

authors, will contribute to the process of forming professional image of future lecturers in higher education institutions. It is noted that formation of a future lecturer is a continuous process therefore systematic approach to forming professional image of future lecturers in higher education institutions becomes particularly relevant. Considerable attention is placed on ways of realization of the noted approach during training future graduate students for the professional activity. There has been mentioned that the structure of professional image of a future lecturer of a higher education institution, its types and functions is a complex structured system. On the basis of general systems theory it is singled out systematic approach to studying disciplines of psychological and pedagogical cycle. It is directed at recognition of integrity of the process and reflection in it of many-sided and multifaceted types of connection. It is defined that systematic approach as a science methodology of integrated construction of educational process in a higher education institution is the priority cognition method. It is based on spontaneity, subjectivity and creates conditions for the coherence of scientific researches. The authors of the article place focus on the need to analyze the process of forming professional image of future lecturers from the perspective of structuring, integrity, consistency and interconnection of components.

Key words: *systematic approach, future lecturers, higher education institutions, graduate student, image, professional image.*

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SELECTED METHODOLOGICAL ASPECTS OF FUTURE TEACHER TRAINING FOR INCLUSIVE EDUCATION

In the article the issue of future teacher training for inclusive education is considered. Comparative analysis of such specialists' training in USA is conducted. Innovative trends in American teacher training are characterized. It is stressed that the experience of foreign countries in teacher training for inclusive education encourages modernization of Ukrainian educational system with the purpose of paying more attention to the children with special educational needs. The analysis of future teachers' readiness for the implementation of innovations in inclusive education shows their insufficient level. The multidisciplinary approach founded on integration of inclusive content of education in competence-based format is suggested. It is found out that practical implementation of a multidisciplinary approach enhances efficiency of future teacher training for inclusive education in higher educational establishments.

Key words: *children with special educational needs, inclusive education, content of education, learning technologies, future teacher training for inclusive education, multidisciplinary approach, competence-based approach, integration, comparative analysis.*

Introduction. New and strategic approach to education declared by all developed countries means equal access to quality education for people with special educational needs. Nowadays the transformation of goals in educational sphere takes place on cross-national level, implying confirming main priorities in the educational sphere in international conventions and laws as strategic aims for all international community.

Many processes in the world such as globalization, democratization and humanization, influence of international educational space on modern Ukrainian educational system have resulted in the development of inclusive education, based on principles of equality and diversity. Humanization of social life in Ukraine requires adequate conditions for social adaptation and integration in the society of the children with special educational needs. We would like to stress that humanization in education means close attention to bringing up fully functional personality, all-round development of every child, as well as the children with educational needs.

Social and economic development of Ukraine is accompanied by crucial reforms, modernization of theoretical and methodological basis of national system of education. It concerns inclusive education as well, the main aim of which is not only to make use of modern trends, scientific and methodological innovations, but to establish a new way of thinking, directed at integration of scientific knowledge and tolerance to people with special educational needs. Such an approach requires from Ukrainian education overcoming some stereotypes about the children with special educational needs as a passive object of learning process and searching for new models for their education and upbringing.

Modern psychological and pedagogical researches state that many factors (biological, social, psychological) have influenced the increase in the number of the children with psychological and physiological disorders. Fortunately, last decades of democratic transformations witnessed the change in the society in its attitude to the children with special educational needs. People have become more aware of their ability to feel, to be concerned with, to acquire social experience. In this relation, such a new form of education as inclusive one gains its popularity and importance. Implementation of inclusive education influences favorably not only the children with special educational needs but their ordinary peers as well. The attitude of acceptance, tolerance, empathy to “special” children, desire to help them are formed during the communication of the children with special educational needs and their healthy peers in single educational space.

But we must admit that one of the main problems of inclusive education in Ukraine is insufficient readiness of future teachers to provide support for the children with special educational needs. That is why the experience of foreign countries in the sphere of teacher training for inclusive education is of great interest and importance.

