

Methods for Modelling the Process of Training Future Teachers in the Context of Implementing a Quality Management System in Higher Education Institutions

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Abstract

The purpose of the article is to identify and reveal different approaches to the concept of teaching future teachers quality teaching based on the analysis of Ukrainian and foreign studies. The leading methods of research of this issue are methods of analysis, deduction and induction, comparison and generalisation, which will help to distinguish the signs, comprehensively study the professional competencies, skills that make up the personality of future teachers in higher education institutions, demonstrating aspects and methods of actual development of pedagogical competencies and qualities of students based on the development of the higher education system and its quality. The article reveals and demonstrates the problem of preparing future teachers for pedagogical interaction and high-quality teaching through scientific generalisation of theoretical and practical foundations, methodological development of the effectiveness of methods; describes the educational and methodological support for information training of students and teachers; substantiates the processes of modernisation in the education system, which are systematically studied; states ideas for improving the content of the educational process and training of future teachers based on the use of innovative technologies during training; systematises the methodology for modelling the quality management system of education in higher educational institutions. The materials of our article are of practical and theoretical value for students, future teachers, teachers who want to improve the level of their professional qualifications, promote productive development in pedagogical activities, and for scientists and educational figures who study the qualitative implementation of the quality management system of education in the pedagogical sphere.

Keywords: methodological training of future teachers, professional immersion, professional qualifications, professional competence, quality management system of education, integrative approach, competence approach

1. Introduction

The profession of a teacher is multi-faceted, therefore each specialist must demonstrate a high level of academic achievements, their educational qualification, which should be in harmony with the professional one. Modern education develops on the basis of an optimal combination of components of the humanities, natural sciences and mathematics, the widespread use of new pedagogical and Information technologies on the basis of proper scientific, methodological and information support (Nosik et al., 2021; Ponomareva, 2021). Pedagogical design of professional training of specialists, the atmosphere in a higher educational institution is a multidimensional and long-term process

consisting of various models of the education system, upbringing that meet international standards and take into account ethnic differences (Vitvytska, 2019).

An important issue is that modelling teacher training processes should meet the needs for the development of the digital economy, digital society, and innovative entrepreneurship, which is set out in the documents on the concept of teacher education development. The assessment of their activities should be based on objective and expert indicators that come from various sources, government officials and representatives of education. Programmes and standards of teacher training should contain components of practical and psychological-pedagogical training, including teaching methods and the use of information technologies. Teacher training includes such stages as: initial formal education, beginning of professional activity (entering the profession) and professional development (Grinevich, 2018). The target motive of our article is the topic of the methodology and forms of training future teachers in higher education institutions based on the development of their competencies and qualities for effective teaching and the development of professionalism. It is necessary to identify the main methods and forms of improving the preparation of students for future teaching activities; substantiate the model of the learning process for future teachers; to reveal the problems that arise in the field of education and science; to determine and diagnose the level and quality of education, to obtain information about its condition, opportunities and conditions of construction, operation and development.

The analysis of modern scientific views has shown that the formation of skills and competence of future teachers in accordance with regulatory documents on the quality of education is an important problem of modern pedagogy. Many scientists studied the issues of training future teachers, developed methods for implementing information and communication technologies directly into the educational process (Ponomareva, 2021). Some have analysed the basic professional education programmes for Bachelor's degree in pedagogical education, developed programmes to ensure students' ability to implement the process in accordance with the requirements of the state educational standard for the quality of education (Anisimova & Sharafeeva, 2018). The issue of partnership and mutual benefit between disciplines has also been investigated (Smith, 2016). Some authors in the field of pedagogy and education described the processes of monitoring competencies, professionally-oriented teacher training, presented the content and structure of the concept of "methodological competence of the future teacher", demonstrated the tasks of professional training and recorded the level of formation of methodological competence (Shukshina et al., 2016; Berseneva, 2017).

The issue of developing a methodology for modelling the training processes of future teachers in the context of implementing a quality management system is very relevant, because in the higher education system there are a number of problems: an imbalance between public demand and highly qualified teachers, disharmony between the prospects for the development of society, global information technologies and the teacher education system, the level of ability of modern teachers to revolutionary and new reforms in the education system (Grinevich, 2018). Current Bachelors majoring in pedagogical education pay full attention to psychological-oriented learning, although most universities are trying to expand methodological courses, organise workshops, apply interactive forms of learning, and so on. That is, only practical training is not enough to successfully realise oneself and regulate the pedagogical process. Graduates of pedagogical universities are not quite ready to pass on knowledge, develop students' abilities, and promote the creative realisation of the future generation, because practice does not correspond to their theoretical achievements (Tumasheva & Turova, 2016).

