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Academic Inbreeding and Mobility in Higher Education: Problems, Analysis and Prospects

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Abstract---The problems of organizing interactive learning in higher education are discussed, taking into account the prospective introduction of new educational standards. It is noted that the emphasis on the use of professional standards in the existing conditions will lead to a decrease in the creative component of graduate training, and the lack of the possibility of real practice will lead to dogmatism and scholasticism. The high dynamics of technical and technological transformations and transformations of the economic sphere in the Russian Federation against the background of global challenges demonstrates the discrepancy between the paces of individual training of high-class professionals. According to the author, the problem is not the transition beyond the boundaries of habitual work; the main attention should be paid to the "smart"

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future. Complex technologies require significantly more time than before to master the profession. Domestic specialized education should certainly be linked to the spatial development of Russia, which has a huge territory and corresponding local-territorial specifics. Job security – as a tactical emphasis disappears irrevocably within the borders of the region and the industry, giving way for adaptation to the market of local labor and also rapidly and freely moving capital.

Keywords---academic labor market, career strategies of graduate students, classroom classes, creativity, economics of education, economics of knowledge, education, independent work of a student, interaction problems, labor functions, local economy, professional standards, reproduction of human capital, specialization.

Introduction

Without high-sounding formulations, it is clear that the actual tasks of Russia's development are creative tasks. Therefore, creative people are needed to solve them. The national higher school has always been aimed at their training. Declaratively, this has not been canceled even today. Moreover, the competencebased approach and the project method introduced into the practice of training, it would seem, are aimed precisely at increasing the creative potential of the graduate. However, the realities of the last 20 years demonstrate the consistent implementation of numerous educational standards and indicate something completely different. This year was no exception - the next new standards of education are being put into practice, which strictly define the areas and spheres of professional activity of the graduate and are based on the system of today's professional standards (the list of professional activity forms) under the Ministry of Labor and Social Protection of the Russian Federation. In fact, an attempt is being made to target the training of specialists to specific jobs, to regulate a set of pre-defined, so-called labor functions (Dmitrieva et al., 2016; Stepanov & Shkirtil, 2019).

The performers have a ordinary question: to what extent do implemented standards meet the needs of modern education, today's and, most importantly, tomorrow's economy? Let us note the general trend of the last twenty years – the total number of classroom hours of courses in higher education is consistently decreasing. It is disguised both in the limit that appeared at the time for loading students with classroom work, and by the crafty replacement of the method of measuring the volume of the academic load with credit units of labor intensity. No one has really explained what this is, but we should expect that the transition to credit units will allow us to abandon the measurement of training costs in the form of an assessment of the teacher's load and switch to measuring the student's load, which in itself is logical and makes sense (Zritneva et al., 2017; Klimantova, 2017).

The student's academic load consists of attending lectures, practical, seminar and laboratory classes, course design, training and production practices, exams and tests, as well as independent work of the student carried out individually and during extracurricular (free from classes according to the schedule) time. The development of pedagogical and information technologies makes it possible to significantly reduce the classroom time required for training, modernize the educational process due to the independent work of students (Mikhalkina & Skachkova, 2019; Yudkevich et al., 2015).

Independent work of a student (SRS) is traditionally present in all types of classes in the domestic higher school. The concept of its organization proceeds from the fact that independent work is a continuation of classroom work with a teacher (Chapaev & Choshanov, 2017; Roenko, 2019). The following classification of types of independent work of a student is known: reproductive, cognitive-search and creative. It is creative independent work that is of particular interest for today's education, and it cannot be invested in the Procrustean bed of "labor functions".

Research Method

The empirical base of the study is made up of data from Rosstat, the Federal Tax Service, the Pension Fund of the Russian Federation, the NAFI Analytical Center. The work was carried out on the basis of collection and generalization (synthesis method), systematization (system method) and comparative analysis (Volchik & Zotova, 2013; Mikhalkina & Skachkova, 2018).

Research and Results

Regardless of the type, the implementation of independent work of students provides for the preliminary development by the teacher of its four components: a plan, methodological support, management and control tools, as well as feedback tools. Planning of independent work provides for fixing its types and types for specific positions of the curriculum. Methodological support is understood as the development of actual tasks, tests, rating ratings, control points and necessary methodological guidelines (Barbezat, 1991; Cain, 1986). The control and management of it is reduced to monitoring the timing of the submission of reporting materials, as well as the expert assessment of the results of independent work by the teacher. And, finally, feedback is a method of organizing preferably asynchronous communication with the teacher (Savickas et al., 2018; Hattie, 2002).



