Western European Journal of Linguistics and Education
Volume 2, Issue 4, April, 2024
https://westerneuropeanstudies.com/index.php/2
ISSN (E): 2942-190X Open Access| Peer Reviewed

THE METHODOLOGICAL FOUNDATION OF CONTEMPORARY ENGINEERING EDUCATION IS THE FUSION OF EDUCATION, SCIENCE AND INDUSTRY.

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Abstract. Presently, there is a significant societal emphasis on nurturing well-rounded, spiritually mature, economically savvy, critical-thinking, highly educated, and cultured young individuals. This article discusses the importance of fostering students' professional competence within the educational framework, along with methods for cultivating concepts of professional competence, personal achievement, and competitiveness.
Keywords: competency, experiential foundation, educational and methodological resources, professional expertise, practitioner, vocational education.

Introduction. Presently, our country is undergoing substantial reforms within its education system, driven by ambitious objectives. In the President's Address to the Oliy Majlis, historically significant mandates were outlined, aimed at propelling the education sector to unprecedented levels. Given the current stage of societal development, there is a mounting demand for professionals with elevated levels of expertise and ingenuity. In today's global context, the economic advancement and sovereignty of nations are intricately linked to their technological prowess. The role and stature of each nation in the global economy are directly correlated with its possession of advanced technologies. The degree of technological advancement serves as a key indicator of a country's economic standing and scientific-production capabilities.

The transition of industrialized economies towards technological progress and the prominence of science and intellect-intensive economies underscore the pivotal role of highly skilled engineers and technical personnel in shaping the socio-economic landscape, exerting a profound influence on its trajectory.

In all sectors, including the oil and gas industry, there exists a demand for professionals who are committed to continual enhancement of their skills and knowledge, nurturing their intellectual capacities, and adeptly adapting to evolving production dynamics.

Consequently, in orchestrating the educational process, educators are compelled to revise the structure, formats, principles, and methodologies of student interaction. Through the adoption of a competence-based approach, conducive environments are cultivated for grooming specialists who not only excel in their professional domains but also seamlessly integrate into society, accomplish significant professional milestones, and exhibit readiness for self-development and perpetual skill enhancement.

Analysis of literature on the subject (Literature review).

The examination of professional competencies within educational settings has been explored by scholars such as V.I. Baidenko, I.B. Gladkova, L.I. Gurye, I.A. Zimneya, among

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others. Educational technology emerges as a crucial factor in shaping these competencies. Notable scholars contributing to the study of modern teaching technologies include V.P. Bespalko, V.V. Guzeev, G.I. Ibragimov, M.I. Makhmutov, M.N. Skatkin, V.A. Slastenin, and others.

A review of the literature reveals extensive research dedicated to contemporary engineering education and the integration of education, science, and industry. The demand for competitive professionals with higher education in the oil and gas industry is driven by innovative processes. The rapid pace of scientific and technological advancements, coupled with the swift obsolescence of certain technologies, underscores the necessity for engineers to continuously update their knowledge and enhance their training quality.

Engineering and technical education emerge as pivotal factors in socio-economic development, serving as robust intellectual and spiritual assets for the nation. The effectiveness of training technical higher education graduates in innovation hinges on various factors, including the quality of educational programs, the caliber of faculty engaged in the educational process, student quality, educational resources (both material and experiential), educational and methodological support, facilities utilized, and the efficacy of educational technologies.

Research methodology. The integration of education, science, and production involves leveraging the resources and opportunities of educational, scientific, and industrial organizations for mutual benefit.

In the contemporary landscape, the professional realm undergoes dynamic changes, leading to evolving requirements for modern specialists, graduates, and professionals. Initially, the concept of "competence" primarily denoted individual success based on personal qualities rather than a body of knowledge. However, in current discourse, the professional competence of graduates encompasses a blend of both general cultural and specialized competencies.

Professional competence implies a specialist's capacity to apply scientific and practical knowledge within their professional domain, possess comprehensive general and specialized knowledge, continually enhance their scientific and professional acumen, and autonomously tackle new professional challenges. This aptitude for achievement is fundamental.