It is worth noting that professional readiness for pedagogical activity is a complex integral formation of a specialist's personality, which indicates the quality of professional training, the level of skills and abilities, socio-psychological readiness to work in the conditions of the educational process. It is important to understand that pedagogical education in Ukraine is based on creating an innovative space and obtaining scientific support, which should be provided by future teachers, because it is innovations and reforms that can form a new generation that thinks creatively and has a high level of skills. Methods that will help improve pedagogical competencies and form high-quality teachers will become the basis of education in Ukraine and enable graduates of higher educational institutions to create their careers based on the principles of moral values, social justice, and responsibility. That is, it can be argued that it is the state that forms its requirements at the following levels: requirements for qualification students, which is reflected in the state order; requirements for the quality of student training and conditions for the implementation of educational programmes; periodic monitoring of the degree of compliance of the quality of education with the requirements of standards.

2. Materials and Methods

In the process of research, the following methods were used: theoretical methods (analysis of the quality

management system of education; synthesis (combining methods and technologies into a whole); concretisation (deduction) and induction; comparison of different approaches to the research of the presented question; generalisation and systematisation of results (establishing common qualities of subjects); method of classification of aspects of the development of pedagogical competencies and opportunities to improve performance; diagnostic (conversation with students studying at the Faculty of Foreign Languages; determining their readiness for pedagogical activity); empirical (study of research results; pedagogical observation in natural conditions (without artificial intervention in the educational process experimental (a natural experiment that will help determine the readiness of future teachers in the context of implementing a quality management system; methods of graphical representation of results (diagrams, tables and charts).

The experimental base of the study was the National Pedagogical Dragomanov University in Kyiv (subjects – a group of students). The study was conducted in three stages:

1. At the first stage, the theoretical collection and analysis of existing methodological approaches in pedagogy, economics, education system of Ukraine was carried out, which are devoted to the topic of modelling the training processes of future teachers in higher education institutions; the information data of dissertations, documents on education of Ukraine, articles, books, conferences were studied, in which theories, technologies and methods, certain aspects of the development of pedagogical professionalism and competence were deeply and comprehensively revealed; technologies and methods are shown, which represent the formation of a holistic, structured system of requirements and the construction of an education control system in the form of a V-model; the research results in the system of regulating the quality of education, professional competence, efficiency and effectiveness of training were studied and demonstrated; problems and requirements of the higher education system, which are the result of innovations and business processes were identified; the problem, object, purpose, forms and technologies of research of the presented problem highlighted, a plan for conducting an experimental study was drawn up; generalised conclusions of theoretical information were presented.

2. At the second stage, the research and observation of students in natural conditions during training and practical activities (at school) were carried out; the levels of readiness of teachers of the Faculty of Foreign Languages for quality material teaching to children were assessed; methods and technologies for possible improvement of the results and effectiveness of pedagogical activities were evaluated; the methodology for modelling the training processes of future teachers in the context of implementing a quality management system in higher education institutions was demonstrated; the level of dependence of teacher skills on the atmosphere at the university and the requirements of the education system was explained; the work on revealing the criteria for the readiness of future English teachers for quality teaching based on the model of O. Yu. Usata ("Model of training future teachers to introduce personality-oriented learning technologies") was carried out; the results were compared with the requirements of the state and the system of regulating the quality of education; the data of the V-model, which demonstrates a holistic and structured system of requirements for education were identified and processed; a survey and interview were conducted with future teachers who will teach the younger generation; conclusions were systematised, determining the level of readiness of students; results obtained in the course of experimental work were generalised.

3. At the third stage involves systematising and classifying material obtained in the course of work on monitoring the training processes of future teachers in the context of the implementation of the quality management system in higher education institutions; specifying and substantiating the theoretical and practical conclusions and results of the study, presenting comparative analysis and comparison of current studies of this problem with our work; revealing aspects of experiments of scientists devoted to the disclosure of pedagogical readiness to work in the conditions of the quality control system of education; generalising and logically systematising results of natural experiment and conversation; suggesting possible methods of improving the effectiveness of teaching; classifying and graphically presenting the results obtained. Recommendations and tips for improving the quality control of education based on the use of interrelated methods and solutions borrowed from the practice of managing large Information projects are also considered. In the course of the study, scientifically based forms and methods of applying innovative technologies are proposed, which helps to increase the level of students' readiness for pedagogical interaction in higher education institutions.

3. Results

3.1 The Importance of Training Processes for Future Teachers According to an Education Quality Management System

The current situation of the higher education system requires considering the topic of quality management in the context of information technologies and innovations in the modern world, where there is a globalisation of processes and a combination of national economies, which draws attention to educational systems and processes in the country. This situation is manifested in the fact that the state monitors the quality of education and helps it financially. The quality of higher education is a clear level of knowledge, skills, and competencies acquired by a person, which reflects their awareness and affects the quality of pedagogical activity. At the same time, the quality of educational activities corresponds to the level of organisation of the learning process according to certain standards. The quality of higher education in the country depends on educational activities, which makes the issue of implementing a system of control and regulation of the quality of education relevant (Dziana, 2017).

