

## Directing Students to Scientific Research Activity is the Main Condition of Educational Paradigms

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### *Abstract*

*Higher education has a special place in continuous education with the characteristic of combining the processes of teaching and scientific research. The evolution of social life throughout history imposes different conditions on education based on the requirements of the time. In this article, we tried to describe that educational paradigms are the main condition of scientific research activity based on university models and classic pedagogical paradigms. Our analysis and conclusions show that directing students to scientific research activities is the main condition of educational paradigms.*

**Keywords:** *higher education, scientific research activities, university models, educational paradigms.*

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### *Introduction*

**The importance of this topic.** Today's global economic and technical development, the synergy of social and spiritual life puts a number of demands on every person. This situation requires each of us to qualitatively perform many tasks in a short period of time, to solve problems using non-standard methods, to find and maintain our place in the environment of events and events. In fulfilling these requirements, each industry has its own range of problems and different approaches to solving them. Higher education is an important stage of the education system, which aims to educate the individual, and is responsible for the training of highly qualified personnel. Among the quality indicators of highly qualified personnel, the place of research activities is of particular importance.

The issue of developing research skills in students during the higher education process occupies a special place in the educational programs of UNESCO<sup>1</sup>. At the same time, according to research conducted by organizations such as the European Association for Quality Assurance in Higher Education (ENQA)<sup>2</sup>, the European Student Union (ESU)<sup>3</sup>, the European University Association (EUA)<sup>4</sup>, the European Association of Higher Education Institutions (EURASHE)<sup>5</sup>, the success of students in the development of scientific research activities depends on choosing the right learning strategy. If we take into account that education is a system of preparing people for life, it is not difficult to understand that its quality and level are of decisive importance for the perspective of the state and society. Therefore, a correct and strong educational strategy affects the prosperity of social life through the development of science in this area. At the center of modern educational paradigms, all attention is focused on the student, and for good reason. Because today's student is tomorrow's society. After all, "We aim to turn Uzbekistan into a developed country, and we can achieve this only through rapid reforms, science and innovation"<sup>6</sup>.

History has proven many times that all problems can be solved through science. True knowledge is obtained by research, by in-depth study of problems. Therefore, in this article, we will try to justify that conducting scientific research by students is one of the main requirements of a higher school (university), as well as of every educational paradigm.

### *The main part.*

Ensuring integration of science, education, production. It is known that science is one of the important factors that ensure the development of society. "In order to increase the knowledge and level of all members of our society, first of all, knowledge and high spirituality are needed. Where there is no knowledge, there will be backwardness, ignorance and, of course, error"<sup>7</sup>. Science helps to identify the causes of problems and find effective solutions to solve them. It should be noted that today, in every field of Uzbekistan, attention is being paid to improving people's life through science at the level of state policy. Higher education, which is considered an

<sup>1</sup> UNESCO Education Strategy 2014-2021. Paris, 2014. <https://unesdoc.unesco.org/ark:/48223/pf0000231288>

<sup>2</sup> [https://www.enqa.eu/wp-content/uploads/Diversification-of-EQA\\_final.pdf](https://www.enqa.eu/wp-content/uploads/Diversification-of-EQA_final.pdf)

<sup>3</sup> <https://esu-online.org/?publication=student-participation-innovative-practice-guide>

<sup>4</sup> <https://eua.eu/issues/16:eu-research-innovation-programmes.html>

<sup>5</sup> <https://www.eurashe.eu/resource-library/>

<sup>6</sup> Address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to Oliy Majlis 24th of January in 2020. <http://uza.uz/oz/politics/zbekiston-respublikasi-prezidenti-shavkat-mirziyeevning-oliy-25-01-2020>

<sup>7</sup> Address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to Oliy Majlis 24th of January in 2020. <http://uza.uz/oz/politics/zbekiston-respublikasi-prezidenti-shavkat-mirziyeevning-oliy-25-01-2020>

important link of the continuous education system, is qualified, competitive, highly educated, who can meet the requirements of the time, taking into account the country's perspective, who contributes to the development of science, culture, economy, and social spheres of the republic, who can think independently, who has high spirituality is a system that prepares high-potential specialists<sup>8</sup>. At this stage of the continuing education system, scientific and creative activities of scientific and pedagogical personnel and learners, development of science, technology, technology with the help of scientific research, preparation of recommendations on the application of the obtained results in the economy of the country and the educational process, scientific and methodological in ensuring the quality of education and personnel training such as conducting research<sup>9</sup>. From this point of view, it is of urgent importance to direct students to scientific activities in the process of education, to study the pedagogical mechanisms of forming research skills in them.