The significance of this research stems from the escalating conflict between the demands for competitive engineers within the "education, science, and production" integration framework and the absence of theoretical, methodological, and pedagogical foundations for their incorporation into contemporary personnel training.

The integration of education, science, and production adheres to several principles:

- The efficacy of integration amplifies with the vested interest of educational, scientific, and industrial entities in fostering diverse relationships.

- Ensuring that all stakeholders involved in the integrated collaboration of education, science, and production are proportionately aligned with rapidly evolving needs and standards is imperative for achieving a high level of specialist training quality.

- By integrating education, science, and production into the fabric of personnel training, the competitiveness of future engineers is bolstered, directing them towards productive engagement within the industrial sphere.

The integration of engineering with science and production constitutes a dynamic, multifaceted system. Each state of this system corresponds to specific connections among its components, representing various forms of integration.

Possession of specialized competencies is a prerequisite for specialized roles and entails the readiness of a specialist within a specific field to function as a qualified member of a

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localized sector within that domain. The level and manifestation of professional training of a skilled employee entail possessing the requisite knowledge, skills, and abilities to accomplish specific tasks. Thus, skills may encompass both foundational and professional (specialized) aspects, as well as competencies.

Analyzing employer demands helps ascertain the need for professionals with specialized qualifications. For instance, in the case of an engineer specializing in industrial equipment within the oil and gas industry, proficiency in repair operations (pertaining to oil and gas equipment) denotes technical expertise.

Professional requirements for engineers encompass:

a) Professional knowledge and skills: This entails possessing fundamental professional knowledge and skills in specialized subjects, the continual enhancement of these competencies, familiarity with professional information sources, adeptness in utilizing them, managing personnel for entrepreneurship, knowledge of business etiquette, and practical application of acquired knowledge.

b) Computer literacy and proficiency in modern, profession-specific information technologies: This includes comprehensive knowledge of office equipment such as fax machines, copiers, and scanners, proficiency in creating presentations using programs like MS Word, MS Excel, MS PowerPoint, competency in email communication using MS Outlook, internet usage, familiarity with localized and regional professional information systems, and adeptness in modern information technologies.

c) Understanding of production technological processes: This encompasses managing processes related to the utilization of load-bearing mechanisms in assembling and repairing industrial equipment, employing control-measuring devices, overseeing repair operations, participating in equipment commissioning and testing post-repair and installation, and drafting documentation for these procedures.

d) Social and personal attributes: These include effective communication, organizational skills, amiability, intelligence, willingness to volunteer, positive attitude, goal orientation, attentiveness, preparedness, quick reflexes, high internal motivation, results-driven mindset, politeness, accountability, readiness to shoulder additional responsibilities and tackle escalating work complexities, willingness to adhere to tight schedules and undertake business trips, analytical acumen, teamwork ability, initiative, organizational prowess, capacity to foster effective relationships, leadership qualities, aspiration for professional growth, and commitment to continuous self-improvement through ongoing learning endeavors.

Conclusions and recommendations.

Therefore, the amalgamation of acquired competencies is encapsulated within the framework of professional competence, serving as an inherent trait of a graduating student - a prospective specialist. This is substantiated by the delineation of professional competence in two distinct aspects within pedagogical literature:

1) As the educational objective, representing the aim of professional training.

2) As an intermediate outcome characterizing the proficiency of a specialist engaged in professional endeavors.

The interaction between higher education institutions and industry occurs throughout the processes of education, workforce allocation, and utilization of personnel and specialists.

It's imperative to note that a substantial portion of the gross domestic product is generated within the industrial sector, with the oil and gas industry playing a pivotal role in determining the technological landscape of other sectors within the national economy and the social domain.

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Consequently, a fundamental shift towards positive transformation within the industry is indispensable for enhancing the nation's operational efficacy, as well as improving its socio-political landscape and bolstering its standing on the global stage.

Within the framework of integrating education, science, and production, the methodology for educating a contemporary engineer stands as a fundamental requisite for fostering professional competence. The outcomes of experimental trials on the methodology for training university graduates and the self-training system are directed towards achieving comprehensive, empirically grounded results. Its integration into the educational paradigm has demonstrated its efficacy in cultivating a holistic array of personal and professional capabilities among students - the engineers of tomorrow.

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