Modernisation of educational conditions and innovative changes lead to the fact that the quality of professional training of future teachers is influenced by such phenomena as: the quality of educational programmes, documents and standards; readiness of future students; information, methodological and material support of education; qualification of teachers of higher educational institutions; quality of education; the level of scientific research (articles, dissertations); the result of assimilation of knowledge, the level of formation of skills, qualities and abilities of teachers, the presence of motivation for self-development, etc.; readiness of students to perform professional functions efficiently (Bilyakovska, 2017).

I. Koreneva (2018) investigated the issues of preparing teachers for professional activities through the implementation of aspects of the system of regulating the quality of education. The leading methodological approach was defined as the competence approach, because it is aimed at the formation of practical skills, the development of ethical, behavioural qualities, value-motivational sphere.

In the last decade, much attention has been paid to the qualification and training of teachers (Vitvytska, 2019). These ideas are based on the basic approach that was implemented in the process of reforming education (1980s-90s). It was then that a general trend in the development of the teacher training system, based on the transition to higher pedagogical education, consisting of different models, was identified (Table 1).

Table 1. Models of Higher Degree Pedagogical Education

Model	Characteristics
Parallel	All programmes and disciplines are parallel during training.
Integrated	Combining theory with practice; studying the curriculum and professional topics; common in the Scandinavian countries.
Consistent	General and basic disciplines are studied in the first years, and practice, psychology, pedagogy take place at the final stage; common in Western Europe. The presented model may include subspecies, namely: "Zurich model" (special disciplines are studied at the final courses).

It can be noted that these models have a theoretical basis and should influence the creation of structural mechanisms of the pedagogical process, investigating the logical dependencies of pedagogical phenomena, etc.

Also, it is worth highlighting the so-called V-model, which exists for the formation of a complete, structured system of requirements and the construction of an education control system (Gusyatnikov et al., 2016; Tovkanets, 2019). This model has gained traction in the field of testing complex software systems. To systematise the requirements and quality indicators of education, it is necessary to define quality indicators, external and internal data. The requirements of society, employers and applicants are the top level of the V-model (quality in use).

At the second level of the V-model, state requirements are formed, which are set out in documents and laws, educational standards and administrative documents of the corresponding level. In general, they are well defined and constitute indicators of external quality. The third and fourth levels are responsible for forming the requirements of higher education institutions for educational services, which is reflected in educational programmes, plans, and regulations at the level of the educational institution. These requirements are subject to the second level and form

indicators of internal quality. The presented model helps to identify and clarify all the requirements that society puts forward for the educational process, as well as confirm that services meet these requirements and the level of quality.

3.2 Stages of a Natural Experiment

This experiment involved the following stages of work:

- conducting conversations with students and teachers, a natural experiment in the learning process and determining the stages of training future teachers; monitoring the level of teachers' readiness for teaching; presenting graphical processing of research results.
- determination of aspects of regulating the student learning process based on the existence of an educational quality management system.
- development of requirements for future teachers and technology for regulating the quality of education.

The study included the process of monitoring the learning process of future teachers and determining their readiness to teach in accordance with the requirements for the quality of education. Also, the method of conversation and the criteria of readiness of future English teachers for quality teaching based on the model of O. Yu. Usata (2019) were used. In addition, the experiment was based on observation of students and the presence of professional skills and abilities formed at the appropriate level. In particular, our research focuses on the level of future teacher practical and scientific-theoretical basis. In total, the study included 144 students of the Faculty of Foreign Languages (Department of the English Language), with 65 participants interviewed and monitored as direct participants in the experiment.

Analysis of the results of the diagnostic examination made it possible to conclude that 45% had a low (intuitive-reproductive) level, because they did not have interest and motivation for teaching activities. It is difficult for such students to reflect the processes of education and training of the individual, to demonstrate the features of modern pedagogical technologies, and so on. In addition, this group of subjects has only an initial idea of the teaching process (at the level of copying actions), they can master certain actions only with frequent use, after providing a sample. Also, an important aspect is that the subjects do not have motivation for self-realisation, creative development and self-education, so they need professionally-oriented help from teachers. 19% of students had a high (creative) level, because they had a deep interest in pedagogical activities. In addition, they had perfect theoretical knowledge, mastered the skills and abilities of modernisation and application of various methods and tools in the educational process. This group of students could independently create and apply various forms, methods and tools of teaching, view their results objectively, and critically analyse the learning process.

