Formation of the Key Professional-pedagogical competencies of the teacher in modern conditions

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Abstract

The article aims to investigate the formation of the Key Professional-pedagogical competencies of the teacher in modern conditions via different methods such as pilot conversation, interview, surveys, pedagogical observation, educational tasks and using the method of linear correlations. As a result, the formation of professional-pedagogical competencies requires the organization of the educational process, in which, instead of transmitting of knowledge from teacher to student, a new format of the subject-subject interaction will be introduced. As a conclusion, the formation of the key professional-pedagogical competencies furthers the improving of the level of pedagogical work and quality of modern education.

Keywords: Competence, Key Professional-Pedagogical Competencies.

Formación de las competencias profesionales pedagógicas clave del docente en las condiciones modernas
Resumen

El artículo pretende investigar la formación de las competencias clave pedagógicas y profesionales del profesor en las condiciones modernas a través de diferentes métodos, como la conversación piloto, la entrevista, las encuestas, la observación pedagógica, las tareas educativas y el uso del método de correlaciones lineales. Como resultado, la formación de competencias profesional-pedagógicas requiere la organización del proceso educativo, en el cual, en lugar de transmitir el conocimiento del profesor al alumno, se introducirá un nuevo formato de interacción sujeto-materia. Como conclusión, la formación de las competencias profesionales y pedagógicas clave fomenta el mejoramiento del nivel de trabajo pedagógico y la calidad de la educación moderna.

Palabras clave: competencia, competencias profesionales clave-pedagógicas.

1. Introduction

With the rapid development of technologies, changes in all spheres of human life, the need for highly qualified teachers who can work in a completely new environment and solve problems of varying complexity significantly increases and it requires special attention to their training. The level of moral qualities of the teacher, the formation of his key professional-pedagogical competencies predetermine the quality of education in general, as well as the formation of people as a resource – an important condition for the development and progress of modern society. Establishment and development of Central Asian countries occur in the context of the common global processes, where education and training of competent teachers play an important role in the creation of competitive state with high technologies and highly qualified specialists, who are able to work effectively on the international standards, ready for continuous professional advancement, development, self-education, with high social and psychological mobility (Lassnigg & Mayer, 2011). Kazakhstan being the country of the former Soviet Union has a shortage of teachers, professional level of which would meet all modern requirements. This is explained by the fact that a significant part of teachers has received their education in the times of the Soviet Union and they are still guided by the old values. In addition, a considerable part of this group of teachers does not have appropriate skills of Information and Communication Technologies, modern technologies, information resources, that requires finding an effective solution to the problem at the national and regional level. The most popular scientific approaches are: competency-based approach (rational and judicious use of knowledge in a particular situation) (Bibik et al., 2004); person-centered approach (attitude to each person as to the highest value depending on individuality) (Bech, 2003); Synergic approach (possibility of evolvement of several variants of events, open data exchange). Approaches aimed at the education of the individual, which is good at self-development, creative self-actualization in their professional activities. Modern society needs educated, self-reliant professionals who cannot only make decisions, predict the consequences of their actions, but also work in a team, have an active living and civic position (Ermakov, 2005).

2. Theoretical background
Formation of professional-pedagogical competencies is a response to the modern challenges. One of these challenges is globalization, with its positive and negative sides: obliteration of national traits, commercialization of humanitarian and educational spheres, and development of technology. Open education is an opportunity to get an education abroad, and it is one of the factors of youth migration from Central Asia and the former Soviet Union (Fukasaku, 2005). Access to information resources open new opportunities, but the vast majority of such resources are in English, which creates additional difficulties in their understanding and acquirement (Castells, 2010). High level of professional competition lies in the fact that graduates of higher education institutions become labor power abroad (Freeman, 2006; Kosdauletova, 2014), and immaturity of key professional-pedagogical competencies is the cause of rejection upon entry into employment in prestigious educational institutions for specialists in Kazakhstan. The urbanization of the population of Kazakhstan (55%) is the cause of the perceived demographic crisis, reduction of fertility and out migrations. Solving of these problems requires an optimization and efficient use of educational potential, introduction of innovations in scientific and technical spheres, which influence rapid changes in training methods, stimulate lifelong learning and further the speed and frequency of communication (Kamalova, 2015).