Analysis of relevant research. In recent decades, in developed countries, there have been significant changes in the understanding and treatment of quality education provision to children with special educational needs. Inclusion is

recognized as the systematic modernization of specialized education in many countries of the world. The analysis of foreign experience with inclusive training practice shows the unity of all scholars' opinion on the need for the humanization of society, the realization of the rights of children with special educational needs for education and the teacher's leading role in this process (J. Deppeler, V. Zasenka, A. Kolupaieva, T. Loreman, R. Smith).

Aim of the study. The article is devoted to the methodological aspects of preparing future teachers to work in an inclusive education.

Research methods. In our study, we used the following methods: study, analysis, generalization of psychological and pedagogical literature, comparison, systematization.

Research theoretical background. Analysis of American experience in the sphere of teacher training for inclusive education is sure to be of great value for the efficient implementation of reforms in Ukraine. Social policy in the USA, based on such basic principles as justice, equal right of people with special educational needs, equal access to education and social opportunities, was the main impetus of the development of inclusive education. After considering a number of research papers we can make a conclusion about appearance of a new cultural and educational standard that means the respect and particular focus on the children with special educational needs. So T. Sergiovanni and H. Zinn express the thought that people with special educational needs can be active members of social life if the society makes efforts to involve them in it (Sergiovanni, 1992; Zinn, 2005). Academician W. Wolfensberger suggests certain structure and models for the support of the people with special educational needs and their families. His idea of social normalization considers people with special educational needs usual members of society (Wolfensberger et al., 1972). The concept of social normalization was the impulse for reconsidering the ideas of school segregation in the system of special education.

American scientists (T. Skrtic, W. Sailor) explain the advantages of inclusive schools over traditional ones (Skrtic & Sailor, 1996). Some of them (D. Johnson, R. Johnson, G. Wiggins) suggest admitting the children with special educational needs to normal classes, avoiding categorization and creating encouraging learning environment for their study and upbringing (Wiggins, 1988). A. Gartner, A. Dyson, D. Lipsky recommend continuous teachers' professional development for making teaching efficient in inclusive classes (Gartner & Lipsky, 1987; Dyson, 1999). Such an initiative requires qualitative teacher training for the implementation of new improved education for the children with special educational needs.

Our analysis of American scientists' research papers allows us to determine the main problems and goals in the development of inclusive education. They are: understanding the philosophy of inclusive education; providing efficient teacher training for inclusive education; special education specialists' involvement for the support of the children with special educational needs, attending comprehensive schools; absence of adequate curriculum combining comprehensive and special school teacher professional training.

Significant changes in inclusive education staffing took place at the end of the XXth century in USA. It was the period of school reforms, during which particular attention was paid to training of qualified teacher able to teach and bring up either normal children or children with special educational needs. Important steps in this period were taken in the direction of theoretical researches and practical implementation of teacher training for inclusive education (J. Onosko, C. M. Jorgensen, J. R. DeSimone, R. S. Parmar, J. York, M. Reynolds, J.-R. Kim, K. Scorgie and others). Some American scholars (J. Onosko i C. M. Jorgensen) think that the content of future teacher professional competence is the main factor in the efficiency of educational inclusion. They consider pedagogical competency aspect of inclusive education to be a complex of professional knowledge and skills for establishment of productive relationships between a teacher and every child in the class. The scientists are confident that positive results of educational inclusion depend on personal development of every teacher continuously improving his professional competence, searching for innovative teaching methods appropriate for children with special educational needs (Onosko & Jorgensen, 1998).

M. Reynolds specified the scope of important knowledge and skills for inclusive class teachers (Reynolds, 1990). To them he referred basic education, knowledge in the theory of education, skills to design individual curriculum for the children with special educational needs, ability to evaluate and forecast classroom situations, skills to use ICT for children with special educational needs, legislative and ethical aspects of teaching such children, positive attitude to the children with special educational needs, communicative skills and ability to cooperate, self-management and strategic vision in the work with these children, consultation of their parents, ability to use interactive methods for inclusive education. Thus, teacher training for inclusive education is a priority in the development of American education.