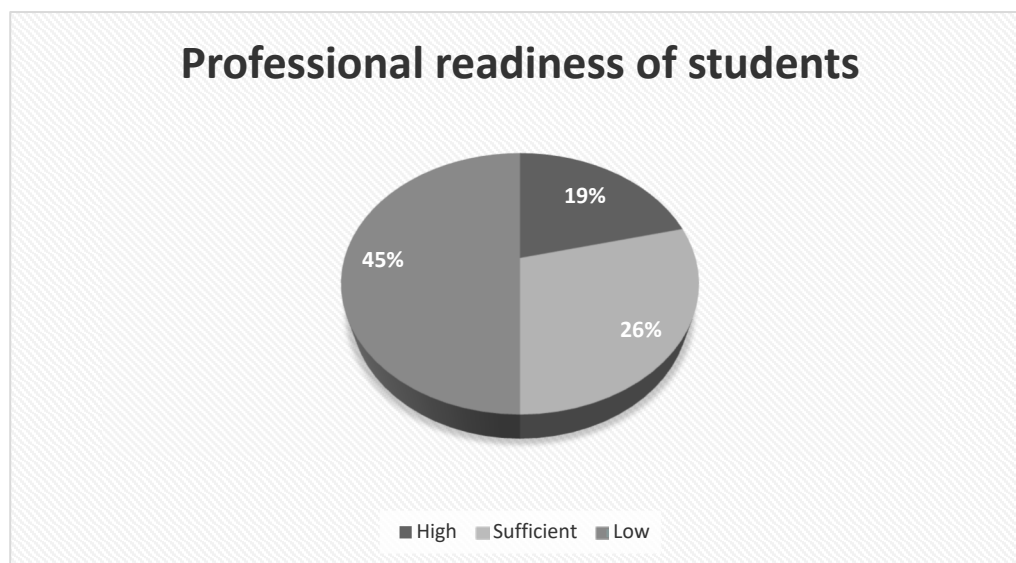


Figure 1. Level of Readiness of Future Teachers to Teach

26% of the subjects had a sufficient (constructive-search) level of readiness, which was revealed in their interest in teaching and creative self-development. These students mastered material on psychological, pedagogical and

professional disciplines, so they had an average level of formation of knowledge and skills on the application of innovative technologies in accordance with the requirements of the education system. Also, the ability to self-evaluate, self-knowledge is important, but the selection of a system of actions is accompanied by significant efforts (Figure 1).

Thus, it was determined that the majority of students are not ready for pedagogical activities and need to use special methods and forms of improving their skills, improving their own qualities and awareness in accordance with the quality management system of education. In addition, the criteria of student readiness were identified, namely: stimulating-motivational, creative, informational, personal-value, productive-reflexive and operational-activity (Usata, 2019).

It is important for higher education institutions to regulate the learning process according to the quality management system of education, which is based on the following aspects: to develop conditions for implementing processes and determine possible results; to determine the sequence of implementation processes; periodically apply control methods (monitoring, measurement) to determine the effectiveness of training; allocate resources that are needed to ensure the activities of processes; appoint teachers and scientists who will be responsible; identify possible risks; improve processes and quality management system; adhere to the principles of the process approach, improvement, leadership, customer orientation, staff involvement, communication management and decision-making based on actual data (Dziana, 2017).

The technology of monitoring and regulating the quality of education of future teachers should include three stages (Fokin et al., 2017):

- 1) formation of a Board that is responsible for quality, ensures compliance with requirements, summarises and specifies them, develops processes and procedures;
- 2) training of managers and responsible persons in the field of structural divisions that are subject to modern quality standards and should complete systems for regulating the quality of education;
- 3) quality control and diagnostics, evaluation of achieved goals and comparison with the previous level.

In this way, it is possible create requirements for qualified teacher training and simulate this process. First, it is necessary to provide scientific training of the teacher in the unity of theoretical, methodological, practical and humanitarian components with a combination of professional implementation. Secondly, it is necessary to develop the personal aspect of the student, their motivation, skills, abilities, adaptive capabilities. In addition, it will be appropriate to form the professional competencies of the future teacher, their creativity, desire for self-realisation and self-affirmation (Vorobyova, 2019).

4. Discussion

Examining the development of pedagogical training in accordance with the quality of education, we identified criteria for students' readiness for teaching, their level of awareness in their own field, suggested possible methods to improve the effectiveness of teaching in accordance with the quality management system of education. Valuable for our research were the results of scientific experiments that demonstrated educational processes, mechanisms for creating innovations and their implementation in higher education, ways to obtain high-quality higher education and its levels.