Figure 1. Categories of students' independent work

It should be noted that if time and intellectual expenses are provided for the preparation of the first two types of independent work in today's teaching load, then for most creative tasks - the preparation of abstracts, scientific articles, participation in research work, the performance of special tasks, purely altruistic pedagogical work is assumed. Not to mention the fact that altruism cannot be made a functional responsibility of anyone in any industry, a teacher in modern conditions of higher education often does not have the physical ability to supervise these areas of independent work of a student due to his own workload (Runco & Beghetto, 2019; Woodhall, 1987). Moreover, a significant part of it is bureaucratic activity that was unusual until recently for the domestic higher school - writing endless reports on infinitely long forms, a significant part of the information in which could well be collected automatically with the real use of modern technologies. If we add to this the requirement for each teacher to have at least two serious publications per year (which in principle is possible only with a very loval attitude to the level of such work), the need to adapt programs to a new standard and similar innovations almost every year, the constant increase in workload, as well as traditional teaching tasks-constant work on improving training programs, updating assignments, taking care of their own professional growth and expanding their own professional horizons - then it becomes obvious that most of the student's creative independent work is indeed absolutely independent (Psacharopoulos, 1994; Mercer & DeRosier, 2008).

Assessing this fact, it is worth looking with open eyes at the role of the Internet in education. Without denying in any way the new opportunities opened by the global network, let's not forget that any medal has two sides. Where does a modern student get most of the information in his independent work? Not from the literature recommended by the teacher, but from the Internet. And quite frequently this information, to put it mildly, does not stand up to scrutiny. As the French proverb says, you can only become a blacksmith in a blacksmith shop.

Therefore, it is difficult to overestimate the role of industrial practice – one of the most important forms of independent work of a student. Without practice, any science turns into scholasticism, and a specialist who is called to solve applied problems is completely useless without practical skills for solving them. But let us turn to the evolution of production practices in the curricula of higher education and to the possibilities of implementing even these plans.

Today, the production practice is divided into fragments for two weeks after the second, third and fourth courses. It is obvious that the emasculation of the content in independent students' project work and industrial practices is troubled with disastrous consequences for the quality of training specialists and requires cooperative efforts of industrial and scientific organizations including universities to urgently change the situation. We believe that it is possible to find a solution to this problem only in case of oncoming movement. Not only the university should "bow down" to the relevant organizations, ask them to take students for practice, but also organizations should offer universities that train specialists in areas of interest to them, places for practical training, formulate their vision of this work (Farhat et al., 1998; Boccella & Salerno, 2016). They could use the opportunities of practice to form their own personnel pool. It is unlikely that one day it will be possible to solve the problem of training high school graduates who fully meet the very diverse requirements of the Ministry of Labor and Social Protection of the Russian Federation. But the solution of the problem of training people who are able to independently and creatively solve practical problems after leaving higher school is vital and possible. It requires cooperative efforts of industrial and scientific organizations and universities to urgently change the situation (Sallot et al., 1997; Danchikov et al., 2021).

According to statistics, there are about 17 million high-tech jobs in modern Russia. However, the high dynamics of technical and technological transformations and transformations of the economic sphere in the Russian Federation against the background of global challenges demonstrates the mismatch between the pace of individual training of high-class professionals. And here – in matters of specialized vocational education it is necessary to clearly understand that modern "complex technologies require significantly more time than before for mastering the profession and socio-psychological adaptation". Is understanding of this call in the national strategic documents and planning approaches established? Professor of the University of Texas (El Paso, USA) M. Choshanov sharply commenting on the state program "Development of science and technology", considers it to be a failure: "Russia obviously got excited by engaging in meaningless competition without providing comparable (to foreign) starting conditions for Russian teachers," and adds: "Billions of rubles allocated for the Project 5-100 Ministry of education and science risk being literally in the "trash".

Another example. According to the passport of the Priority National Project "Universities as centers of innovation creation space", starting from 2017, 40 centers for innovative, technological and social development of regions are being launched on the basis of reference universities, bringing them to 100 by 2025. According to the idea of the strategists, the centers should cover both the urban and regional environment with sources of positive changes as a network.