**University models and research.** In ensuring the integration of science, education and production, higher education has a special place as an important stage of continuous education. This interaction is implemented in the educational process and is reflected in normative documents - DTS, curricula and science programs. In the Concept of the development of higher education until 2030, issues such as the acquisition of research skills and qualifications of future specialists in their fields are listed among the strategic tasks of the development of higher education<sup>10</sup>. It is known that the research activity is manifested in the student's skills of identifying issues related to the field, conducting research (empirical and theoretical), analyzing the obtained results and forming conclusions based on the completed work. In this document, reforms carried out in higher education are called "University 3.0." the issue of coordination with the criteria is listed among the priority tasks of the development of higher education until 2030. It is known that universities of the "University 1.0" model are aimed at training specialists for specific economic and social sectors of society, and their main task is education. In the universities of the "University 2.0" model, it is envisaged that education will be organized on the basis of scientific research activities, and the main attention will be directed to ensuring the integration of education and scientific research. At this point, we found it necessary to quote the following thoughts of the famous Russian pedagogue scientist S.I. Hossen about the university: "A university should be, first of all, a scientific research center, a teacher is an active seeker who contributes to the expansion of knowledge in his field, a scientist who conducts independent research, a student is a future as a scientist, a participant in research activity, a place of training should be organized in the auditorium, laboratories where discoveries and new scientific truths are revealed. A higher scientific school, that is, a university, is a unit consisting of education and research"<sup>11</sup>. The thinker expressed these ideas in the fifties of the last century, and this corresponds to the content of the above-mentioned University 2.0 model.

Universities in the "University 3.0" model require a new image of higher education institutions, as universities are tasked with commercializing the results of scientific research developed on the

<sup>8</sup> On the approval of the regulation on higher education. ID-189. <https://regulation.gov.uz/oz/document/189>

<sup>9</sup> Allayarova, S. N. (2021). The formation of research skills in students as an important indicator of higher education. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(5), 1177-1187

<sup>10</sup> Order of the President of the Republic of Uzbekistan dated October 8, 2019 No. PF-5847 "On approval of the concept of development of the higher education system of the Republic of Uzbekistan until 2030".

<https://lex.uz/ru/docs/4545884>

<sup>11</sup> Gessen S. I. *Osnovyi pedagogiki //Vvedenie v prikladnyu filosofiyu*. M. – 1995. – T. 310

basis of knowledge acquisition<sup>12</sup>. This leads to the transformation of universities into entrepreneurial universities, and we can see this model in the example of the top 100 universities in the world today. We can observe the activities of many world-famous companies in the area of highly ranked universities<sup>13</sup>. The University 3.0 model has priority over the previous models, as it is a model that provides the integration of science, education, and production of the higher education institution, and allows continuous development of students' knowledge, skills, and abilities. Research experts distinguish two types of higher education institutions in the University 3.0 model:

- in the first form, the educational process is carried out by organizing high-tech start-up and spin-off companies<sup>14</sup> that develop the professional skills of students, teachers and graduates;
- in the second form, a strong scientific center (on the basis of scientific laboratories) will be established, and it is planned to deliver completely new scientific and technical products to the market. This increases the financial independence of the university.

Currently, the universities of the developed countries of the world are aiming towards the "University 4.0" model. In this case, universities are engaged in fundamentally changing the industrial and production sectors of the national economy, opening new directions, increasing revenues by reducing costs as much as possible, achieving digitization of every aspect of the economy by limiting the human factor, and offering new innovative models that ensure economic growth.

In relation to the content of the above-mentioned models, the issues we are researching require us to move from the University 2.0 model to the University 4.0 model. It should be mentioned that some of the higher education institutions operating in Uzbekistan correspond to the University 1.0 model, while some elements of the University 3.0 model are being implemented in the leading educational institutions. It is noteworthy that in all models except the University 1.0 model, scientific research activities remain the main factor of attractiveness of universities.

Analyzing the conducted research, we are convinced that the movement from the University 1.0 model to the University 4.0 model is the main condition of the modern educational paradigm. Each model has its own characteristics and complementary aspects. Advances in modern science require a radical reform of education under the influence of the Fourth Industrial Revolution. We emphasize that artificial intelligence, robotics, society and state management, the convergence of digital technologies that allow interaction without the human factor in production are the conditions of the modern educational paradigm, and these results can be achieved only through scientific research activities.

Universities have long been considered centers of knowledge. All knowledge aimed at understanding man and the universe was taught to the young generation by intellectuals-mentors<sup>15</sup>. The acquired and mastered knowledge became the basis for the formation of science.

<sup>12</sup> <https://nihe.bsu.by/index.php/ru/university-3> Sovershenstvovanie deyatelnosti uchrejdeniy visshogo obrazovaniya na osnove modeli "Universitet 3.0"

<sup>13</sup> <https://www.topuniversities.com/university-rankings/world-university-rankings/2022>

<sup>14</sup> A spin-off company is a form of business scale development, where it is envisaged to start an independent business by organizing a department of the company under the university. The organization of spin-off companies at universities is the basis for the development of the field based on scientific research.