The method of forming professional and pedagogical knowledge and skills should be comprehensive and based on the principles of interdisciplinarity, because this is what helps to form professional knowledge and skills in various sciences that are studied in higher educational institutions. Irina Androschuk developed a methodology for the formation of professional and pedagogical knowledge (basic facts of science) and skills (the ability to use knowledge effectively and efficiently) (Androschuk, 2017). The implementation of this methodology should include certain stages: assimilation of theoretical concepts (comprehension and study of the material); formation of practical skills and abilities, which involves the application of theory in real conditions; generalisation of knowledge and improvement of skills, which helps to see the knowledge system as an integral element. Also, it is worth noting that the readiness of teachers for teaching activities is low, so the implementation of the methods defined by authors becomes relevant, which will contribute to the formation of motivation, professional knowledge, communication culture and professional qualities of students in unity, which will affect the quality of education in the future. The prospects for further research is seen in combining our methodology with the use of sound technologies.

Our research has generalised that modelling the training processes of future teachers is relevant in the field of

education in Ukraine. Tangent to this problem is the definition of the issue of quality management in education, which is based on a process approach, where management is managed by a system of business processes. The process approach should be implemented in higher education institutions, because it will ensure consistency, successful functioning of educational institutions and elimination of their problems, ensuring the competitiveness of the institution based on improving and increasing the efficiency of business processes. Based on these data, a study was conducted at the Rivne State University of the Humanities, which showed that the study of business processes is a topical issue (Schlichta, 2018). The functional approach operates in a higher education institution and ensures the existence of a job description (a document that is responsible for the employee's place, requirements, tasks, and responsibilities). When applying the process approach, there is a business process regulation that demonstrates the mechanisms and resources for the process, factors of influence, and the process itself. This study has shown that there are stages in the implementation of process management: 1) structuring the product portfolio (highlighting services and customers); 2) demonstrating the main stages of activity; 3) highlighting business processes; 4) building them; 5) creating a model of owners and participants in business processes; 6) defining the inputs and outputs of the process; 7) restructuring business processes; 8) describing business processes.

During the study, three areas of main processes were identified that demonstrate the activities of a higher education institution (Figure 2) (Schlichta, 2018).

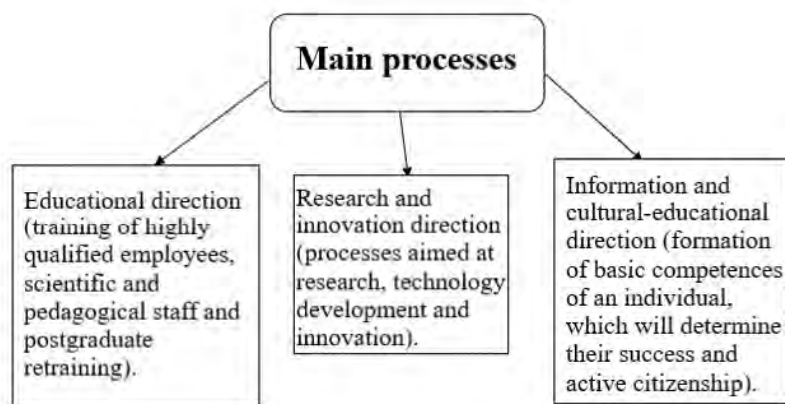


Figure 2. The Main Processes That Demonstrate the Activities of a Higher Education Institution

The issue of describing business processes in higher education institutions, based on such instruments as: methodological and programmatic (Schlichta, 2018), becomes relevant. The first type works on the basis of the selected modelling methodology and process description, and the second is a certain software product that provides modelling according to the selected methodology.

Education plays an important role in ensuring the economic development of the state, but its quality and services do not fully meet the needs of the state, so it was important to study the quality standards. When studying the issue of modelling the training processes of future teachers, theoretical aspects of effectiveness in the education sector were identified and approaches to managing the educational process were diagnosed (Tomashevskaya, 2019; Sergeeva et al., 2020). In the study of Russian scientists, the main factors influencing the quality management of education were demonstrated; two levels of education management (the level of the educational system and educational institutions) were identified. The research was aimed at applying an integrated model of quality management of educational services, which uses the PDCA Deming cycle (Plan-Do-Check-Act) as an integrating factor, which has 4 stages: planning, action, verification, implementation.

The result of training is the basis of qualification, as this category is determined in the format of knowledge, skills and competencies of the future teacher. A quality management system for education is based on learning outcomes, which can help to form a list of requirements for student achievement after graduation. In addition, transparency of standards is increasing, a single method for various forms of education is being provided, and a link between vocational and higher education is being established (Stolyarenko, 2015). Furthermore, certain achievements that meet the interests of society and education are clearly formulated, cross-cutting programmes are created without repetition, and work on omissions related to evaluation is improved.