Domestic ideologists of the approach are sure: "Only the form of organizing the development of competencies in the form of centers of excellence can give a strategic advantage". Long-standing and long-term world experience says the same: in the United States, with federal and regional support, there are more than 300 innovation and technology centers; in Germany there are more than 160; in China, 52 technoparks operate, and each has from 1 to 3 centers. As we can see, the idea of centers of excellence as a form of organizing the development of competencies is not new, and in the above-mentioned national project there is a reproduction of foreign experience and adaptive compliance with world trends. But in the author's opinion, the strategic advantage assigned to the activities of innovative regional centers based on supporting universities is doubtful, and most notably, it is unlikely that the "march order" of one or two engineering centers to the region will lead to systemic qualitative changes in the local-regional cross-section of the Russian economy (Sabodash et al., 2021).

Unfortunately, such projects, clearly of an innovative nature, can still be attributed not to the priorities in the profiling of specialists, but only to its bright background. Let's take the current system of professional orientation in Russian educational institutions. The results of its activity on their preferences in a particular area of labor activity are expressively illustrated by a sociological study commissioned by the Ministry of Labor of the Russian Federation in the Republic of Bashkortostan. During the monitoring of professional preferences, the most inappropriate professions were named by modern schoolchildren and their parents: a tractor driver, a driver (3.1% of schoolchildren and 3.6% of their parents voted" for"); research associate (5.3 and 6.8%, respectively); teacher, tutor (5.6 and 6.9%). The most suitable professions are: entrepreneur, businessman (17.7% of schoolchildren and 37.4% of parents voted" for"); lawyer, attorney (27.7 and 33.2%); office worker (19.5 and 26.7%); doctor, medical worker (21.0 and 22.3%); economist, accountant (18.7 and 19.7%). Moreover, respondents consider personal interest in the field of activity to be the main criterion of choice (80%), along with a high salary (47.7%) and the prestige of the profession (38.7%); but the advice of teachers (1.3%) and the cost of training (3.2%) are considered less important criteria when choosing a future profession.

The analysis of the main indicators during the training of highly qualified personnel, the results of the author's study of the professional development of postgraduate graduates in the academic and non-academic labor markets demonstrates rather remarkable, but contradictory results about how human resources are reproduced in a specific field of production and knowledge transfer (in research organizations and universities). The basic growth of organizations engaged in training highly qualified personnel, as well as the increase in the number of graduate students, since 2013 to the present is negative. The number of organizations (research institutes, universities, organizations of additional professional education) with postgraduate programs in 2020 decreased by 22.1% compared to 2012, and the number of graduate students for the same period decreased by 42.3% and amounted to 90,823 people in 2020 (for comparison, in 2012 - 157437 people (see Figure 2). For comparison, 123 thousand people graduated from postgraduate studies in 1981-1985, 16% of them defended their dissertations. In 2019 and 2020, the excess of admission rates for postgraduate programs over the graduation rates for postgraduate programs was the maximum

(8012 people, 9279 people. accordingly), which means, on the one hand, either a constant underproduction of human capital in this category (while the trend of exceeding admission over graduation in graduate school has been monitored since 2012), or, on the other hand, incorrectly predicted measurable parameters of demand for labor resources necessary for the production and transfer of knowledge. And there are already quite a lot of discussions about the latest trend in the context of the need for the relative large-scale participation of postgraduate studies.



Figure 2. Dynamics of the decrease in the number of graduate students (basic increase in the number compared to 2015), %



Figure 3. Comparative dynamics of admission and graduation from graduate school (2012-2020), people.

The conclusions about the ideal graduate student and research supervisor are also indicative. Thus, the characteristics of an ideal graduate student were identified: independence of scientific research, knowledge of foreign languages and orientation to the defense of a candidate's dissertation. The characteristics of an ideal scientific supervisor included: authority, a systematic type of thinking, the ability to stimulate independent research activities, creativity.



