

## On the Issues of Preparing Agricultural Specialists for Professional Activities

*Sultanov Elimbet Kalimbetovich*

*Dean of the Faculty of "Mechanization of Agriculture and Water Management," Candidate of Technical Sciences, Associate Professor*

**Abstract:** In the article, it was explained that ensuring the quality of education, assimilation of the results of learning in the educational process, begins with the identification of the necessary competencies. Competency approach ensures the quality of education in the modern education system. Competency approach serves to increase the activity of students. The activity of the pedagogue is important in this.

**Key words:** Higher education, competence approach, competence, competence, agriculture, cognitive, motivational, creative, person-oriented education, practice-oriented education.

**Introduction.** The Strategy for the Development of Uzbekistan's Agricultural Sector highlights that "...it includes key priorities for the development of agriculture, particularly reducing state participation in sector management, strengthening the role of market mechanisms, and ensuring the sector's investment attractiveness by training qualified specialists" [1]. This task emphasizes the need to improve the methods for preparing future agricultural specialists for professional activities and enhance their effectiveness to ensure the training of skilled personnel.

The Concept for the Development of Higher Education in Uzbekistan until 2030 states that "raising the quality of educational content to a new level and establishing a system for training highly qualified personnel capable of contributing to the sustainable development of social and economic sectors, and finding their place in the labor market, is a crucial priority" [2]. The necessity of scientifically grounded intensive development of agriculture, training competent specialists, and improving the methods for developing the professional competencies of future agricultural experts through the use of virtual technologies is of great importance in achieving educational outcomes.

Although virtual teaching technologies based on a competency-based approach and the theoretical conceptual foundations of pedagogical competence in the educational process have been studied to a certain extent in higher education institutions, there remains a need to improve the methodology for preparing future agricultural specialists for their professional activities. The need to develop and implement the theoretical and methodological foundations of effectively utilizing simulation and virtual (graphic visualization and 3D modeling), as well as Personalized Learning technologies, in preparing specialists for professional activities further highlights the relevance of this research topic.

**Literature Review and Methodology.** The theoretical, methodological, and technological foundations of the process of preparing future specialists for professional activities in Uzbekistan, as well as the theoretical and conceptual frameworks for monitoring the professional activities of production workers, have been researched by scholars such as R.Kh. Djuraev, Sh.E. Qurbanov, N.A. Muslimov, Q.T. Olimov, O.X. To'raqulov, E.S. Seytxalilov, J.A. Hamidov, B.B. Ergashev, and D. Khimmataliyev. The scientific and methodological bases for applying new teaching methodologies, developing the professional competencies of educators in vocational education, and creating methodological support have been examined by researchers A.R. Khodzhabaev, Z.K. Ismoilova, H.F. Rashidov, S.Yu. Ashurova, Sh.S. Sharipov, H.Sh. Qodirov, M.B. Urazova, and O.A. Qo'ysinov [3].

**Results.** From the results obtained, it can be observed that the evaluation criterion for the effectiveness of teaching is based on the size of the measurement, and the criterion for assessing knowledge is greater than zero. This indicates that the results of the experimental group exceed those of the control group in terms of knowledge acquisition.

When testing the null hypothesis based on the selection criteria for the students, it is found that the means of the two main sets are similar. The null hypothesis ( $H_0$ ) about the equality of the means is rejected. This suggests that the average achievement scores in the experimental groups were consistently higher than those of the control groups and never overlapped [8, 9].

Therefore, based on the statistical analysis, the effectiveness of the experimental trials conducted on the professional competence of faculty members at agricultural higher education institutions is clearly reflected in the results (15%). This indicates that the proposed methods and techniques for improving the professional competence of agricultural educators were effective in enhancing teaching outcomes.

**Discussion.** The current development of agriculture is closely tied to the professional readiness of specialists being prepared for this sector. As outlined in the Uzbekistan National Strategy for Agricultural Development, key priorities include reducing state involvement in sector management, enhancing the role of market mechanisms, and ensuring the training of skilled professionals capable of ensuring the sustainability of agricultural development [1]. To meet these challenges, improving methods for preparing future agricultural specialists for professional activities and boosting the quality of education through simulation, virtual, and personalized learning technologies is critical for enhancing the competitiveness of the agricultural sector and its investment attractiveness.

The implementation of virtual education environments plays a vital role in improving the quality of teaching, enriching it with innovative content, and fostering the ability of students to acquire new knowledge independently. Information technology (IT) applications in agriculture, such as "smart farming," "intelligent greenhouses," "big data" analysis, and efficient utilization of agricultural machinery, have become essential. As a result, future agricultural specialists need to master digital technologies as part of their curriculum and be able to apply these technologies in practical scenarios, thereby fostering the creation of new projects and solutions. The emphasis on virtual education within the agricultural sector enables these specialists to develop core competencies for addressing industry challenges through new technological approaches.

International trends in agricultural education, such as those in the USA and Europe, highlight specific competencies needed for future professionals. In the USA, these include the ability to design solutions to complex agricultural problems with an awareness of their social and ecological impact, teamwork, and professional problem-solving skills. In Europe, the focus is on the capacity to generate creative ideas for addressing agricultural problems, applying critical thinking to ensure environmental safety, and developing new strategies for solving agrarian sector issues [6].