In 2017, a multidimensional study was conducted (Kravchenya, 2017). Its results determined the level of knowledge of students (Faculty of Computer Science) when entering the university, where knowledge of the average (reproductive) level became predominant, which was caused by subjective (lack of time, difficulty in understanding) and objective reasons (lack of literature and technological equipment). It was found that the introduction of special courses and additional classes in the professional subject in higher education institutions is necessary. The study was based on a survey of special questionnaires ("Professional Knowledge"). Having analysed the data obtained, the author determined that the quality of theoretical preparation of students for teaching activity is of low and medium level. The recommendations consist of the fact that students-teachers should improve their level of knowledge in pedagogy, improve their knowledge in didactics, programming languages and distance learning, develop practical, analytical and predictive skills, which will ensure compliance with the quality standards of education. Worthy of attention is the study of professional training of future teachers in the context of a competence-based approach, where it was determined that the quality of teacher training depends on the flexibility of the educational process, which is aimed at meeting the needs of society (Vorobyova, 2019; Kozubovska et al., 2020; Ozbilgehan & Celenk, 2021). The author notes that it is possible to form effective training of future teachers by building a quality management system for education, which will be aimed at the formation of basic and special competencies. It was determined that an important factor in the formation of the competence of a future teacher is based on a new level of study of disciplines, when methodological training becomes important. I. Zimnyaya defines competence as a social and professional sphere of a person's life, where there is an influence of intellectual and personal aspects. Based on the current basic provisions of personality psychology, the researcher focuses on the fact that competence is a component of professional activity and has parts of acmeological influence. At the same time, three groups of competencies were identified: 1) competencies related to personality; 2) competencies related to communication with others; 3) competencies related to human activity (Zimnyaya, 2004).

The study of the level of formation of ethno-cultural competence in future teachers of music and choreography is relevant (Yin, 2017). The study itself contained several stages, where special attention is drawn to the educational and organisational one, where there is an awareness of concepts, terms, certain psychological and pedagogical phenomena that are associated with this type of teacher competence. At this stage, the model of the learning process consists of the use of methods (creative tasks, writing essays, essays), forms (visiting forums, special courses and seminars) and means of work (textbooks, programmes, technical equipment), which have a democratic basis and are aimed at improving the professional skills of future teachers. As the results of the study showed, the model of formation of this type of competence of students of music and choreographic faculties is an effective tool to improve professional readiness, improve the level of education and its quality in higher pedagogical educational institutions of Ukraine. The analysis of this issue was considered from the side of studying the content of training programmes for management personnel, the requirements for effective and efficient management of an educational organisation, the essence of management activities in education, personnel qualities, etc. (Fokin et al., 2017). The system of advanced training and professional training was found to be represented by traditional and innovative methods. The conclusions of the study are that individual learning should be prioritised, student autonomy in internships and the application of new learning models should be expanded. Interesting are the events that will influence future teachers and help form professionals based on the quality management system of education. First, it is the acquisition and purchase of innovative technologies and equipment, the increase of professional teachers with an extensive knowledge base. Secondly, important aspects are the strict selection of students and the development of the curriculum according to needs.

Important standards and recommendations for ensuring the quality of education have become such aspects as: a certain policy that controls the quality of education; approved programmes; availability of high-quality teaching and evaluation; determination of achievements and availability of student certification; quality composition of professors and teachers, innovative educational resources; conducting current monitoring and revision of programmes; availability of cyclical external quality assurance of education (Kirdan, 2017). Society is rapidly increasing the requirements for teachers, which encourages higher education institutions to intensively improve the system of regulating the quality of education. In other words, in order to develop a quality level of educational activity, it is important to identify priority areas that require increased responsibility. Such areas are the mission of the educational institution, active involvement of students in evaluating the effectiveness of training, a policy of transparent assessment, dissemination of academic integrity, and so on.

Worthy of attention is the study of M. B. Agapova, where it is noted that the combination of practical experience of future specialists, the correct formation of professional competence can arise only if the design, integrated and coaching approach based on interdisciplinarity is systematically used (Agapova, 2018). The design approach is a

transition to innovation from traditional education. Now the analysis of the current state of development of science and technological equipment is relevant, so it is the value aspect that is becoming popular. It is responsible for planning, making decisions, development, research, and so on. That is, design extends to the social spheres of life. A design approach can help to see phenomena, predict events, create a prototype and plan ways to achieve the goals of the learning process. It is aimed at developing future teachers' creative and critical thinking, independence and self-development. At such moments, students can realise the importance of the acquired knowledge and skills in order to use them in their professional activities. The basic component of the design approach is the project method, which forms intersubject connections and contributes to the development of parts of professional competence (semantic, procedural, motivational). All this affects the quality of education and meets the requirements and standards of education in the country. It is necessary to use this method from the first years of training, but gradually complicating it. Also, to form the competence of teachers, it is worth using the coaching method. Its main task is to encourage self-study, so there are aspects of the design approach. This method helps to develop and consolidate professional competence. Coaching will help to form basic knowledge, skills and abilities of a particular specialty, and in the long term, students will be able to use their knowledge in pedagogy.

