

Research Article

MECHANISMS OF CULTURAL INNOVATION ACTIVITY OF STUDENTS IN HIGHER EDUCATIONAL INSTITUTIONS



Applied Linguistics

Keywords: innovation, integration, innovative learning environment, e-literature, innovative ability, learning process, independent learning, e-learning, mastery indicators, innovative thinking culture, learning development mechanisms, innovative practice platform, student personal indicators, self-assessment system and individual control.

Sapaev Umidbek Abdullaevich

Researcher Urgench State University. City Urgench, Uzbekistan.

Abstract

This article is a scientific study of the mechanisms of formation of a culture of innovative activity of students of technical higher education. A number of references have been analyzed in defining the directions of scientific research, and the creation of educational technologies that allow students to dramatically increase the innovative learning environment and mastery indicators that can lead to a culture of innovative thinking has been identified as the main direction and goal of our research. As a result of our research, the need to create opportunities for students to use modern literature to increase their interest in science and improve their mastery. The article provides information on how to solve this problem, as well as the creation of electronic textbooks, manuals, task sets and electronic manuals for students of technical disciplines in several branches and their capabilities. Recommendations and suggestions are also made on the mechanisms of formation and development of integration of higher education institutions and industrial enterprises, the introduction of innovative technologies in the educational process and the formation of an innovative environment.

One of the main factors determining the level of development of a country is its level of development. The development of any field is carried out with the level of thinking, scientific potential, knowledge and innovative thinking skills of its specialists.

The training of innovative thinkers who can create modern techniques and technologies is the main task of technical higher education institutions and to achieve this, it is necessary to introduce innovative teaching methods and modern sciences in the educational process. This allows us to train professionals who can think innovatively.

Shelton K.A. and Arciszewski T. have studied the factors that lead to the emergence of innovation and its development as a result of scientific research. They found it very important for the successful implementation of innovations based on the following criteria:

- The formation of a social and political environment for innovative activities in the educational institution;
- Development of a business model for the widespread use of educational achievements in production;
- Creation of mechanisms for continuous implementation of innovation incentives;
- Establish continuous integration between education and multidisciplinary industries and ensure student participation in this process;
- The study of innovative thinking activities of each student and the development of programs to take it into account;

- Review the distribution of workload and establish tools to encourage the initial stages of innovative thinking;
- Creation of incentives and support mechanisms for the formation of teams implementing innovative ideas;
- Establishing multidisciplinary cooperation with industry and on this basis to create and develop new innovative pedagogy;
- Development of innovation financing policy and support for cooperation between industry and education [1].

As a result of the positive solution of the above problems, the prestige of education will increase dramatically and the personal individual characteristics of emerging professionals will be formed and developed. They also develop their professional skills and innovative abilities.

The processes of emergence and implementation of innovations depend on many components, their interdependence and sequence [2]. People's innovative abilities are constantly formed in the family, social environment, learning process and working conditions [3]. But within these stages, the stage that has the greatest impact on the formation and development of an individual's innovative abilities is the learning process. In the process of learning, a person strives to acquire knowledge focused on a particular field and to form personal skills. However, the lack of industry-oriented lifelong learning technology and field-oriented mechanisms based on the abilities, interests, and personal characteristics of each student has a negative impact on the development of innovative-minded professionals.

A new type of product or service may emerge as a result of a person's innovative thinking process, but any new idea can go out on its own unless there are conditions that can ignite the initial spark of innovative thought in the brain, i.e. an innovative environment that allows innovative thinking to develop. [4].

The process of creating and implementing innovations requires the systematic participation of many individuals and organizations. This process can involve academics, professors, teachers, students, managers, investors, industry partners, researchers, manufacturing companies and others. But the interest of each participant in the implementation of innovative ideas must be fully secured. Each person has his or her own system of thinking and the role and importance of higher education institutions in the development of their innovative aspects and capabilities is enormous [5].

A factor that helps to constantly increase the innovative potential of professionals is social awareness. To do this, in addition to the fact that the specialist has information about the shortcomings and achievements of his field, his knowledge of the needs and proposals of society, its strengths and weaknesses is aimed at identifying new areas of innovation, creating new products or services, creating healthy social spheres, creating new innovative techniques and technologies, improving working conditions with innovative elements and continuous scientific and technological discoveries. allows you to create innovative networks.