Positive motivation ideas, active power, which explains the behavior of the individual in different situations, are at the core of modern competence-based education (Raven, 2002). In particular, the effectiveness of competence-based education (CBE) is determined by the introduction of a system of generating processes (Chomsky, 1965) separating the competence and usage, which made it possible to increase the professional level of future specialists. The effectiveness of CBE was confirmed by the recognition of UNESCO and the Bologna process as an international education system, which determines the choice of training quality criteria. Competencies are reasoned abilities that determine life success in the socially significant field (Raven, 2002). Among the various types of competencies, such competencies that predetermine teacher’s activity in modern conditions are the most significant for our study: willingness to use new ideas and innovations, ability of self-education, self-control, critical thinking, readiness to solve complex problems, usage of resources, self-confidence, ability to work in a team, personal responsibility (Raven, 2002).

Special emphasis is placed on life experience and practice of students during the formation of professional-pedagogical competencies and competencies in higher educational institutions, which allows graduates to adapt quickly to the profession (Blašková et al., 2014; Hutorskij, 2003). Competence can be regarded only in the specific situation of professional activity, is a measure of the person’s ability to act (Mytnyk, 2004). Investigation of education indicators in European universities reveals gaps in the understanding of competencies and their relationship with the professional knowledge and skills. The lack of consensus and solution to a problem in the educational practice of European universities has contributed to the emergence of variant techniques and technologies of formation of key professional-pedagogical competencies of future teachers. They take into account various changing factors, the selection of which was based on a variety of philosophical ideas prevalent in society, individual peculiarities, as well as the cultural and cross-cultural context of a country.

The conflict in the theory and practice of the studied problem being mainly in the former Soviet Union is manifested in predominance of authoritarian morality and reproductive training of future teachers (Bolotov & Serikov, 2000; Markova, 1990, 1993), not in quality control of knowledge and skills, but in loyalty to the ideas, views, and political priorities. In modern conditions there is the need for qualified teachers able to build partnerships with students, or students who are able to support and encourage them to develop lessons based on the strengths of students, are an example (model) communication, conflict resolution, prosocial behavior (Bech, 2003; Jennings & Greenberg, 2009).
Today there is the need for qualified teachers, who are able to build partnerships with students, to support and encourage them, to develop lessons based on the strengths of students, who are a communication example (model), can resolve conflicts, have prosocial behavior (Bech, 2003; Jennings & Greenberg, 2009).

Low level or immaturity of key professional-pedagogical competencies are the cause of such negative processes as professional burnout (Hakim, 2015), loss of students’ interest to the subject matter Markova (1990), aggravation of the atmosphere in educational institutions (Jennings & Greenberg, 2009), increase of conflict frequency (Ancupov & Shipilov, 2006), usage of authoritarian methods of influence, such as punishment, control (Bech, 2003). These facts adversely affect the overall process of education. The introduction of the competence-based approach for future teachers should engrant and develop a set of competencies that define the student’s successful adaptation in society and professional environment (Ermakov, 2005). In this case, the competence can be defined as the desire and willingness to apply knowledge, skills and personal qualities for a successful career (Bech, 2003).

System of Kazakhstan's higher pedagogical education should be aimed at developing professional needs in a continuous replenishment and updating of knowledge, improving of skills and transforming them into professional-pedagogical competencies, and it is furthered by the experience of European countries. In Germany and Poland, students are trained to put knowledge into practice and their adjustments during their activity. Programs of key competencies, competency-based movement have proven their efficiency in Denmark, Italy, and the United States (Bibik et al., 2004; Kamalova, 2015).

