Formation of Teachers' Competences through Modular Educational Programs

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Abstract: Scientific analysis of the term "competence" that identifies the main features of a competent person is given in this article. The necessity of this analysis is defined due to the fact that modular training is widely being used in the system of professional education which requires high level of teachers' professional competence.

Key words: competence, competency, key competences, module, educational programs, modular educational programs.

Competence in pedagogics is considered as a given requirement to an educational training of a student. Professional competence is one of the qualities of the present specialist; the interest to the problem of solving it in the modernization of the educational process is significantly increased. This is one of the characteristics of his professional role, that is, competence is a measure of compliance with this requirement, the degree of competence development and a personal characteristic of a man.

Low professional competence is the main reason for authoritarianism of a teacher's professional activities. What does the competence characterize? In everyday speech a competent person is knowledgeable, informed, authoritative in any business, who makes decisions, takes action in this sphere. In science both concepts "competence" and "competency" are widely used with different definitions. There are some differences between the concepts of competence and competency, in the dictionary edited by D.I. Ushakov: "competency" is awareness, authoritativeness; "competence" is a range of issues, events, in which a person has an authoritativeness, knowledge, experience and power".

If we analyze the concept of "competency", we consider it necessary to take into account the interpretation of the following scientists:

- by N.V. Bagramova – it is the ability based on knowledge, educational and life experiences, values and inclinations, to solve the problems and challenges effectively that occur in everyday life situations [1];

- by G. Ravenna – it is a specific ability to do a particular action effectively in a particular subject area and includes highly specialized knowledge, a special kind of subject skills, ways of thinking, and the sense of responsibility for their actions [2];

- A.V. Slastenin believes that it is an integral characteristic of business and personal qualities of an expert, which reflects not only the level of knowledge, skills and experience, but also social and moral activities [3];

- L.I. Fishman suggests considering a competence as a complex, integrated quality of a person that causes an opportunity to realize a professional activity [4];

- A. A. Cheremissina offers the following definition: it is a sustainable human ability to work that consists of a deep understanding of the nature of the tasks and solving the problem, good knowledge of experience, active mastery of his best achievements, abilities to choose the means and methods of actions, adequate specific circumstances of time and place, a sense of responsibility for the achieved results, the ability to learn from mistakes and make adjustments to the process of achieving the aims [5].

At the same time, many scientists believe that the term can be referred to 1605, as the first reference which appeared in Merriam-Webster dictionary. A Russian scientist I.A. Zimnyaya believes that the concept of competency was used even earlier in the history of mankind, and it is connected with the name of Aristotle, who studied "the possibilities of human conditions. The word is denoted by the Greek "atere" – "power that was developed and improved to such an extent that it has become a feature of the person".

As for the term "competence" we turned to the works of I.A. Zimnyaya.

I.A. Zimnyaya identifies three groups of competences:

1) Competences related to a man himself as an individual, subject of action and communication;

2) Competences related to a social interaction of a man and social environment;

3) Competences related to a person's activities.

Each group has several types of competences.

The first group includes the following competences: health saving; value-sense orientation in the world; integration; citizenship; self-improvement, self-regulation, self-development, personal and subject reflection; the meaning of life; professional development; speech and language development; mastering of the culture of the native language, mastering a foreign language.

The second group includes the following competences: social interaction; communication.

The third group includes the following competences: activity; cognitive activity; Information Technology [6].

Many scientists give their definition of this term, and at the same time, all the definitions are different, why is it like that, what is the complexity of a single formulation of the term "competence". All the complexity of the problem, to our viewpoint, is a symbolic way that has specific qualities depending on the field of knowledge, the sphere of usage. On the other hand, in science it is practically impossible to create a universal, single and absolute definition. However, the analysis of scientific definitions by some scientists shows that there are some identical definitions, indicating about the breadth, depth of the term "competency". Scientists believe that competency supposes knowledge itself and the possibility of its usage in practice, in action.

