimed at understanding complex interactions within the collective. In terms of interdisciplinarity, emphasis was placed on a number of key practices in the adaptation, development and translation of knowledge that arose through the interaction of experts from different disciplinary areas. In the field of teaching geography, chemistry and ecology, specialists have established that interdisciplinarity is a necessary condition and plays a crucial role in modernizing the educational process (Miu & Miu, 2015). The necessary interactions between disciplines are realized by borrowing the methods and information or the specific language of the above disciplines.

At present, the paradigmatic research approach should methodologically provide solutions to all the numerous individual problems arising in interdisciplinary relations. Advances in modern science and education are largely determined not only by the use of an infinite number of situational combinations of

subject-scientific, interdisciplinary and cross-sectoral content. The effectiveness of an activity depends on the subjective basis in the integration process. The concept of the paradigm is precisely the unity of the most important aspects and components of creativity. This has been reflected in the examples in our paper. Such examples can also be considered in the field of system engineering (Gräßler & Yang 2016), in cross-sectoral technological integration, and in the practice of medical communities (Binot et al., 2015). It can also be found in competition for manufacturing leadership (Lee & Malerba, 2017), and in models that join technology, innovation, politics, business and social factors (Haddad. & Maldonado, 2017). Perhaps a vivid example is information technology (Camargo et al., 2017), particularly when we refer to social engineering. In the process of analyzing this paper, we have disclosed another important characteristic of the methodological functions of the paradigm. A good example of such multidisciplinary means are information and communication technologies. For instance, to provide certain solutions to some of the issues of Brazilian healthcare, universities research has expanded their research teams. The teams are now composed not only of medics, but of IT professors and students, local healthcare specialists and officials, and competent state authorities from health departments. This enables the team to get quick access to significant amounts of relevant information that is necessary to develop effective strategies and to decide on the measures to provide higher medical help. Such integrated universities, which involve not only academic staff, but state authorities and the general population, have, thus, demonstrated their effectiveness in coping with such problems as massive epidemics and other healthcare issues. The rational application of new technologies to solving social problems can be the answer to many modern-day problems. This, of course, requires massive interdisciplinary cooperation in education, integrating different areas of knowledge and competent public administration.

To a large extent, foreign publications examined by us supplement the main line of our research. In the aggregate of this main line and the analytical review of literature obtained by us, it becomes possible to formulate some concrete result and conclusions in regard to the concept of the subject basis of the flagship university. Integration that encompassed the whole system of knowledge has become not only the most important condition for its content, but also a productive source of methodological guidelines in the course of reforming various aspects of the region, including economy, education, management, trade, communication infrastructure, and socio-cultural priorities. In this regard, the establishment of a flagship university in the region can be considered without exaggeration as the beginning of qualitatively new changes. They form an integrated scientific and educational space that unites the technological and intellectual life of the developing region. The subject of the study of this space includes a completely new topic. It is (as we noted above) the subject of various complex cross-sectoral processes, permeated with production, scientific, engineering, managerial, economic, informational, infrastructural, and socio-cultural issues in the life of the region.

7. Conclusion

So, the paradigm implies stable conceptual structures that are accepted by all members of a creative team who support long-term scientific traditions in the team. The social content of the flagship university paradigm is determined by the following components:

- stable functional interactions of the flagship university with the system of economic and socio-cultural management of the region's innovative development;
- implementation by the flagship university of an entire complex of interdisciplinary and cross-sectoral interactions both in research and education, and in relations with the social and economic structures of the region;
- the implementation of interactive principles, which provide cohesion of research projects and training areas in the cooperation of the university with various regional socio-cultural institutions;
- implementation of activities that allow one to consider interdisciplinary and cross-sectoral integration as a process of joint generation of knowledge and mutual learning.

The active participation of flagship universities in solving issue of social engineering determines its special status. University staff is responsible for substantiating communication, distributing information flows for the newest social practices, improving living conditions for the regions inhabitants.

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