The need for the formation of the key professional-pedagogical competencies is determined by:
The transition to innovative standards of professional training of future teachers, focused on humanistic values and morals;
The formation of a coherent educational environment in the Central Asian region, and cooperation with the European Union aimed at ensuring unified requirements for the preparation of future teachers;
The creation of conditions for the formation, improvement and expansion of key professional-pedagogical skills on the basis of higher educational institutions. Thus, there is a need for modernization of higher education system, complete rejection of the reproductive training and orientation on the formation of professional-pedagogical skills among students in today's rapidly changing environment. This is confirmed by increased requirements to a teacher, need for innovative technologies and techniques, mobility of all participants of the educational process. The purpose of our research is the theoretical substantiation and experimental verification of the formation of the key professional-pedagogical competencies of future teacher in the current context. In accordance with the purpose of the study, following tasks were set:
Characteristic of key professional-pedagogical competencies of future teachers and substantiation of functions of key professional-pedagogical competencies in their practical activities. Experimental study of formedness of key professional-pedagogical competence of future teachers. Ideas and conceptual provisions of the article, experimental data can be expanded and used for other researches in this area, comparing results, determination of general trends characteristic for the Central Asian and European regions, as well as implemented in developing of modern methods and technologies for training of future teachers to form their key professional-pedagogical competencies in other Central Asian countries

3. Methodology
The study consisted of two stages. The first stage included pilot conversation, interview, and surveys. The second consisted of pedagogical observation, educational tasks. Statistical processing of the results was carried out using the method of linear correlations. We have developed a program, which included such criteria: cognitive (knowledge, opinions, views), an emotionally valuable (motives, desires, needs, aspirations) and activity (actions, behavior). 356 students of higher educational institutions of Kazakhstan took part in our experiment. There were 126 students (35.4%) of 1st and 2nd years; 139 students (39.0%) of 3rd and 4th years; 91 student (25.6%) of 5th year. According to gender, 207 (58.2%) women and 149 (41.8%) men aged 17 to 24 years were involved in the experiment.

Conduction of pilot conversation with the students was held in an informal atmosphere in order to identify their interest in the problem, clarify the terminological apparatus. The main emphasis was placed on the subject-subject interaction between teachers and students, where students acted as experts and teachers as listeners. The method of pilot conversation showed that students are interested in the problem of key professional-pedagogical competencies (27.2%); however, they believe that this issue is not given enough attention (21.8%). They attribute this to low level of students’ mobility (16.9%), insufficient technical equipment of modern schools (14.2%), presence of general studies, because of which the number of specialization subjects is reduced (10.5 %), introduction of outdated procedures in the school educational system (9.4%).

Following method of interview required a clear statement of objectives and planning in order to identify knowledge of students, their perceptions of key professional-pedagogical competencies. We used half-standardized interview, which gave us an opportunity to take into account the individual characteristics of each student and to direct interviews with the help of the main questions and sub-questions in such a way as to afford to pass an opinion on the key professional-pedagogical competencies completely and thoroughly. Results of pilot conversations and interviews are presented in Table 1.

