«Ғылым, білім және өндіріс интеграциясы - Ұлт жоспарыны іске асырудың негізі»  (№11 Сағынов оқулары)  
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Часть 3 

P R O C E E D I N G S  
of the International scientific-practical conference  
“Science integration, education and production - basis of the implementation of the Plan of the nation”  
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Part 3


Ғылыми еңбектерде «Ғылым, білім және әндіріс интеграциясы – Ұлт Жоспарын іске асырудың негізі» Халықаражы ғылыми-практикалық конференция баяндамалары жарияланды. Баяндамаларда жоғары қәсіптік білім берудің, болашақ энергетикасының, акпараттық технологиялардың, химия-биологиялық ғылымдарының, экономикасының, социология мен геосаясаттың, табиғаттың тікелей пайдалануының, тіршілік әрекеті қауіпсіздігінің, металлурия мен материалтанудың, коллектың құрылысының маңызды мәселелері карастырылды.

Ғылыми еңбектердің материалдары ЖОО ғалымдарына, мамандарына, оқытушыларына, магистранттар мен студенттеріне арналған.

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Труды Международной научно-практической конференции «Интеграция науки, образования и производства – основа реализации Плана нации» (Сагиновские чтения № 11), 14-15 июня 2019 г. В 5-и частях. Часть 3/


Трудах опубликованы доклады участников Международной научно-практической конференции «Интеграция науки, образования и производства – основа реализации Плана нации». В докладах рассмотрены актуальные проблемы высшего профессионального образования, энергетики будущего, информационных технологий, химико-биологических наук, экономики, социологии и геополитики, технических наук, рационального природопользования, безопасности жизнедеятельности, металлургии и материаловедения, транспорта и строительства.

Материалы трудов предназначены для ученых, специалистов, преподавателей, магистрантов и студентов вузов.
THE SYSTEM OF MODULE TECHNOLOGY IN THE TRAINING TECHNICAL, PROFESSIONAL AND POST-SECONDARY EDUCATION

In the mid-1970s, across Europe and other developed countries, one of the most important and significant developments in education and training was the development of competency-based standards to support the development of training programmes and curricula. Thus, the transition to competency-based standards was a response to criticism that education and training programmes did not meet the practical requirements of employers. In many professional fields, employers have found that graduates who have recently completed training do not meet further practical requirements and need further education or training.

The trend toward competency-based standards has begun, mainly in occupations associated with manual labor and craft, where it is clearly designated practical requirements for the work. Training in these professional fields was subject to traditional "school" approaches, including theoretical education combined with practice on individual skills, which was often carried out on outdated equipment and old methods. The curriculum of such programmes did not meet the rapidly changing needs of the labour market.

The concept of competency-based standards was intended to completely change the "cost-based" model of traditional education (the educational programme) and the traditional educational practices that compete with academic education. The traditional educational program determined what the teacher should teach. Some change in the approach to competencies was to move to the definition of what a student needs to learn in order to meet the standards required in employment.

The tool developed to implement this change is the concept of a professional standard. The professional standard develops the level of competence necessary for successful work in this profession. In turn, the description of this standard is used to develop the curriculum closest to the real needs. An important concept of competence can simply be described as the ability to use and exchange skills to meet the standards adopted in the work.

Modular programs were not widely developed and distributed, as it was connected with a number of difficulties in their creation and approval.

First, the strict requirements of state educational standards and standard curricula did not allow any change in the structure of the curriculum, especially the content of the disciplines (modular presentation of the material involves some reduction due to emphasis on the main professionally-oriented topics and issues).
Secondly, the science-based development of modular programs and modules requires a lot of time and considerable joint efforts of both teachers and researchers. If we take into account the problems of financial nature, it will be obvious that at the level of one educational institution such a problem is quite difficult to solve.

Third, the preparation of modular programs requires the use of a system-activity approach, which is a significant part of the teachers did not have enough knowledge, as a result of which in the work on the finished programs they had misunderstandings and errors.

The purpose of modular training is to gradually improve the level and quality of the learning process through the creation of result-oriented modular educational programs. Modular training has a number of advantages. This is an opportunity to meet the expectations of the system of training associations of employers and employees in a volatile and highly demanding labor market. The possibility of multi-level training, the creation of conditions for the development of communication skills and close contact with the teacher, more consciously-motivation study of professionally-motivational study of professionally important disciplines, the ability to quickly make changes in the program - you can develop new modules, and update existing modules. With modular training, constant feedback is provided, since after each module control is carried out, the modular structure of the programs contributes to the introduction of information technologies. Also important are new opportunities such as the regulation of training periods depending on individual capabilities, interests and abilities, result-oriented and close to the real needs of the workplace. In addition, modular training provides short-term training modules (training, retraining and advanced training), takes into account the continuity and continuity of training.

It becomes obvious that the competitive advantage of a person in the conditions of regularly updated scientific knowledge and developing technologies are such qualities as the ability and willingness to learn, to solve non-standard tasks, self-organization, teamwork, willingness to master knowledge without being organic by their specialization, creativity. In world practice, these competencies are called "skills of the XXI century".

The development of such competencies is one of the main challenges facing the modern system of education. Their approaches to the "education of the future" have formulated many international organizations such as OECD, UNESCO and others.

"Skills of the XXI century" have different variations, but most of the elements are the same. Here is an example of such a system of competencies developed by the initiative, The Partnership for 21st Century. Its competencies are divided into three groups:

- education (creativity, critical thinking, problem solving, ability to cooperate);
life and career (flexibility, adaptation, initiative, self-organization, productivity, responsibility, leadership);
technology (information literacy, the ability to correctly use information and communication technologies).

The competencies of the twenty-first century are something new. According to the American philosopher and educator John Dewey, pedagogy should educate a person who will be able to adapt to new situations in a free enterprise. The school, in his opinion, is a learning environment that must respond to the current requirements of life. The child in it should learn to solve problems on their own and adapt to changing circumstances.

It is undeniable that the teacher needs to regularly update their knowledge and skills. Especially relevant and due to the high rate of development of information technology and digitalization of the economy is the ability of the teacher to competently use and transfer this knowledge to students, which is one of the basic "skills of the XXI century".

Digital literacy is the ability to create and use content through digital technologies, including computer programming skills, information retrieval and sharing, and communication with others. There are different criteria for the development of digital literacy. For example, Doug Belshaw, the author of one of the concepts of digital literacy, highlights the following elements, including an understanding of the cultural context of the Internet environment, the ability to communicate in online communities, the ability to create and distribute content, the skills of using digital technology for self-development.

Therefore, a necessary condition to ensure that children are full-fledged individuals and active citizens, is digital literacy, which will help children better understand the world around them and themselves. The role of the state is to create the right conditions for solving these problems. There are many examples of the introduction of digital technologies in the educational process at schools, secondary technical and higher educational institutions.