An Australian researcher T. Hoffman believes that the concept of competency is operationalized currently in three ways:

- as visible and fixed activity results that are connected with the assessment of the results of solving a certain range of problems and the program organization of its development;

- As some of realization standards of certain types of work, which are considered as a tool for in-house human resource management;

- As personal characteristics that determine the effectiveness of an activity, that is characteristic of the subject from a position of knowledge, skills and personal dispositions which are necessary for successful functioning in the framework of one or another position (professional, role, interpersonal). In this case "any individual characteristics that can be reliably measured and counted, a characteristic that pours the best performers from the average ..." can be included to structure of the competencies.

On the basis of these definitions the main features of a competent individual can be singled out: dynamism; sustained ability to the professional activity; a sense of responsibility; improvement of knowledge and skills to use them.

The first thing that characterizes the competency is the ability of a subject to realize his valuable aims at work. Competency as the unity of theoretical and practical readiness of a teacher to the realization of professional functions characterizes not only the activity, but also the teacher as its subject in his independent, responsible, initiative interaction with the world. Due to this characteristic, competency integrates professional and personal qualities of a teacher, directs them to the acquisition of knowledge and purposeful use in prediction, planning and realization of activities, activates a teacher in the development of his own abilities, in desire for self-realization in socially useful activities, it provides his professional development in the period training at university.

The dynamics of social economic development and the modern labor market conditions dictate the development of new forms of professional education and training. The necessity to change approaches and practices in professional education is the cause of the search for new solutions in the educational process that provide its effectiveness in tight periods of training.

This problem is especially acute in the creation and organization of the new components of the system of professional education, which include resource centers for various purposes. The analysis showed that the existing training programs that form the basis of program methodological provision of standard institutions of professional education do not meet the requirements of training especially in a short time, and do not provide them to network realization. In compliance with it for meeting the needs of the resource center, it was required to develop programs in different principles, which are based on a modular approach.

Modular training started at the end of the World War II in response to escalated social economic needs, when they were sorely needed the system of training professional skills in a relatively short period. Industrial tasks were studied in details and instructions for its theoretical and technological application were developed, as well as the safety measures in different industries. This was a kind of modular training, but this term has not been adapted to education and professional training. And just over a decade the authorities in the sphere of education and professional training responded to the trend of systemizing technical and professional training on a modular basis.

The idea of modular training was originated in the works of B.F. Skinner and took its a theoretical basis and development in the works of foreign scientists G. Russell, B. and M. Goldsmith, K. Kurkha, G. Owens [7]. The stimulus for the introduction of modular technology has served the Conference of UNESCO, which was held in Paris in 1974, which recommended "the creation of open and flexible structures of education and training, allowing adapting to the changing needs of industry, science, and to local conditions" [8]. Modular training met these requirements that allowed to build flexibly the contents of the blocks, to integrate the various types and forms of training, to select the most appropriate ones for a specific audience of students, which, in turn, had the opportunity to work independently with proposed individualized education program at their own pace.

The interest of different researchers to the modular training caused the desire to achieve a variety of purposes. Some (B. and M. Goldsmiths, G. Russell) aimed to allow a student to work at his own pace, to choose the appropriate method of learning for a particular individual. The second ones (G. Klingsted, S. Kurkh) aimed to help students identify their strengths and weaknesses, to give the opportunity to train themselves using corrective modules. The third ones (V.M. Gareev, E.M Durko, S.I. Kulikov [6] G. Owens) aimed to integrate various forms and methods of training. The fourth ones (V.B. Zakoryukin, V.I. Panchenko [9] aimed to build flexible learning content of formed units of educational material, while others (I. Prokopenko, M.A. Choshanov [10], P. Yutsyavichene [11]) aimed to achieve a high level of preparedness of students to the professional activity. V.V. Karpov, M.N. Katkhanov [12], M.A. Andenko [13] aimed to establish interdisciplinary connections and solve the problems of interaction between the special departments of institutions; M. D. Mironov [14], M. Teresyavichene [15] aimed to systematize knowledge and skills on academic discipline.

In our country, modular training appeared in the late 80s through the works of a researcher P.A. Yutsyavichene and her students [16].

Modular training, having absorbed the dynamics of the development of modern teaching theories, synthesized its features, allowing combining different approaches to the selection of the content more successfully, its presentation and methods of the educational process. This indicates the continuity of modular training in relation to other theories and concepts of training.