<table>
<thead>
<tr>
<th>№</th>
<th>Name</th>
<th>Quantity</th>
<th>%</th>
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<tbody>
<tr>
<td>1</td>
<td>Willingness to continuous learning</td>
<td>82</td>
<td>23.1</td>
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<tr>
<td>2</td>
<td>Subject knowledge</td>
<td>67</td>
<td>18.7</td>
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<tr>
<td>3</td>
<td>Ability to use information resources</td>
<td>61</td>
<td>17.2</td>
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<tr>
<td>4</td>
<td>Ability to make effective decisions in different situations</td>
<td>45</td>
<td>12.6</td>
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<tr>
<td>5</td>
<td>Ability to work creatively</td>
<td>34</td>
<td>9.5</td>
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<tr>
<td>6</td>
<td>Readiness to work in a team</td>
<td>21</td>
<td>5.9</td>
</tr>
<tr>
<td>7</td>
<td>Acquisition the wide array of traditional and innovative forms and methods of educational work</td>
<td>14</td>
<td>3.9</td>
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<tr>
<td>8</td>
<td>Desire to cultivate one's abilities</td>
<td>9</td>
<td>2.5</td>
</tr>
<tr>
<td>9</td>
<td>Critical thinking</td>
<td>7</td>
<td>1.8</td>
</tr>
<tr>
<td>10</td>
<td>Responsibility</td>
<td>7</td>
<td>1.8</td>
</tr>
<tr>
<td>11</td>
<td>Cultural behavior</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>12</td>
<td>Teaching tact</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>13</td>
<td>No answer</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>Total:</td>
<td>356</td>
<td>100</td>
</tr>
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Results of pilot conversations and interviews, presented in the table, show that students of higher educational institutions understand in general the need for formation of professional-pedagogical
competencies and correctly identify them. However, additional questions revealed that there is still a considerable part of the students (22.3%) focused on reproductive education and they are going to put this approach into their future teaching practice, which requires more in-depth studies in this field, as well as additional career guidance. Specially prepared educational tasks were used during the practical and laboratory classes in pedagogy in order to form pedagogical skills and strengthen professional skills. They included: the ability to analyze, organize, and find information; distinguish features, characterize and typify the problems of students; create projects, lessons and methodological support for the educational process; to evaluate, express and explain their point of view; work in a team, to interact effectively with others, use of ICT, and modern methods.

The solving of educational tasks consisted of several stages. At the first stage, the educational situation was analyzed; the causes, circumstances and mistakes of the subjects of the educational process were established. At the second stage, the motives and goals of actions, relationships’ features were identified. The search for solutions, the choice of appropriate forms, methods and means of pedagogical influence or correction were made at the third stage. Counting the obtained results of educational problem solving, a formula of O. Yarigin along with percentage-based cost relationship was used \( C = \langle \Omega, Q, T, F, \Phi \rangle \), where competence (C) consists of \( \Omega \) - problematic situations, Q – problems, T- solutions, F - abilities, skills, methods and algorithms that allow going from Q to T, and \( \Phi \) - many other competencies that extend the set F.

At the second stage, the pedagogical supervision of students during practical training in pedagogy and teaching practice showed that first-year students (31.8%) experienced great difficulties in communicating with children. Lack of experience and immaturity of professional-pedagogical competencies were manifested in familiarity, excessive severity, authoritarian methods of training and education, inability to focus students’ attention on the main points of the lesson, correct organization of priorities. Whereas senior students had difficulties in finding necessary literature and right information during their preparation for lessons. Superficial possession of material for 6.9% of students turned into a situation when they felt incompetent, could not answer the questions of students, could not influence the situation, choose a suitable method or made mistakes. Generalization of the data on knowledge, opinions of students of higher educational institutions, their motives, interests, emotional states, as well as practical skills in the course of interviewing, testing and accomplishment of practical tasks has given the opportunity to identify the levels of formation of key professional-pedagogical competencies of future teachers (Figure 1).

![Figure 1: Levels of formedness of professional-pedagogical competencies among students of higher educational institutions](image-url)
(H – High level, M – medium level, L – low level of formedness of professional-pedagogical competencies). The results presented in the chart show that the level of formedness of key professional-pedagogical competencies of graduates is much higher than that of students of 1\textsuperscript{st}-2\textsuperscript{nd} and even 3\textsuperscript{rd}-4\textsuperscript{th} years, due to the results of experimental work engagement in the process of learning, practical activities, acquired skills. At the same time first year students have a high motivation to develop their key professional-pedagogical skills, while the students of 3\textsuperscript{rd}-4\textsuperscript{th} years, have faced with the first problems or failures, are starting to doubt in their choice of profession. Only the improvement of skills during pedagogical practice allows students to regain their self-confidence, which is very important in teaching.

