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#### **SCIENTIFIC AND ACADEMIC ACTIVITY OF WOMEN-GEOGRAPHERS OF USPU: A METHODOLOGICAL ANALYSIS**

**KEYWORDS:** department; scientific area; scientific research; geographical research; landscape science and physico-geographical zoning; scientific school; teachers; methods of research; methodology of research; reflection; scientific heritage; methods of geographical education.

**ABSTRACT.** The article presents an overview of the studies of the territory of Sverdlovsk Oblast and the Urals Region by women-geographers who simultaneously carry out academic work at Department of Geography and Geographical Education of the Faculty of Geography and Biology of the Ural State Pedagogical University. The authors characterize the scientific-research strategy of the USPU and describe the original scientific approaches and research methods used in landscape science (one of the fundamental areas of geography that has methodological potential for contemporary studies and, at the same time, plays a great role in revealing the natural potential of the region and territory development), landscape phenology (methodological guidelines and the scope of scientific works in this area determine the ideas of interdisciplinary synthesis) and methods of geographical education (theoretical interpretation of the experience of scientific schools and the ways of its implementation into teaching practice) adapting the results of scientific research for the purposes of professional education of teachers. The determined areas are characterized by a wide scope of scientific interest and versatility of research determined by their belonging to various scientific schools. The article reveals the role of activity of the women-geographers in the process of improvement and development of geographical education.

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#### **НАУЧНАЯ И ОБРАЗОВАТЕЛЬНАЯ ДЕЯТЕЛЬНОСТЬ ЖЕНЩИН-ГЕОГРАФОВ УРГПУ: ОПЫТ МЕТОДОЛОГИЧЕСКОГО АНАЛИЗА**

**КЛЮЧЕВЫЕ СЛОВА:** университетские кафедры; научные направления; научная деятельность; географические исследования; ландшафтоведение; физико-географическое районирование; научные школы; преподаватели; методы исследования; методология исследований; рефлексия; научное наследие; географическое образование; методика географии в вузе.

**АННОТАЦИЯ.** Представлены обобщенные результаты исследования территории Свердловской области и Уральского региона женщинами-географами, одновременно выполняющими образовательную деятельность на кафедре географии и географического образования географо-биологического факультета УрГПУ. Приведена характеристика стратегии научно-исследовательской деятельности, раскрыты оригинальные научные подходы и исследовательские методы, применяемые к проблемам ландшафтоведения (одно из фундаментальных направлений географии, имеющее методологическое значение для современных исследований, а также значимое в прикладном плане для выявления природного потенциала и ландшафтного планирования территорий), ландшафтной фенологии (методологические ориентиры и границы научных поисков в рамках этого направления сегодня определяют идеи междисциплинарного синтеза), методики географического образования (теоретической рефлексии опыта научных школ и способов его трансляции в учебный процесс), адаптирующей результаты научных исследований для целей профессионального образования учителей. Выделенные направления характеризуются широким масштабом, разнообразием исследований, определяемых их принадлежностью к научным школам. Раскрыта роль деятельности женщин-географов в совершенствовании и развитии географического образования.

Irrespective of its salient significance, the contribution of women in the development of geographical science has not been properly studied yet. The interest to its study is enhanced by the fact that high quality training of young scholars is considered today as a strategic task of the state in which new educational technologies of effective development of intellect play a special role. The authors of the article believe that professional education of teachers and scientists-geographers capable of conducting research and innovative activity will be more effective if it takes into account the methodological peculiarities of development of the basic lines of geographical research carried out by the women-geographers of the USPU who perform academic work at the same time. The aim of the article is to provide a methodological analysis of the basic areas and methods of scientific activity of women-geographers and the means of translation of research schemes into the system of professional training of teachers.

Methodological analysis of the experience of scientific activity of physico-geographers of the USPU [3, 4] allows us to single out three main areas of research: landscape science, phenological landscape science and scientific-methodological area. Let us briefly consider the contribution of women-scientists to their development.