Figure 4. Motives for admission to graduate school (expert opinion)

According to graduate students, regarding employment prospects, the majority believes that it is easy to find a job, but salaries are low (48%), only 28% of graduate students are satisfied with the employment prospects and salary level in the industry, 21% of graduate students believe that it is difficult to find a job in the specialty, according to 4% of graduate students it is almost impossible to find a job. Upon completion of postgraduate studies, it is important for the vast majority of graduate students (91%) to defend their dissertation. However, it is important for only 61% of graduate students to continue their professional activities at the university they graduate from. Regardless of their desire, many respondents rated the probability of continuing their professional development at the university they are graduating from as rather high (40%) and very high (15%). According to graduate students, they could stay working in the scientific and educational sphere under the influence of such factors as the competitive salary level (67% of graduate students rate this characteristic on 9 and 10 points) and the presence of a strong interest and desire to continue doing research started in graduate school (48%).

Conclusion

However, in the adopted Spatial Development Strategy of the Russian Federation, a number of difficulties are not removed, nor yet voiced, especially the possibilities of rural-urban integration. In this sense, we will cite a successful experience of applying strategic tools to priority areas of regional development within the framework of the National Technological Initiative in the form of so called "Boiling Points" - spaces of collective work. For example, on February 22-23, 2019, the opening of the "Boiling Point – Velikiy Novgorod" took place. The anchor program of the event reflects the main directions of regional development of the Novgorod region, including three thematic tracks: "Region-Factory", "Region-University", "Region-tourist center". Within this framework, more than 30 key events were implemented, as well as general events about local attractions. The key, of course, were modern projects, such as: The Strategic session "Development of the NTI roadmap of the Novgorod region – "fitting" of the Regional NTI Standard, the NTI Project Piloting Factory, the intensive University 20.35 at NovSU. named after Yaroslav the Wise, Novgorod Technical School, Thinking Clubs "Sketches from the life of the digital economy", a round table "Translational medicine as an innovative way of developing healthcare in the Novgorod region", a discussion of the roadmap for the development of a Medical rehabilitation cluster in the Novgorod Region, a discussion on the development of assistive technologies and technical means of rehabilitation on the global market, etc. Moreover the "Boiling Point" collective work spaces are already open in 20 regions.

In general, there are four key conditions for the development of the academic career of young scientists and graduate students. The first is that the postgraduate training process should include three elements: "input", "the preparation process itself', and "output". Basically, universities focus only on training, while not taking into account the qualities, characteristics and competencies of graduate students "at the entrance", for this it is necessary to tighten the competitive selection of graduate students, as well as to conduct "career guidance schools for graduate students" in the preparation process so that they remain in the academic environment. The second condition is the actual modernization of the research infrastructure, which consists in the creation of permanent laboratories, collective use centers, the availability of academic mobility programs, etc. The third condition is the transition to the independent awarding of academic degrees. This measure will make it possible to systematize training in the relevant specialties that will be presented in the dissertation defense councils. The fourth condition is a detailed network of grant and social support for young scientists. Postdoctoral programs.

As we can see, the "scale" of professional preferences is flawed on a number of points, and for the sake of argument, we add: the acceleration of scientific and technological progress within the framework of the IY Industrial Revolution has led to the fact that labor and professional activity are increasingly understood not so much physical, muscular work, as the mental forces involved. In a routine sense, we are talking about "the development of skills to navigate, plan work, take care of time, achieve high quality and result of work", i.e. about planning, time management, efficiency and effectiveness. In an advanced and even more "overprofessional" resourcefulness sense, creativity, and ingenuity. communication skills, increased attention, perseverance and at the same time speed are required from a professional employee.

Do future applicants think about this? Are their mental powers ready for such loads and tests? In this context, in the author's opinion, the local (local) economy has more comfortable conditions than the economy of megacities. However, do not think that for a specialist who relates himself as a professional to the local economy and has decided to work in his native lands, everything will be cloudless. Everything is about employment, career growth, and the implementation of step-by-step impulses of personal and professional development. Is it likely that new challenges will arise so rapidly that responding to them may be ineffective? - Yes. Therefore, you need to ask this question, first of all, to yourself. The study of professional strategies of graduate students, taking into account the influence of the conditions for the development of an academic career, as well as various factors, such as the ratio of supply and demand in the academic labor market, the "precariatization" of the academic sphere, etc., seems essential in the direction of studying their typology and classification. A transparent and clear understanding of the typology of career models of postgraduate graduates, which is based on the determination of the features of decision-making regarding admission to graduate school, targets for development in the academic or non-academic field, will, in turn, allow making informed decisions in the field of human capital reproduction management in higher education.

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