<sup>15</sup> <https://luckyea77.livejournal.com/2620217.html>

Science is a systematized form of scientific knowledge, says N. Shermukhamedova<sup>16</sup>, a leading representative of science methodology. According to the development of knowledge (types), it reaches (or does not reach) the level of science after passing through several stages - everyday-practical, personal, mythological, religious, philosophical, scientific, etc<sup>17</sup>. That is, thanks to scientific research, knowledge and experiences enrich the content of science.

***Social significance of scientific activity.*** Scientific inventions of the 21st century are fundamentally changing people's lives and culture. Science helps mankind in a more comfortable life, prediction of natural phenomena, education of humanistic traditions and society, development of society, etc. The Internet, telecommunications and computers are accelerating the globalization of the whole world<sup>18</sup>. Researchers say that the world today is governed by three driving forces: politics, economics and science<sup>19</sup>. Politics and economics pursue short-term goals, while science and academic society pursue long-term goals. At present, human thinking is the most intensively working in the field of science - it is no secret that the main part of the energy of the intellect draws power from science. And science is the result of scientific research. Science creates new ideas, ideas change worldviews, worldviews determine the present and future of society. In a word, scientific knowledge forms a cultured person (society). In this sense, science has become the literal basis of the culture and development of the century in which we live. Possession of research skills in future specialists is one of the most important requirements for highly qualified personnel. Because if there are no research personnel working in a certain field, there can be no talk of innovations, developments, and efficiency indicators in this field<sup>20</sup>. Therefore, it is important for students to engage in scientific research activities.

***Educational paradigms and scientific activity.*** Educational paradigms determine the criteria of education according to the development and demand of the society. The concept of paradigm was introduced into scientific circulation by the American philosopher Thomas Kuhn in the 20th century<sup>21</sup>. According to Kuhn the concept of paradigm is the research object of the historian of science. However, nowadays the term is applied to almost all fields of research, and it is demanded by experts that scientific innovations in each field correspond to the evolution of paradigms<sup>22</sup>.

Pedagogical paradigm is a set of theoretical and methodological instructions recognized by the scientific community as an example (pattern, model) of solving educational and educational problems at a certain stage of the development of the science of pedagogy, and it is used as a conceptual model of education<sup>23</sup>.

<sup>16</sup> Shermukhamedova N. Ilmiy tadqiqot metodologiyasi. -T.: Aloqachi, 2014.

<sup>17</sup> Shermukhamedova N. Gnoseologiya. – 2007

<sup>18</sup> Vincentas Lamanuskas and Dalia Augienė / Procedia - Social and Behavioral Sciences 167 ( 2015 ) 131 – 140

<sup>19</sup> Lamanuskas, V. (2003). Natural science education in contemporary school. Siauliai: Siauliai University Press, p. 514

<sup>20</sup> Healey, M. (2005). Linking research and teaching to benefit student learning. Journal of Geography in Higher Education, 29 (2), 183-201.

<sup>21</sup> Kuhn, T. S. (1970). The structure of scientific revolutions (Vol. 111). University of Chicago Press: Chicago.

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<sup>23</sup> Testov, V. A. (2013). O ponyatii pedagogicheskoy paradigmy. Innovatsionnyie proektyi i programmyi v obrazovanii, (5), 16-20

According to researches, the following classic educational paradigms are distinguished:

- traditional - conservative paradigm (paradigm based on knowledge);
- rationalist (behaviorist) paradigm;
- phenomenological (humanistic) paradigm;
- technocratic paradigm;
- esoteric paradigm<sup>24</sup>.

In modern studies, we can also observe the following classification:

- cognitive paradigm;
- person-oriented paradigm;
- functional paradigm;
- cultural paradigm<sup>25</sup>.

### **Conclusions.**

Based on the study of the content of educational paradigms and the dynamics of university models, we believe that the following can be included among the goals of attracting students to research activities in the higher education educational process:

- formation of skills and competencies related to practical application of theoretical knowledge;
- development of professional potential by finding scientific solutions to problems related to the field;
- creating an environment of scientific creativity as a result of conducting scientific research and research;
- meeting the society's need for highly qualified personnel;
- to create a foundation for the country's economic and social lifestyle, sustainable development, etc.

In general, the acquisition of research skills by students, which is considered the main subject of higher education, is considered an important factor for human development. Because there will be no development in this field if there is no research activity in each specialty. Research is clearly visible in such situations as dissatisfaction with the present, improvement of the existing, finding solutions to problems, overcoming obstacles. Therefore, at all stages of educational development, the ability of experts to research has been in the spotlight as one of the main factors of development.

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