*Landscape science.* The main sphere of interests of the women-scientists of the Department of Geography includes the issues of landscape science and zoning in relation to the territory of the Middle Urals. It is one of the fundamental areas of geography with a methodological significance for modern research and important for applied geography in terms of natural potential and landscape planning of territories. This line of investigation is being developed within the framework of the scientific school of V.I. Prokaev which received the name of the Urals School of Landscape Science. In the 20<sup>th</sup> century, the structural-genetic approach made up its methodological foundation. Nevertheless, the conventional scientific traditions begin to change in the early 21<sup>st</sup> century, because it is the time when the methodological foundations of landscape studies are being transformed under the influence of the popular ideas of the functional-dynamic approach. Within the frame of the new approach the direction of scientific pursuit of the women-scientists of the Department has changed its course. Today, it is associated with the study of the mechanisms of variability of the spatial-temporal organization of geosystems and the regularities of their development. The geoinformation technologies – an original instrument of cartography of territories and creation

of databases and digital maps – also vehemently stimulate the emergence of new research areas. Taking these circumstances into consideration, the scientific activity of the women-scientists obtains new characteristics. Thus, O.Yu. Gur'evskikh, N.V. Skok and O.V. Yantser realize the new approach in their research on the basis of spatially related analysis of ties between the elements and properties of geosystems and sequences of linear statistical transformations revealing general dependencies and regularities [2]. The scientists try to discover the foundations of landscape changes taking into account their regional and local specificity and to reveal the parameters for evaluation of their stable states [1]. Among the new scientific trends developed by women-scientists, we should mention design of the methods of quantitative analysis, digital procession and landscape cartography using geographic information science (GIS) technologies. Perspective investigations are connected with the creation of complete digital maps for the whole territory of Sverdlovsk Oblast. With their obvious scientific novelty, the cartography outcomes can be used for landscape planning of the regional system of specially protected territories and of protected zones of historical and cultural objects. The works referred to above discuss new concepts, research methods and cognitive schemes and specify the principles of scientific rationality [2].

*Landscape phenology* was born at the Department within the framework of the scientific school of V.A. Batmanov and M.K. Kupriyanova; its traditions are continued and enriched by O.V. Yantser and her colleagues and students. The Urals Scientific Center for Phenology was opened at the Department and became the central base for expedition, research, project and educational activity for the Urals phenologists including scientists, students, teachers and their pupils. The methodological benchmarks and boundaries of scientific research of the women-scientists are determined today by the ideas of interdisciplinary synthesis. Thus, a large volume of landscape-phenological investigations of many years have been completed under the scientific guidance of O.V. Yantser and N.V. Skok with the purpose of studying the dynamics of the geocomplexes of the Urals, landscape cartography and confirming the boundaries and functional zoning of the territory [7, 8]. The analysis of the landscape-phenological school experience confirms the general gnoseological law according to which one of the most effective methods of solving scientific problems consists in interdisciplinary synthesis due to which the knowledge and methods obtained in phenology are included as foundations in

landscape science and vice versa. Mutual enrichment of sciences proceeds along the line of exchange of conceptual means, principles and methods, which leads to the specification of the scope of the science and the development of its conceptual apparatus.

*Scientific-methodological area.* The rich and versatile experience of the scientific research conducted at the Department serves as an important source for training students in research and innovative activity – significant elements of professionalism of the modern pedagogue. In this connection there emerges a need for theoretical reflection of the experience of scientific schools and the methods of its translation into the academic process. One of the solutions of the problem consists in the enhancement of the metacognitive orientation of the content of academic disciplines – a task which is dealt with by S. N. Pozdnyak and her colleagues [5; 6]. The theoretical foundations of this research are constituted by the ideas of constructive activity-based instruction (A. V. Brushlinskiy, I. I. Il'yasov, V. V. Kraevskiy, I. V. Traynev, Yu. G. Fokin, etc.). In our interpretation, the concepts of “research task” and “cognitive scheme” are the basic notions of constructive activity-based instruction providing an opportunity to translate the methods and cognitive schemes of landscape and phenological research tested by the women-scientists’ experience into the academic process. For students, they function as methodological norms of organization of the scien-

tific search and evaluation of its results as means of mental realization, structuring, evaluation and transformation of the experience of research activity.

By way of conclusion we must note that due to the effort of the women-geographers and the experts in teaching methods, the scientific schools formed at our Department are being fruitfully developed as the need to conduct scientific research is part and parcel of their life values. The results of their research are made public in monographs, numerous articles and guides and have been implemented in practical education process via a system of events including conferences of various levels – both all-Russian and international ones. The desire to popularize geographical knowledge is an inherent personal trait of the women scientists. Possessing rich experience of research activity, they exercise scientific guidance over many projects, organize discussion sites, round-table meetings and contests attracting large numbers of teachers and schoolchildren of Sverdlovsk Oblast and the Urals Region as a whole. The fact that the above mentioned areas of scientific research regarded as an important resource for improving the standard of practical education are being actively developed at the Department shows that it is a natural phenomenon reflecting the real specificity, complexity and interrelation between scientific geographical and methodological research and practical geographical education.

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