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Forming Readiness of Master's Degree Students for Scientific and Research Activity

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Abstract

The article presents issues of developing readiness for the scientific and research activity among master's degree students. The problem of forming the personal agency of the student is connected with the issues of forming readiness of the student to research activities as the process and result. The problem of forming readiness of the master's student to research activities is connected with a number of scientific approaches: personality oriented, synergetic, cultural, personality oriented, competency-based, person-centered (anthropological), and etc. The work presents a review of Russian and foreign literature on the problem of the research. The model of forming readiness of master's degree students to research activities is presented. In the structure of readiness to research activities, we experimentally distinguished five groups of components: need and motivation-based, axiological, cognitive and perceptual, operational and technological, subject and personality ones. The conclusion is made concerning the necessity to development and appraisal of the model and pedagogical conditions of realization of the concept of forming readiness of master's degree students to research activities.

Keywords: scientific activity; research activity; master's degree student; readiness.

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Introduction

Today higher education in Russia has shifted to the three-tier system of training (bachelor, master, postgraduate levels). Among the aims of higher education, preparation of the future high-ranked personnel, able and ready for successful professional and personal growth as actors of research activities is distinguished. Among the traits of the student as an actor of research activities, there start to dominate those of the ability to independently and actively renew and acquire new knowledge and to form creative experience. In this context, the problem of forming the personal agency of the student is connected with the issues of forming readiness of the student to research activities as the process and result. Yet, the problem of forming readiness of the master's student to research activities require the answer to questions concerning the problems, content, and structure of this process. The problematics is equivocal and requires footing on the poly-paradigmatic approach. In order to solve the problem of forming readiness of the master's student to research activities, one can base on a number of scientific approaches: personality oriented, synergetic, cultural, personality oriented, competency-based, person-centered (anthropological), and etc. Among these approaches, the most effective and productive ones are competency-based and personality oriented approaches as modern benchmarks in the system of the multi-tier higher education.

Literature Review

Answers to certain questions concerning the problems of forming and development of the readiness of the student to research activities can be found in the work by Bolshakova (2012). The work by Stavrinova (2009) reflects various aspects of development and forming evaluation of readiness of a would-be educator for research. The work by Mukhametzyanova and Khairutdinov (2017) shows the role of facilitation in the formation of readiness of a student for scientific and research. Shadchin (2012) exposed the content and components of readiness of higher educational institution students for scientific and research activity, and we agree with his opinion that today in the multi-tier system of continuous higher education, the use of the competency-based approach is effective and relevant.

At the same time, the idea of the competency-based approach in the definition of goals and content of higher education is in the process of renewal and modernization. According to Khutorskoy (2003), the idea of the competency-based approach in the system of higher education at all its tiers, including master's level, is in emphasizing the formation of the ability of a university graduate to act creatively in problematic situations. At the same time, the main outcome of the preparation of the future master's student is competence and competencies. There is no unanimous answer concerning those notions in pedagogics and psychology either. We prefer the definition of competence developed by Zimnyaya (2004), according to whom competence is viewed as an integral personal quality built up based on ambitions and abilities (altogether as readiness) to realize their potential (knowledge, ability, skills, personal qualities) for a successful activity in a certain field. Zeyer (2005) understands competence as the aggregate of knowledge, skills, experience, transformed readiness to the realization of competencies at the level of functional literacy. The work by Vikhoreva (2008) presents competence as an aggregate of all subject and personal qualities of the master's student determined by their experience providing efficiency of independent work. Then, competency is understood as a form of understanding of regulatory requirements to results of practical activity in the position of the personal agency of the student.

Thus, there is a clear ambiguity in the understanding of the notions of competency and competence by the authors. We agree with Galaguzova and Dorokhova (2011) that while considering the notions of competency and competence, there appear a lot of problems due to objective and subjective

difficulties. That is why in the process of research activities students form a methodological competence, which should be viewed as a systemic attribute of the student, which includes the aggregate of cognitive, integral, technological, motivational, volitional, reflective and communicative components (Galaguzova & Dorokhova, 2011). Kraevskiy (2008) distinguished the methodological competence of a researcher educator as an important condition of scientific and methodological provision of modernization of higher education. Yefimova and Kalimullina (2009) considered issues of research activities of bachelors and master's students in the system of quality management, regarding that research activities of the master's degree student are two-faceted. Externally, they are oriented at production, internally, on the need for research, being both a condition and function of objective assessment of forming personal professional competence (Yefimova & Kalimullina, 2009). The work by Klimova, Romanov, and Romanva (2008) presents methods of forming the experience of the student's research activities. Demchenko (2012) detected five basic levels of the value-based attitude of students toward research activities: philosophic (reasoning); humanistic (values-based attitude); mental (worldview); social and cultural (transmission of values); personal and subject-based (*personal agency*) (*italics added*).

The analysis of works testifies to the fact that most works when defining the notion of competence of the master's student often feature the notion of readiness and ability, thus emphasizing subjective activity and the competence component of research activities.

The study of readiness of the master's student, from our perspective, as competence to research activities through the lens of competency-based approach, also implies the search for definitions, such as "research activities of the master's student", "scientific and research competency", "scientific and research competence". The work by Prokhorova (2013) presents approaches to the development of questions to detect levels of the competence of master's degree students to research work, connected with readiness of master's degree students to research activities with the competence viewed by the author as personal literacy, including three components: motivation and value-based, analytical and activity-based, organizational and creative. We can agree with the author in differentiating those components.