Indeed, modular training took the methods of the learning process management from the programmed training. And modular training can overcome the fragmentation of a programmed one by creating a coherent visual program and problematic supply of the content in a module, taken from the problem-based training. Modular training is characterized by adaptability, the realization of which is reflected in the specific ways of organizing individual differentiated training. This problem, as a large proportion of independent work of students and the lack of business communication in a modular training, which is compensated by the non-traditional forms and methods of active learning that allows activating the cognitive activity of students, to develop their curiosity and form communication skills.

Theoretical analysis of the modular training allows identifying the following features:

– Modular training provides obligatory elaboration of each component of the didactic system and a visual presentation of modular programs and modules;

– Modular training involves a clear structuring of a learning content, consistent presentation of theoretical material, providing of training with methodological materials and system of evaluation and monitoring of learning, which allows to adjust the learning process;

– Modular training involves learning variability, adaptation of the learning process to the individual abilities and needs of students.

These features of the modular training make it possible to identify its high technology, which is defined by:

– Structuring of learning content;

– Specific sequence of the presentation of all the didactic system elements (objectives, contents, methods of learning management) in the form of a modular program;

– Variability of structural organizational and methodological units.

So, summing up the analysis of modular training, we can define it as activity-based approach and the principle of training awareness (training program and a personal path of

training), characterized by a closed type of management through modular programs and modules which are highly technological.

In spite of different researchers' understanding of the goals of modular training, one thing is certain - the main goal of modular training is the creation of flexible educational structures, both in content and in the organization of training, "guaranteeing the satisfaction of a person's needs at the moment and determining the vector of something new, emerging interest".

The central concept of the theory of modular training is the concept of a module. Despite the sufficient maturity of modular training in substance and in the age aspect, there are still different views of the understanding of the module and the structure of its technology, both in terms of structuring the content of training, and in terms of the development of a system of forms and methods of teaching.

Modular programs include modules; each of it allows you to master necessary theoretical knowledge, to acquire practical skills, to check the quality of the skills and to make a conclusion about professional competency. The advantage of modular educational programs is the possibility of development of the individual modules in series or in parallel on a personal student's plan, and also the usage of it in the network without further adaptation and processing.

This feature of modular educational programs enabled to provide the possibility of the modules development not only based on one of the educational institutions of professional education. It also provided the realization of the network options for the development of educational programs in the network of educational institutions of professional education with various levels of material and technical base, opting for professional education, the module, the development of which can be provided with the highest quality. This feature is the most suitable for a network of institutions, combined by a resource center providing training for workers and specialists.

Thus, the modular training allows from the student position to get a professional education in a convenient form, and in the individual time mode, to reduce the preparation time for the methodical development of each course, the textbook program; from the perspective of the educational institution to teach more students with the same teachers' force and on the same training base, to have an additional resource material; from the perspective of the industry (based on the resource center) to conduct deep training of professionals with more coverage and lower costs; from the perspective of society to get and continue training in the system of continuing professional education.

The implementation of the modular educational programs to the system of high school started not so long ago; however, it is one of the important conditions for the realization of the Bologna Declaration. In accordance with this, we have developed modular educational programs for the specialty 5B010300 "Pedagogy and Psychology". At the first stage of the work we have studied the state educational standards of higher education of the Republic of Kazakhstan 6.08.013-2009 of this specialty, developed and introduced by the National Academy of Education named after Y. Altynsarin, Kazakh National Pedagogical University named after Abai in 2009. The subject of a special study was the requirements to key competencies of bachelors, the requirements to the level of graduates' education [17].

Considering the problem of forming competencies of future teachers- psychologists through modular training programs, we are primarily guided by the rules of the development of modular educational programs in Pavlodar State University named after S.Toraigyrov, where it is clearly stated: the main documents regulating the general framework of the development of the modules are: the Ministry of Education and Science of Kazakhstan, State educational standards of higher education, State educational

standards of postgraduate education, rules of the educational process of the credit training technology, approved by the order, a model curriculum relevant to a specialty [18].