Innovation is about looking at our current work from the outside and developing a new idea that will help us do our work in a new way. Thus, the goal of innovation is to achieve a result in which the work we do is highly efficient and of interest, both qualitatively and quantitatively, or both. The effectiveness of a new innovation is assessed by its rapid and widespread implementation [6].

Innovative education is education that is used to develop innovative abilities and creative thinking as a core value and direction of the learning environment [7]. Innovative education mainly includes the following four aspects:

first, to awaken students' critical consciousness and encourage students to find the courage to ask questions;

second, innovative education engages students in innovative activities, innovations embedded in lifestyle;

third, students' creative thinking is realized in the teaching and learning process;

fourth, as a result of teaching students in an innovative learning environment, their creative abilities develop [8].

Innovations can be classified as evolutionary or revolutionary stabilizers [9]. Evolutionary innovations lead to a gradual improvement in growth, but require consistency; revolutionary news is often completely renewed in a short time, or the old is replaced by a new one. Supporting innovation reduces the amount of hard work available, while creating national innovations in education will radically change the entire industry [10].

When various innovations are introduced into the traditional learning process, for example, a more expressive presentation of new material using multimedia tools; the application of more effective teaching methods or new innovative methods in the teaching process can raise students' learning efficiency to a new level [11].

This evolutionary change partially improves the existing teaching method and allows students to learn the sciences better. Research-based, problem-based, collaborative, or small group-based learning methods are evolutionary in conducting hands-on activities because they change the way students learn. The use of learning technologies in a traditional classroom, the use of a projector, video or iPad, leads to evolutionary changes, as they only change some aspects of reading. But reforms in national education must always be revolutionary innovation, as they are aimed at a complete overhaul of the education system.

An example of such an innovative teaching system is the online teaching system, as it has led to structural changes that have radically changed the teaching process and the structure, format and methods of teaching. Meeting the requirements of modern education requires the introduction of innovative approaches to education, the introduction of new educational technologies, teaching using unconventional or non-traditional methods [12].

Due to the limited capacity of educational institutions, students are not able to adequately meet the requirements of innovative practical training, and the educational process is not flexible to new techniques and technologies. Therefore, the process of forming a culture of innovative activity of students is complex. It is necessary to take full advantage of the potential of manufacturing and maintenance enterprises in solving this problem and creating a new innovative platform for conducting innovative educational practices of students. With the help of a new innovative practice platform and relevant innovative laboratories, research in higher education institutions has become a new productive force of our state and will also be the basis for creating an innovative environment that allows students to form and develop innovative abilities. In addition, students would be able to communicate directly with professionals, study on an innovative internship platform, shape students' innovative thinking and find students who meet the practical requirements of companies. In addition, through innovative learning laboratories, students' research and scientific-innovative activities stimulate their interest in research, creating a basis for the development of innovative skills.

One of the main directions of our research is the creation of an innovative educational environment in technical higher education institutions. It is necessary to improve the educational technologies and methods used to create an innovative environment in the educational process on the basis of modern approaches, the use of digitization technologies using the database of science literature. In order to do this, students of technical specialties will be taught "Theory of Machines and Mechanisms", "Engineering and Computer Graphics", "Descriptive Geometry and Engineering Graphics", "Resistance of Materials", "Technical Mechanics", "Machine Parts" and "Innovative Design Engineers". The basics of "formation" were developed through the electronic program "TurboSite", their electronic textbooks, manuals and sets of electronic problems for practical lessons, as well as electronic textbooks and kits for the implementation of course projects. E-learning textbooks and manuals are based on the requirements of modern literature, and their structure is very convenient for students to use. E-textbooks and manuals provide information on the subject, theoretical questions, analysis of science terms, assignments and samples for its completion, applications that allow you to get acquainted with all the information created in the world of science, a list of recommended literature and self-assessment topics tests are also available. Students will first review the information provided on the topic and take a test on that topic. The tests are performed electronically and the results are issued electronically. Based on this, the student will have the opportunity to find out for himself how he has mastered this subject.

There are opportunities to draw drawings in the given tasks using electronic programs, students can also draw drawings using "AutoCAD", "Compass-3D", "Solid Works", "CATIA", "NX" and other programs. The transfer of information from the subjects in the system of electronic programs allows each student to study individually and independently. However, with today's traditional teaching methods, it is not possible to fully cover the indicators of students' interest in learning and mastery.