In Uzbekistan, the preparation of future agricultural specialists incorporates competencies such as interdisciplinary knowledge integration, the use of computer technologies and telecommunications, creative problem-solving skills, lifelong learning, and the ability to address professional challenges using virtual technologies [7]. These competencies ensure that graduates are well-equipped to meet the evolving demands of the labor market and contribute to the modernization of agriculture.

A key direction in the rapid development of agriculture and water management is the efficient use, modernization, and implementation of new technologies in agricultural machinery. This requires not only technical knowledge but also the creation of scientific and methodological support for the teaching process. The application of pedagogical and information technologies, interactive teaching methods, and the development of educational resources will further enhance the preparation of agricultural specialists.

Ultimately, the development of information literacy, mastery of digital tools, and understanding the role of information providers (e.g., libraries) are essential in ensuring the professional competence of future agricultural professionals. This comprehensive approach aligns educational practices with the demands of a modern, technology-driven agricultural industry.

**Conclusion.** Based on the results of the conducted research and analysis of the scientific-pedagogical findings, the following conclusions can be drawn:

1. **Relevance of the Topic:** The preparation of agricultural specialists for professional activities is a theoretically relevant and pressing topic. However, the formation of professional competence among agricultural specialists within the educational process at higher education institutions in our country has not been fully explored. The modern requirements outlined in the strategy for agricultural development demonstrate that the integration of education and production plays a vital role in developing professional competence.
2. **Technological Competence and Its Synergy:** The technological competence gained during the professional training process possesses a synergistic character, encompassing agro-technological, technical, ecological, information, electro-automatic, information-technical, and organizational components. These competencies contribute to the professional development of future agricultural specialists.
3. **Competency-Based Approach:** The methodology for preparing future agricultural specialists for professional activities based on a competency-based approach clarifies the sub-competencies of technological competence. In agriculture, these sub-competencies include skills in agro-technological processing, activity design, agro-engineering, agro-techniques, working with hydro-energy, and preventing ecological imbalances. Developing knowledge, skills, and personal qualities in these areas plays a crucial role in the professional development of agricultural specialists.

## References

1. O'zbekiston Respublikasi Prezidentining 2019-yil 23-oktyabrdagi "O'zbekiston Respublikasi qishloq xo'jaligini rivojlantirishning 2020-2030 - yillarga mo'ljallangan strategiyasini tasdiqlash to'g'risida" PF-5853-son Farmoni.
2. O'zbekiston Respublikasi Prezidentining 2019-yil 8-oktyabrdagi "O'zbekiston Respublikasi oliy ta'lim tizimini 2030 - yilgacha rivojlantirish konsepsiyasi" PF-5847-son Farmoni.
3. Sultanov E.K., Bo'lajak qishloq xo'jaligi mutaxassislari kasbiy faoliyatga tayyorlash metodikasi. Monografiya. Toshkent. "Afzalzoda books". 2023. 252 b.
4. Sultanov E.K., Kasbiy kompetensiya asosida agrar sohasi mutaxassislari tayyorlash // "Kasb-hunar ta'limi", Ilmiy-uslubiy, amaliy, ma'rifiy jurnal. 2021. №4. 24-28 b. (13.00.00. №19)
5. Sultanov E.K., Kompetensiyaga asoslangan yondashuv oliy ta'lim muassasalarida agronom-pedagog kadrlar tayyorlash asosi sifatida // Talqin va tadqiqotlar (scientific-methodical journal) nauchno-metodicheskiy jurnal, Toshkent, №2. 2022. ISSN 2181 – 3035. 105-109 b. (OAK ro'yxati №15. 8.2)
6. Sultanov E.K., Oliy ta'limda kompetensiyaviy yondashuv doirasida talabalarning mustaqil ishi. Eurasian journal of social sciences, philosophy and culture, Innovative Academy Research Support Center, UIF = 8.2 SJIF = 6.051. Volume 2, Issue 4, April 2022, p.73-78. ISSN 2181-2888 [www.in-academy.uz](http://www.in-academy.uz).
7. Sultanov E.K., 3D model texnologiyasi asosida "Qishloq xo'jaligini mexanizatsiyalashtirish va avtomatlashtirish" fanini o'qitishning metodikasini takomillashtirish // Xalq ta'limi. O'zbekiston

Respublikasi Xalq ta'limi vazirligining ilmiy-metodik jurnali. Toshkent. 2022. №2. ISSN 2181-7839. 76-80 b. (13.00.00. №17)

8. Sultanov E.K. Agrar kompleksida bo'lajak mutaxassislarining ijtimoiy-kasbiy tayyorgarligini shakllantirish tizimini loyihalashning pedagogik shartlari. Журнал "Вестник" Каракалпакского государственного университета им. Бердаха, 2022. №1 (55) стр. 138-143. (13.00.00. №13)
9. Султанов Е.К., Совершенствование методики профессиональной подготовки будущих специалистов аграрного комплекса. Журнал "Kasb-hunar ta'limi", 2022. №2. Стр.84-89. (13.00.00. №19)