The work on the creation of educational programs we started with a study of state compulsory standards of higher education, the model curriculum to identify the main requirements for the content and disciplines of the module and formed competencies, taking into account the fact that the formed competencies can not be duplicated in other modules.

Thus, in the state compulsory standards of higher education of the specialty requirements for key competencies are expressed as follows: Bachelor of 5B010300 "Pedagogy and Psychology" should have an idea about: the laws of development of the pedagogical process; know: the Constitution of the Republic of Kazakhstan, the Republic of Kazakhstan Law "On Education", "On the social, medical and educational support for children with disabilities", "Children's Rights in the Republic of Kazakhstan", the basics of pedagogy and psychology; be able to: apply the theoretical principles of pedagogy and psychology in the practice of professional activity; have skills: organization of the educational process in educational institutions and psychological work on the development and implementation of programs, projects, plans, teaching and educational activities and psychological support, support in the activities of pre-school, primary and secondary professional education; be competent: in improving the effectiveness and quality of education; formulation and solution of psychological and pedagogical problems [17].

Block 1 - general obligatory modules. Block 2 - obligatory modules in the specialty. The subject of our work is the creation of obligatory modules in the specialty. Each module should consist of 3 or more credit courses or small, complementing each other disciplines, or related disciplines to ensure continuity of curriculum and representing different levels of one discipline.

Requirement for social and ethical competences of bachelors, namely: fluent in the state language, the language of international communication, being able to use a foreign language dictates the desirability of combining professional Kazakh, Russian and professionally - oriented foreign language in the first module, which consequently will create conditions for the realization of the relevant competence. In accordance with the Message of our Head of State Nursultan Nazarbayev "trilingualism should be encouraged at the state level, in 2025 95% of the population should master the Kazakh language, we must not ignore the fact that through the Russian language more than one century Kazakhs acquire additional knowledge, broaden their scope of mind and circle of communication both inside the country and outside it" [19]. Thus, the module "Professional language training" has crucial functions of the educational process and assists the formation of a number of important professional competencies of future teachers-psychologists: the ability to read independently the scientific information in the language of media, be able to conduct quickly a conversation on a variety of topics without limitation styles of speech, to express the thoughts in different languages correctly.

The next module we named as "Introduction to psychological and pedagogical profession", the following disciplines: "Introduction to psychological and pedagogical profession", "History of Education" and "The development of educational thought in Kazakhstan", "The organization of scientific research in pedagogy and psychology" can be studied.

There is a question of the feasibility of combining these disciplines, we believe that the combination of these disciplines into one module will contribute to the mastery of culture thinking, teach a comprehensive approach to their duties, master all mental

operations in a high level, master the methods of personal expression and self-development by means of confrontation with professional deformations; know the basic trends in education, the main stages of development of pedagogy and education, historical conditions for the occurrence and development of education, the school as a social institution of culture. The discipline "Introduction to psychological and pedagogical profession" gives future teachers-psychologists imaginative, holistic perception of their future profession, help build a "professiogram" to find the most effective ways of professional growth. In a proper selection of the content of the discipline, based on the formation of specific professional competencies the consciousness of right or wrong choice of profession appears. A special place in this module is given the subject "History of Education", building the basics of psychological and pedagogical education, allowing to form the ability to see the stages of the educational system development, to find the causes, consequences of influences of historical changes in the educational system, to analyze the characteristics of each historical period, to see and anticipate further development of the school and the entire educational system as a whole. On the discipline, we have developed an electronic textbook "History of Education", where we included materials on foreign, Russian and Kazakh pedagogy.

Including of the discipline "Organization of research in pedagogy and psychology" in this module is based on the fact that the modern teacher-psychologist must be competent in the organization of his own research activities and should be able to organize the research activities of students, because without such knowledge the teaching process cannot be effectively organized. The title of the module "Introduction to the psychological and pedagogical activity" is due to that information of these disciplines are interconnected with logic of the scientific content, the possibility of combining of the practical lessons, as well as the possibility of combining the creative tasks, creating interesting student research projects at the intersection of these disciplines, etc.