It is worth noting that it is the project method and coaching that are based on the fact that there is a constant development of knowledge. Their use affects the integration of the content of professional training of future specialists. According to the quality management system of education, it is worth using practical experience as a basis for curricula and training programs for specialists in a particular field of pedagogy. An integrative approach will be most successful in order to systematically study the disciplines of humanities, socio-economic, fundamental, natural science, professional and practical areas, which will help to create conditions for the successful development of professional competence in future specialists.

5. Conclusions

Summing up all the above, it can be concluded that the quality of education plays a key role in creating an effective educational space in our country, so it is the regulation of the education process that is an important principle of educational activities in Ukraine. The quality of education is based on the competencies of future teachers, their knowledge, personal and social development, which contributes to an active study of the issue of teachers' readiness for educational activities. This is the reason for control and systematic monitoring of knowledge of future teachers, which corresponds to the quality management system of education. Ukraine is constantly undergoing radical changes in the higher education system, which affects the improvement of the internal quality assurance system of higher education. As a result, new methods and approaches are being developed to model the training processes of future teachers in the context of implementing a quality management system in higher education institutions.

It should also be summarised that the leading direction for improving the system of modern teacher training is the creation of a new model of teaching, which will be based on competence-based and integrative approaches. The main features will be lifelong education, having retraining and acquiring new generalised skills. This will create an orientation towards a new goal in the learning process, where all components of the educational stage in preparing a future specialist teacher should be integrated. Particular attention should be paid to the study of teacher qualifications and student training. The materials of this article can be useful for teachers, lecturers and scientists who are interested in issues of pedagogical competence, business processes in the education system, existing problems in higher educational institutions, difficulties in the educational process, and so on. In addition, students will find relevant material about the readiness criteria of future teachers, which will help them improve their skills and find weaknesses. Also, the data of this article will become important and informative for ministers who adopt standards and requirements, because our research presented methods for regulating the learning process in accordance with the quality management system of education.

In the course of research, new issues have emerged that require more in-depth study and complete solutions. In addition, the provisions and issues discussed in the article do not exhaust all aspects of the topic presented. The importance and relevance of the issue of teacher training and modelling of educational processes in higher educational institutions increases in accordance with the requirements of the quality management system of education, so it requires further consideration. The prospect of further scientific research in the fact that methods of deep and effective study of disciplines will be considered and optimal methodological and technical equipment for professional training of Bachelors and Masters will be developed. Further experiments and studies of this issue require substantiation of the methodological foundations for implementing our methodology at the stages of professional teacher training in a higher education institution.