4. Results

The concept of our study was based on the understanding of competence as the capacity to effectively solve problems, basing on the acquired knowledge and skills, whereas competency is manifested in the mobilization of knowledge and experience in order to solve specific educational problems. This position allows us to consider the competence of the future teacher as a result of formedness of his/her professional-pedagogical competencies. Key professional-pedagogical competencies are determined by the priority goals and objectives of higher educational institutions, reflect the social and the professional experience of the person in the leading types of educational activities (education, training, maintenance); they are embodied in the educational standards of qualification characteristics of teacher’s training, teaching activities evaluation criteria, requirements for certification and others. The level of formation of professional-pedagogical competencies of future teacher predetermine the quality of education and training in educational institutions of different types, which puts forward a number of requirements to the activities of the modern teacher and the functions, which he/she performs. Key psychological-pedagogical competencies of the future teacher designate the ability to use acquired knowledge and skills, necessary moral qualities for successful educational activities and professional self-actualization. Competency-based approach in professional-pedagogical training of future teacher contributes to the formation of inter-related key competencies, which are being formed during the training, education, self-guided work and teaching practice. The introduction of competency-based approach becomes the basis for the preparation of future teacher, who can integrate modern ideas, experience and innovation in teaching practice, as well as to ensure effective teaching and educational work at a high level. Modern teacher should be able to analyze educational phenomena, diagnose, simulate, predict causal relationships and to find the right decision and evaluate own performance objectively. On the assumption of the nature of the pedagogical activity, the following key professional-pedagogical competencies needed for effective work in modern conditions were identified.

Goal-directing:

- Ability to set a goal independently and to define the problems of the educational process;
- Ability to plan and forecast training and educational activities;
- To create an algorithm and sequence of work;
- To take into account changes, options, to make adjustments.

Information:

- Ability to use different sources of information;
- In-depth knowledge of ICT;
Ability to use reference books, dictionaries;
Ability to prepare presentations, reports, theses, creative project;
Ability to conduct a dialogue, polylogue.

Intellectual:
Ability to analyze and compare;
Ability to see the main and collateral, typical and individual;
Infer and think critically;
Use diagnostic tools;
Have an idea of the experimental work in educational institutions.

Creative:
Creative thinking;
Ability to model, combine, transform;
Ability to generate new ideas;
Ability to find an alternative.

Evaluative:
Possession of different ways of verification and evaluation of own and students’ activity;
Ability to evaluate compliance of selected tools, methods and forms with desired goals;
To know how to correct mistakes;
Objectivity in the evaluation.

We have developed the concept, which included the functions of professional-pedagogical competencies.

The pedagogical function determines the knowledge of the age characteristics of children, teachers’ impact on all spheres of life, carrying out of educational work, judicious usage of forms, methods and communication technologies in order to develop of students’ abilities. Professional function involves teacher’s self-improvement, development of new methodological and methodical knowledge, training materials, increasing of the level of pedagogical skills, ability to cope with the tasks, to solve children’s problems. Social function is expressed primarily in connection of education and life, socialization of children, involving them in social activities, communication, social interaction, expression of responsibility, the creation of situations of success. It also includes the ability to communicate and interact effectively with students, teachers, parents and society.

The function of efficiency is aimed at obtaining the best results, taking into account the sensitivity. A constituent of effective manifestation of professional-pedagogical competencies is the ability to set appropriate targets, plan activity, select appropriate forms and methods of work. Function of efficiency is often evaluated by others: colleagues and parents. The success of the teacher in the achievement of educational and training purposes can be a source of information about his competence and motivation.