Thus, in the course of this module important competences of teacher-psychologists are formed: the ability to provide valuable, meaningful guidance in the pedagogical heritage of the past and project them into the educational aspect of the present and future; master methodology and methods of psychological pedagogical research. In this way all the other modules of this specialty were created.

Besides, conducted work was based on the following fundamental principles:

- all educational programs were built flexibly in the form of a set of modules, based on an analysis of the labor market and the need for specific skills and abilities, with the possibility of additions and corrections, if it is necessary;

- the main content of programs were focused on the needs of the labor market, the real employment, expressed in specific applications and wishes of employers,. Employers' requests were considered for inclusion the themes of coursework, proposed topics in the work of training program in this specialty. According to request of employers the discipline "Psychological and pedagogical basics of working with gifted children" was included to the educational program "Pedagogy and Psychology".

- teaching methods were mainly oriented on practical activity of learners, especially in the framework of mastered competences, a teacher's role is to organize the learning process and to provide ongoing support during the implementation of practical work assignments by students;

Rating of training is included in the development of specific competences that ensure the implementation of work for a given type of activity in accordance with the profession/specialty. Also the assessment can be carried out with the participation of external experts (employers) that significantly improves the quality of learning results. In practice, this external assessment has been already carried out, the graduates of this

specialty defended final qualifying work in Pavlodar regional department for the protection of children's rights. All final works were highly appreciated; employers evaluated the practical part of the final works. However, they have proposed that practical part should be covered in publications of graduates during the process of writing their research works.

For realization the competences in the ability to select the content of education, to design and organize the educational process, depending on the profile of training, aimed at maintaining mental and social well-being of students this module is in need. Scientific and theoretical basis of laws and principles of learning and the development of personality, age and psychological characteristics of the learner in different age periods must be studied in this module. Such discipline is called "Psychology and Human Development". This module, in accordance with the Dublin descriptors on the levels of education (level 1) will form good basic knowledge of profession, which in turn will contribute to from a well-educated person with a broad outlook and culture of thinking.

The basis of the pedagogical knowledge can be filled through the module in the students of this specialty in which it is possible to combine disciplines such as pedagogy and pre-school pedagogy. The logic of creating this module is that the pre-school pedagogy is a branch of pedagogy, and therefore knowledge of pedagogy contributes to a comfortable development of new knowledge in the field of pre-school pedagogy. According to the requirements for the formation of modules, these disciplines are complementary, this module will help consolidate or expand the creative tasks, find the general and the particular in the theory of science, reveal the specifics of pre-school pedagogy, reveal the age characteristics of pre-school age, their inclusion in the pedagogical process; such an approach would create a feeling of success of each student. So, the modular distribution of the content of the training material allows to form professional competences that enhance competitive future specialists.

In modern educational practice in adult education and training of the employees modular programs are increasingly used.

Russian researchers as Oleinikova O.N., Muravyeva A.A., Konovalova Y.V., Sartakova E.V. are the authors of the textbook "The development of modular programs based on competences", they name the following advantages of such programs:

– Conditionality of socio-economic development requirements;

– Presence of a constant feedback to the requirements of employers to the skills and knowledge of workers that provide involvement of employers / social partners in the analysis procedure of professional skills needs;

– Acceptability of rapid updating or replacing specific modules in changing requirements to a specialist;

– Opportunity to individualize training for each student depending on the student's needs, taking into account his level of competence and experience by combining required modules;

– Possibility of using the same modules in several training programs;

– Independence of the realization of the module from the presence or absence of a particular teacher, as the methodology and training materials can be mastered by other experts [20].

The principles and procedures of modular programs development based on competences are examined by the authors. This approach to the development of educational programs is quite consistent with the concept of learning throughout life, because it has the aim of forming such qualities of a specialist as the ability to adapt to changing situations in the professional sphere, on the one hand, and the ability to continuous professional development, on the other. This approach to learning allows

creating a feeling of success of each student through the educational process, in which the student can and should take over control of his own learning.

In addition, this approach allows combining theoretical and practical components of the training, integrating them. A comprehension of the role of theoretical knowledge in the formation of competences, organize and systematize them in this context, that ultimately leads to increased motivation of students to learn theoretical material.