As a result of the introduction of innovative technologies in education and the digitization of data, students will have the opportunity to fill the gaps created in the process of mastering. It is also possible to analyze the mastery of each student electronically in the section of topics, and with which students it is possible to give explanations on which topics and to monitor their mastery on the basis of separate graphs. As a result, students' mastery rates increase rapidly and the effectiveness of education increases dramatically.

As a result of our research, we consider it necessary to implement the following conclusions and recommendations:

- introduce a mechanism for referral of students to appropriate higher education institutions, taking into account their individual abilities and aspirations;
- Continuous integration of industries with technical higher education institutions;
- Development of mechanisms for the continuous implementation of experiments and practical training in a direct production environment;
- Development of new innovative educational technologies in collaboration with experts in the field, which will provide students with a full range of information about the problems in the industry and find innovative solutions to them;
- Creation of mechanisms for the implementation of innovative ideas in production, created on the basis of cooperation between higher education institutions and industrial enterprises;
- Introduction of mechanisms to support the innovative environment, encouraging those involved in the process of creating innovative ideas and allowing them to further develop their activities;
- Creating an innovative educational environment that allows the formation of individual innovative abilities of the individual;
- Creation of innovative educational processes and adequate conditions that allow students to emerge new innovative ideas;
- Systematic creation of modern electronic databases that help students to work independently and develop innovative skills;
- creation of electronic textbooks that allow to raise the level of mastery in the field of science to a new level;
- Introduction of an electronic system for monitoring and evaluation of students' performance in the disciplines.

This would pave the way for the formation of higher education institutions that can not only offer innovative solutions to today's problems of any industry, but also to determine the future order of work and high-efficiency technologies, the ability to create new techniques and technologies. Also, higher education institutions focused on innovative education have reached a level where they can serve as a locomotive of innovative ideas for any manufacturing enterprise.

References

1. Shelton K. A. and Arciszewski T. 2007. Formal innovation criteria. *International Journal of Computer Applications in Technology IJCAT* 30(1/2).
2. Amabile, T. M., R. Conti, H. Coon, J. Lazenby and M. Herron. 1996. Assessing the work environment for creativity. *Academy of Management Journal* 39(5): 1154–1185.
3. Shavinina, V. S. 2003. *Understanding innovation: Some important issues*. London: Elsevier Science.
4. Engeström, J. 2005. Why some social network services work and others don't – or: the case for objectcentered sociality. http://zengestrom.com/blog/2005/04/why_some_social.html (Accessed 20 October 2008).
5. Laursen, K. and A. Salter. 2006. Open for innovation: The role of openness in explaining innovation performance among UK manufacturing firms. *Strategic Management Journal* 27(2): 131–150.
6. Brewer, D. and Tierney, W. (2012), “Barriers to innovation in the US education”, in Wildavsky, B., Kelly, A. and Carey, K. (Eds), *Reinventing Higher Education: The Promise of Innovation*, Harvard Education Press, Cambridge, MA, pp. 11-40.
7. Su Wangchu, Diao Hailin, Peng Qiong. Construction and practice of practical teaching system for innovative education [J]. *Higher Education Forum*, 2012, 7:37 -39.
8. Zhaoji Yu Shenyang, Songtao Zhou Shenyang. “An Analysis of Influencing Factors of Innovative Education and Development Proposals” *International Conference on Education Reform and Modern Management*. The authors - Published by Atlantis Press. 2014.
9. Osolind, K. (2012), “Revolutionary vs evolutionary innovation”, *Reinvention Consulting*, available at: www.reinventioninc.com/revolutionvsevolution (accessed October 16, 2016).
10. Yu, D. and Hang, C.C. (2010), “A reflective review of disruptive innovation theory”, *International Journal of Management Reviews*, Vol. 12 No. 4, pp. 435-452, available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1468-2370.2009.00272.x/full>
11. Meyer, A., Rose, D. and Gordon, D. (2014), *Universal Design of Learning: Theory and Practice*, CAST Professional Publishing, Wakefield, MA.
12. *Extreme Learning* (2012), available at: www.extreme-learning.org/ (accessed September 22, 2016).