A number of thesis researches are dedicated to problematics of forming readiness as the synonym of competence of the master's student to research activities. For example, Koldina (2009) in her research thesis reflects problems of preparation of would-be professional training teachers for scientific and research activity in a higher educational institution. In her work, she demonstrated that master's degree students understand really well the interconnection between knowledge, abilities, and skills, but they face difficulties in applying knowledge in real life situations. Akopova (2005) studied issues of preparation of master's degree students of humanities departments for research activities in a foreign language course. Lukashevich (2002) considers various aspects of research activities as a means of development of creativity of the students in the educational system of a pedagogical higher educational establishment. The work by Minyazhova (2010) reflects the problems of modeling of the forming of scientific and methodological competence of the master's degree students in a technical higher educational establishment. Nikitina (2007) exposed pedagogical conditions of forming readiness of students of a pedagogical higher educational establishment to research activities by means of problem-based learning. Tagirov (2010) revealed mechanisms of forming scientific and research competence of the student of a military higher educational establishment. Antropova (2001) studied issues of improving teacher's communicative competence on the basis of the creative reflection. Bednyi and Kuzenkov (2017) investigated integrated programs of preparation of high-ranked scientific and pedagogical personnel and considered issues of institutional development of research education. Questions of professional preparation

of master's degree students in social pedagogy for implementing research activities are presented in the work by Bondarenko (2013).

A number of works by foreign authors also present various aspects of the problem of readiness of master's degree students to research activities as a creative process. Within the field of view of foreign scientists, there are issues of integration of master's and postgraduate programs in the context of organizing research activities (Vittorio, 2015). For example, a number of scientists studied peculiarities of preparation of professional researchers in modern conditions of master's education (Carter-Veale, Tull, Rutledge, & Joseph, 2016). The research of a number of authors shows the interconnection between satisfaction by the process of learning and quality of research activities of the master's degree students (Cheng, Taylor, Williams, & Tong, 2016). The work by Barnes and Randall (2012) reflects issues of organizing admission and assessment of the master's degree student. The research by Truong (2017) reflects the problems of career prospects for master's degree students – university graduates.

Naumkin, Kondratyeva, Grosheva, & Kupryashkin (2018) presented issues of teaching the master's students techniques of fast prototyping as a finalizing stage of their preparation for innovative activity in the structure of research activities. Questions of preparation of students for research activities are demonstrated in the work by Miller (2010) exposing the problems of a fundamental integration, professionalization, entrepreneurship and humanization of research activities of the master's degree students. Johnson (2017) demonstrates the application of intuitionist fuzzy set in the academic career of the master's degree students.

The article by Bordovskaya, Koshkina, Tikhomirova, & Bochkina (2018) shows the role of the case method as a means of assessment and development of terminological competence of a future educator. Analysis of psychological and pedagogical literature on the problem of forming readiness of master's degree students to research activities showed that this problem manifests various aspects.

Materials and methods

The methods used were the following: discourse analysis, master's degree students survey and an overt observation, educational experiment at the Institute of International Relations of Kazan Federal University.

Results

Conducted analysis of the Federal State Educational Standards of the master's level, academic course working programs, research practice programs, as well as results of an express survey, an overt observation allows speaking about detecting an insufficient level of readiness of the modern master's degree students to perform research activities. The main reason is an insufficient degree of development of the scientific and methodological concept and model of readiness of master's degree students to perform research activities.

The principal approaches in the research are subjective activity and competency-based approaches. We consider that the model of readiness of the master's student to research activities manifests in a number of personality features as an actor of research activities:

- individualized, unauthorized and unstipulated activity in the development of the plan of organization and carrying out research activities;
- sufficient independence in the theoretical analysis of work and designing research activities;

- demonstrating imagination, inventiveness as the ability for creativity in the development of scientific and methodological apparatus of research;
- tendency to divergent and critical thinking;
- readiness to project work and prototyping of research activities;
- readiness of the master's student to subject producing research activities.

We consider that the model of a future master's graduate as an actor of research activities must include readiness among other criteria for:

- subjective organization of scientific projects and personal involvement in conducting scientific research to acquire new knowledge;
- setting and solving inventive and creative scientific and research tasks both at the stages of start and finish; for development and proof or refutation of the hypothesis;
- planning and carrying out scientific research and approbation of scientific experimental work;
- subjective scientific and research activities and skills of scientific techniques and practices;
- teamwork based on scientific collaboration;
- quick analysis of initial data and assessment of efficiency of the results of investigations.

The scientific and methodological basis of our research is the concept of development of personal agency of the student, consisting of perceiving the master's student as an actor of research, scientific and pedagogical activities. In the structure of the model of readiness of the master's student to research activities, we experimentally distinguished five groups of components:

- need and motivation-based, consisting of unstimulated and extra-situational activity;
- axiological, manifesting in acceptance of research activities as the value of self-value;
- cognitive and perceptual, manifesting in critical thinking at all stages of research activities;
- operational and technological, manifesting in readiness to development and realization of individual educational paths and learning routes;
- subjective and personal, reflected in the personal agency of the master's student.

The pedagogical conditions of forming readiness of future master's students for scientific and research activities are (1) psychological and pedagogical support and subjective development of research collaboration; (2) scientific production of research and project activities of the master's students by the university; (3) social and pedagogical facilitation technologies; (4) shaping personality oriented scientific and academic developmental environment for master's degree students at the university.

The efficiency of the model was confirmed by the authors while instructing the master's students at the Institute of International Relations, Kazan Federal University (sample group of 310 people). Results of applying the model are displayed in the increased dynamics of readiness of master's students for scientific and research activity from 56% at the start of the educational experiment to 87% at its end.

Summary and conclusions

Based on the literature analysis and the research results, the conclusion has been made concerning the necessity of development and appraisal of the model and pedagogical conditions of forming readiness of a master's degree student for the scientific and research activity concept. It demonstrates opportunities

of adaptive application of the model of forming readiness of the master's degree student to research activities, manifesting in increased dynamics of readiness of master's degree students to research activities.

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