Conclusion

In conclusion, the necessity to develop modular educational programs of training is to raise the professional competence of a teacher, to initiate and create pedagogical knowledge and technologies and use them, to make changes on the basis of reflection in his own professional activities.

The solution of these problems is possible primarily through the updating of the content, based on a new concept of development. Therefore, in the "Orleu" National Training Center, large-scale of work on the development of modular programs, teaching tools, digital educational resources, training are relevant to the modern world trends and tasks of reforming the education system of Kazakhstan which is held.

Cardinal modernization of the content is based on the competence-based approach that promotes the formation of new format teachers. All educational programs aimed at the development of conceptual knowledge of the teacher and teacher of high institution, helping him to form the ability to build his work so that pupils and students - future teachers would train through the integration of learning and action, theory and practice, active independent work of pupils, the teacher's attention should always be focused on the formation of his functional literacy.

To improve the quality and innovative capacity, as well as mobility and flexibility of educational programs, as it was already noted, the modular principle was used.

Under the educational module thematically completed and time structured programming with the definition of objectives, forms, methods of teaching, control measures, methods of evaluation of educational achievements of students is understood.

Educational programs of the "Orleu" National Training Center have the same structure and consist of five modules:

- Legal and regulatory;
- Psychological and pedagogical (management);
- Informative;
- Technological;
- Variation.

For the category of "leaders of educational organizations" instead of psychological - pedagogical module or in addition to it the management module is introduced.

Modular programs are supposed to develop the following algorithm:

- Formulation of learning objectives;
- Selection and structuring of the content of the teaching material, respectively to the given goals;
- Development of control tasks for monitoring and self-assessment;
- defining criteria for evaluation and self-assessment of learning results.

The content of the regulatory module are matters of state education policy and strategy. So, in 2014 the issues of priority directions of education development in the context of the last message of the President of the Republic of Kazakhstan Nursultan Nazarbayev are still relevant [19], as well as the State Program of Education Development of Kazakhstan for 2011-2020 [21]. The demand for information on the regulatory and legislative documents, regulating the activities of educational institutions

and teaching staff remains acute.

As part of the psychological-pedagogical module it is proposed to consider the current trends of education, issues of psychological and pedagogical support for the development of education, especially the organization of the educational process in the organization of pre-school education, school, orphanage, a boarding school, and others.

Management module contains themes that reveal the basics of modern management educational institutions.

In informative module the basic ideas and regulations defining the modern educational paradigm are included: a research culture of a teacher, the formation of research skills among school students, forming functional literacy, critical thinking, the criterion system of assessment of students' achievements.

Technological module provides students with the opportunity to develop their interest to modern educational technologies.

The module of variation allows varying the content of education from a regional perspective, which gives a listener a choice of modules, taking into account the educational needs, allow to acquire those competences that are related to the solution of particular problems of certain professional activities.

Contents of lectures and workshops on the choice corresponds the profile of a contingent of students and topics of trainings.

All modules are based on the use of active learning (training, project work of students, etc.), the number of training time on the variable part of the curriculum (from 8 to 15%) is increased. The content training courses are completely updated and modernized; the practical component is greatly increased, which is realized on the basis of innovative schools, on the basis of the National Action Plan for the development of functional literacy of students in 2012-2016.

In 2010, at the Bucharest Conference of Ministers of Education of the Bologna process, the official accession to the Republic of Kazakhstan. Thus, Kazakhstan became the first Central Asian state - a member of the Bologna Declaration and participant in the European educational space.

The essential parameters of the Bologna process are:
• a three-tier system of higher education;
• ECTS academic credits;
• academic mobility of students, teachers and administrative staff of universities;
• European Diploma Supplement;
• quality control of higher education;
• creation of a single European Research Area.

All of these parameters we included into the education system of Republic of Kazakhstan.

Thus, the educational program is built in a modular principle that creates the possibility of building a set of modules, allowing the training at any level of professional competence of a listener. In these conditions the level of professional competence of a teacher of the higher professional school, having the opportunity to continuously improve his skills through training institutions and pedagogical staff is very important.

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