References

- Agapova, M. B. (2018). Formation of professional competence of future social security specialists in the process of professional training. *Bulletin of Zhytomyr State University named after Ivan Franko: Scientific Journal. Pedagogical Sciences*, 3(94), 10-15.
- Androschuk, I. (2017). Innovative methods of training future teachers of labor education and technology for pedagogical interaction in professional activities. *Problems of Modern Teacher Training*, 16, 86-92.
- Anisimova, T., & Sharafeeva, L. (2018). Methodical training of future teachers as a requirement of new standards. *Journal of Social Studies Education Research*, 9(2), 65-79.
- Berseneva, O. (2017). Professional training tasks as an instrument monitoring of the methodical competence of future teachers. *Standards and Monitoring in Education*, 2, 9-16. <https://doi.org/10.12737/25137>
- Bilyakovska, O. (2017). Professional training of future teachers of natural sciences and mathematics: Qualitative measurement. *Pedagogical Sciences*, II(LXXX), 125-129.
- Dziana, O. (2017). *Introduction of quality management system in higher educational institutions*. Retrieved from http://ena.lp.edu.ua/bitstream/ntb/41906/2/2017/provadhennia_systemy_upravlinnia_58-59.pdf
- Fokin, N. I., Ivchenko, M. V., Sirotenko, N. D., & Artemyeva, R. A. (2017). Technology of introduction of quality management system in the organization of professional education. *Humanities and Social Sciences*, 5, 169-174.
- Grinevich, L. M. (2018). *Cabinet of Ministers of Ukraine 2018 About the statement of the concept of development of pedagogical education*. Retrieved from <https://mon.gov.ua/ua/npa/pro-zatverdzhennya-koncepciyi-rozvitku-pedagogichnoyi-osviti>
- Gusyatnikov, V. N., Bezrukov, A. I., & Kayukova, I. V. (2016). Education quality management system in the light of modern quality management concepts. *Information Security of Regions*, 2(23), 10-15.
- Kirdan, O. (2017). Challenges and prospects for the development of the internal quality assurance system of higher education in Ukraine. *Problems of Modern Teacher Training*, 16, 277-283.
- Koreneva, I. M. (2018). Pedagogical system of preparation of future biology teachers for realization of functions of education for sustainable development. *Innovative Pedagogy*, 4(2), 7-12.
- Kozubovska, I. V., Sidun, L. Yu & Myhalyna, Z. I. (2020). Multicultural training of teachers for schools and preschool educational institutions in the United States. *Scientific Bulletin of Mukachevo State University. Series "Pedagogy and Psychology"*, 6(1), 51-58. [https://doi.org/10.31339/2413-3329-2020-1\(11\)-226-229](https://doi.org/10.31339/2413-3329-2020-1(11)-226-229)
- Kravchenya, A. O. (2017). *Quality management of professional training of future teachers of computer science: dis. to obtain a scientific degree*. Starobilsk, Ukraine: Luhansk Taras Shevchenko National University.
- Nosik, V. V., Khomenko, M. M., & Krasyska, L. V. (2021). Paradigm of reforming higher legal education in Ukraine in the context of training practising students. *Journal of the National Academy of Legal Sciences of Ukraine*, 28(2), 140-149. [https://doi.org/10.37635/jnalsu.28\(2\).2021.140-149](https://doi.org/10.37635/jnalsu.28(2).2021.140-149)
- Ozbilgehan, M., & Celenk, S. (2021). A review of multicultural education in Northern Cyprus and Turkish learning levels of students from different cultural backgrounds. *Revista de Cercetare si Interventie Sociala*, 73, 114-132. <https://doi.org/10.33788/rcis.73.8>
- Ponomareva, N. S. (2021). Role and place of Informatics in the training of future teachers of mathematics. *Journal of Physics: Conference Series*, 1840, 9. <https://doi.org/10.1088/1742-6596/1840/1/012035>
- Schlichta, G. O. (2018). Classification of business processes in educational institutions. *Bulletin of Zhytomyr State University named after Ivan Franko*, 3(94), 107-114.
- Sergeeva, I. G., Abduraimova N. O., & Repkin, A. I. (2020). Development of an education quality management model. *Modern Economy Success*, 3, 31-35.
- Shukshina, T. I., Gorshenina, S. N., Buyanova, I. B., & Neyasova, I. A. (2016). Practice-oriented teachers' training: Innovative approach. *International Journal of Environmental and Science Education*, 11(16), 9125-9135.
- Smith, K. (2016). Partnerships in teacher education – Going beyond the rhetoric, with reference to the Norwegian context. *Focus Journal*, 6(3), 17-36. <https://doi.org/10.26529/cepsj.63>
- Stolyarenko, O. V. (2015). *Modeling of pedagogical activity in specialist training*. Vinnytsia, Ukraine: Nilan Ltd.
- Tomashevskaya, M. (2019). The research of the readiness level of future teachers to professional interaction in the

- conditions of master degree. *Scientific Bulletin of Mukachevo State University. Series "Pedagogy and Psychology"*, 5(2), 50-54. [https://doi.org/10.31339/2413-3329-2019-2\(10\)/2-50-54](https://doi.org/10.31339/2413-3329-2019-2(10)/2-50-54)
- Tovkanets, H. V. (2019). Improvement of the pedagogical training of future teachers as a condition for the implementation of the European educational strategy. *Scientific Bulletin of Mukachevo State University. Series "Pedagogy and Psychology"*, 5(2), 24-17. [https://doi.org/10.31339/2413-3329-2019-2\(10\)/2-24-27](https://doi.org/10.31339/2413-3329-2019-2(10)/2-24-27)
- Tumasheva, O. V., & Turova, I. V. (2016). Modeling cluster of methodical competences of pedagogical university students. *Tomsk State Pedagogical University Bulletin*, 8, 24-29.
- Usata, O. Yu. (2019). *Model of preparation of future teachers of computer science for introduction of personality-oriented technologies of training. Modeling of professional training in the conditions of European integration processes*. Zhytomyr, Ukraine: Publ. house O.O. Evenok.
- Vitvytska, S. S. (2019). *Modeling as a method of systematic research and design of educational space in higher education. Modeling of professional training in the conditions of European integration processes*. Zhytomyr, Ukraine: Publ. house O.O. Evenok.
- Vorobyova, O. M. (2019). Professional training of a future biology teacher in the context of the tasks of the competence approach. *Theory and Methods of Teaching and Education*, 47, 17-25. <https://doi.org/10.34142/23128046.2019.47.02>
- Yin, Ch. (2017). Model of formation of ethnocultural competence of future teachers of music and choreography from China in higher pedagogical educational institutions of Ukraine. *Problems of Modern Teacher Training*, 16, 307-313.
- Zimnyaya, I. A. (2004). *Key competencies as a result-based basis of the competency approach in education*. Moscow, Russia: Research Center for Quality Training.

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