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УПРАВЛЕНИЕ НАУЧНОЙ РАБОТОЙ СТУДЕНТОВ В СИСТЕМЕ ОБРАЗОВАНИЯ

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Аннотация: Молодых специалистов необходимо вооружить самыми современными знаниями, сформировать творческие способности и исследовательские умения, воспитать потребность в постоянном расширении своего кругозора.
Ключевые слова: Качества, специалист, умения, кругозор, мотивация, эффект, практика, адаптация, методы и пути, техника, технология.
Annotatsiya: Yosh mutaxassislar eng zamonaviy bilimlar bilan qurollanishi, ijodiy va tadqiqot ko'nikmalarini rivojlantirishi va o'z dunyoqarashlarini doimiy ravishda kengaytirish zaruratini shakllantirishi kerak.
Kalit so'zlar: Fazilatlar, mutaxassis, ko'nikmalar, dunyoqarash, motivatsiya, samaradorlik, amaliyot, moslashuv, usullar va yondashuvlar, texnologiya.

MANAGEMENT OF STUDENTS’ RESEARCH ACTIVITIES IN THE EDUCATIONAL SYSTEM.

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Abstract: Young specialists must be equipped with the most up-to-date knowledge, have their creative abilities and research skills developed, and be encouraged to cultivate a continuous need for expanding their intellectual horizons.

Keywords: qualities, specialist, skills, outlook, motivation, effectiveness, practice, adaptation, methods and approaches, engineering, technology.

Under modern conditions, the development of research areas within additional professional education clearly demonstrates an unconditional improvement in the quality of personnel training. Young specialists must be equipped with the most up-to-date knowledge, have their

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creative abilities and research skills developed, and be encouraged to cultivate a constant need for expanding their intellectual horizons.

However, it should be noted that a number of problems exist that have led to higher education lagging behind contemporary demands, and even more so behind the needs of the future economy and cultural development, toward which the educational system is obliged to be oriented. This necessitates the search for new and more effective management mechanisms within the educational process that would enhance students' motivation to acquire knowledge, orient them toward intensive independent study, and encourage active participation in research activities.

When addressing the task of managing research in order to achieve maximum effectiveness, we must not overlook higher technical educational institutions that train specialists for specific sectors of the national economy. It is well known that the difficulties graduates face during their adaptation to the workplace are largely connected with their insufficient awareness of real production problems within these sectors. Even during academic and industrial internships, students are not always able to fully grasp these issues. Clearly, during the period of study it is necessary to seek methods and approaches that would allow us to build a reliable "bridge" between students' consciousness and the problems of the industry.

According to our deep conviction, based on the results of many years of experimentation, such a bridge can be a properly organized research activity aimed at finding new technical and technological solutions related to easing labor conditions in production. This includes inventive activity as well as the organization of experimental design work. This stage encompasses a very broad range of creative activities, beginning with patent research and ending with the manufacture of a scale model or a full-scale prototype of a machine, utility model, or device. Such an approach to organizing and managing students' research activities (SRA) contributes to the formation of professionalism among young people during their studies and reveals to them the practical value of knowledge. Most importantly, independent research activity under the guidance of an instructor shapes students as socially active individuals, making them collaborators in the struggle to accelerate scientific and technological progress, thereby solving an educational task of immense importance.

The authors' position on students' research activities, as outlined above, was formed on a well-grounded basis. As early as 2000, the authors formulated a number of specific managerial questions that required clear answers: Are students of our institute capable of invention? Is inventive creativity compatible with the existing system of managing educational work? Who can and who should assume leadership of this activity? What are the methodological foundations of students' inventive work? In addition, the authors sought to identify the most effective organizational methods and incentives that stimulate initiative and practical action on the part of faculty and administration in organizing this work.

Answers to all these questions were obtained as a result of a nine-year experiment.

It should be noted that initial efforts were primarily aimed at directing students' interests toward improving technical means in production. This involved assigning research tasks in the form of essays (E) during the first (or second) year, completing research-based course projects and laboratory work, as well as various types of scientific and educational research activities (C) during the second year (with research completed in the third year), and preparing final qualification theses (FQT) focused on a specified research direction.

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The logical scheme of the movement of creative thought toward solving a problem throughout the entire period of study can be represented as follows: E–C–FQT, where the arrows indicate the transition from a lower level of cognition to a higher one. Over the nine-year period, approximately 15 new technical solutions were developed at the level of inventions, and 9 patents were obtained for the proposed inventions. From the authors' perspective, throughout the process of conducting research activities—from the simplest handmade product and preparation of an essay to the completion of a graduation thesis—it is necessary to incorporate various psychological and pedagogical aspects that facilitate inventive or scientific thinking.

During the experiment, difficulties in managing research activities were also identified, which pose challenges for organizers of students' research work. This is explained by the fact that the knowledge possessed by students is often insufficient to overcome the tasks they encounter in a given industry, leading to the emergence of a psychological-cognitive barrier. As a result, a contradiction arises between the emerging cognitive need and the lack of necessary knowledge, which creates prerequisites for engaging students in active exploratory activity.

Ideally, the best outcome would be for each student to independently arrive at a solution to the given problem. However, the authors believe that granting students complete freedom in solving cognitive problems is not advisable, since due to individual differences they may find solutions at different times, complicating the management of the cognitive process, and may also choose different paths to achieve the goal. Some of these paths may be incorrect, potentially leading to the formation of inaccurate conceptions of problem-solving methods. Therefore, an important aspect of overcoming the cognitive-psychological barrier is managing the search for solutions. This is where "guidance" comes into play.

There are two types of such "guidance":

1. Students are encouraged to independently conduct certain experiments and explain their results. In this case, it is advisable to use so-called "provocative" research tasks that stimulate students to search for solutions, thereby helping to overcome the cognitive-psychological barrier.
2. The instructor works together with students. In this case, it is appropriate to jointly develop algorithms (rules) for solving cognitive tasks, based on the modeling method. The foundation of such algorithms should be the "theory of similarity," which helps reveal connections and regularities in objects, processes, or phenomena of the same nature.

An important role in the effective management and development of students' research activities is played by the organization of conferences, exhibitions, and competitions dedicated to the results of creative work. In all cases, discussion of research outcomes by students helps eliminate barriers that arise on the path to understanding truth and thus contributes to overall scientific research progress.

In conclusion, it is necessary to answer the question of who can and who should lead and manage the policy of achieving maximum effectiveness from students' research activities. This issue appears to be decisive in addressing the problem.

There is a well-known truth: "One cannot teach what one does not know how to do oneself." Therefore, mentors of young people should be individuals capable of analysis, critical thinking, and seeking new solutions, and who are able to inspire and engage students.

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