Thus, the formation of professional-pedagogical competencies requires the organization of the educational process, in which, instead of transmitting of knowledge from teacher to student, a new format of the subject-subject interaction will be introduced. Fulfilling creative tasks and solving problems, the student of the higher pedagogical educational institution can acquire new knowledge. The introduction of such forms of work as the trainings, master classes, business, simulation, operational games, creating a portfolio of the teacher allow students to consolidate knowledge in practice, to prepare for teaching practice. Student conferences, project work, writing term papers and theses contribute to reprioritize training of future teachers from the acquisition of knowledge on the formation of critical and creative thinking, ability to work with the information, to argue their own views. Particular attention should be given to the preparation of students to act in unpredictable,
probabilistic and conflict situations that require mobility and non-standard solutions, where professional-pedagogical competencies of the future teacher would be manifested.

5. Discussion

This study distinguishes the terms competence and competency, identifies key professional-pedagogical competencies and their functions. The problem of professional-pedagogical competencies formation in post-Soviet countries is understudied due to the following factors:
- Teachers’ orientation of post-Soviet countries to authoritarian morality, as well as reproductive rather than competency-based education (Bech, 2003; Kalashnikova & Zharkova, 2015);
- The lack of a common understanding of the terms competence and competency (Bolotov & Serikov, 2000; Ermakov, 2005; Markova, 1990);
- Different understanding of the identification and selection of key professional-pedagogical competencies (Kamalova, 2015; Lassnigg & Mayer, 2011; Panfilova et al., 2015);

The formation of professional-pedagogical competencies of the future teacher is ensured by competency-based approach in teaching, education, self-guided work, using appropriate methods and forms of work. Professional-pedagogical competencies of the Central Asian countries in the context of globalization processes and the experience of formation of professional-pedagogical competencies among students of pedagogical higher educational institutions abroad require further study in order to develop common approaches to the training of future teachers and selecting key competencies. The obtained results are confirmed by comparative analysis (Ermakov, 2005), retrospective analysis (Mytnyk, 2004), mathematical, statistical Hakim (2015) methods, using Likert scale and method of linear regression.

The effectiveness of teachers’ training is the result of the interaction of skills, motivation and personality features during the fulfillment of tasks. Good results suggest the presence of competence in order to achieve them (Hakim, 2015).

The study proved the need to form professional-pedagogical competencies among future teachers, which would be useful in different areas of their life. This statement is confirmed by the experimental study conducted by (Hakim, 2015). Determination coefficient was 0.967, indicating that the efficiency of the formation of professional-pedagogical skills in the study of variables and educational activities can be explained by their characteristics, while 3.3% of respondents were out of view of the author. Comparing of variables confirmed the hypothesis of positive changes in the formation of the different competencies of future teachers, which confirms the main points of our study (Hakim, 2015).

In addition, the orientation to authoritarian morality and reproductive education is not effective in modern conditions, because they require additional expenses for training and retraining of young specialists because of the immature key professional competencies, lack of skills or getting of outdated knowledge (Masalimova & Nigmatov, 2015).

6. Conclusion

The article considers the problem of formation of professional-pedagogical competencies of the future teachers in the Central Asian region. Key psychological and pedagogical competencies of the future teacher predetermine an ability to use the acquired knowledge and skills, necessary moral qualities for a successful educational activities and professional self-actualization. Key psychological
and pedagogical competences (goal-directing, information, and intellectual, creative, evaluative) are determined by the priority goals and objectives of higher educational institutions, reflect the social and the professional experience of the person. The competency-based approach in the professional-pedagogical training of future teacher contributes to the formation of key competencies, which are being formed during the training, education, self-guided work and teaching practice. The functions of key professional-pedagogical competencies (pedagogical, professional, social, efficiency) were identified, and it defines the scope of their practical application. Specificity of formation of professional-pedagogical competencies is revealed by structural components of this phenomenon: cognitive, emotional and evaluative and activity. Thus, the formation of the key professional-pedagogical competencies further the improvement of the level of pedagogical work and quality of modern education.

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