J. R. DeSimone and R. S. Parmar defined issues for particular attention in teacher training for inclusive education. They are insufficient knowledge in the

sphere of special education, unawareness of special nature of work etc. (DeSimone & Parmar, 2006).

American scientists studying staffing for inclusive education stress the point that there are three main requirements: fundamental professional knowledge; knowledge of special education and modern effective methods of inclusive education (Anderson, 2008). They are confident that future teachers of inclusive education besides professional knowledge and skills should have personal qualities, be emotionally mature to avoid irritation, bad mood, sympathy with themselves and all kind of conflicts (Winzer, 2009). This idea is very important for our research as main criteria and fundamental principles for the selection of inclusive education teachers are presented in it.

Professional teacher training for inclusive education in the USA requires reorganization and modification of education to correlate with the ideas of educational inclusion. American scientist J.-R. Kim (Kim, 2011) studied the connection between different types of professional training curriculum and students' readiness for inclusive education. After analyzing ten vocational training curricula in higher educational establishments the author determined the following types of them: integrated, segregated, vocational and general. The integrated type combines courses of general and special education departments. The graduates gain teaching qualification for working in either comprehensive or special needs schools. Segregated type means taking a designed list of courses of general and special education departments together for pursuing an option of a second degree afterwards. General type does not allow students to gain additional qualification in special education. It is found out that the students having done courses of integrated type have positive attitude to inclusive education and are ready to teach children with special educational needs.

In the USA higher educational establishments in teacher training for inclusive education lay great stress on interactive methods as they help future teachers simulate real-life situations of the classroom and related difficulties. It is worth mentioning the experiment described by K. Scorgie (Scorgie, 2010) which was aimed at preparing the students for work with children with special educational needs. For this purpose, a distant course with interactive assignments imitating a family bringing up a child with special educational needs was designed for the students. Doing the assignments the students could act as parents and it enhanced their conscious perception of real life situations and problems which appear in the life of real parents. This complex of tasks was based on interactive education strategies connected with the method of immersion: study the cases that may cause lack of confidence, strong emotional agitation, and reflections

after them. The results of the experiment confirm that the student become aware of the parents' problems, acquire practical skills of psychological, pedagogical and social support for the children in special needs schools.

Thus, nowadays there is a social demand for active implementation in Ukrainian education of progressive ideas in teacher training for work with children with special educational needs.

Taking into consideration the importance of either inclusive education for practical implementation or American scientists' fundamental researchers, we believe that ideas of inclusive education are urgent for modernization of teacher training content in higher educational establishments in Ukraine. To that end it is essential to integrate new inclusive based content in the curriculum for future teachers. So, we suggest a multidisciplinary approach implying such integration, as well as the integration of teaching methods of specialized subjects in the curriculum for future primary school teachers.

In the context of our research we have implemented multidisciplinary approach on the bases of system-forming teaching techniques aimed at future primary school teacher training for inclusive education that implies comprising effective methods for conducting lectures and practical classes.

Inclusive content in a future primary school teacher training was implemented in the number of subjects («History of Ukraine», «Pedagogy», «History of pedagogy», «Psychology», «Physiology», «Introduction into the specialty», etc.) and teaching methods. For example, the issue «History and the development of social-pedagogical help for people with special educational needs in Ukraine» was added to the subject «History of Ukraine» in the topic «Kyivska Rus. Galytsko-Volynska state». The issue «Historical development of Inclusive education», implying further presentations at lectures was added to the topic «Social-economic and political processes in Ukrainian SSR in 1950–1980». For the seminars the students were to prepare background papers on such topics as «Charitable assistance for the insane in days of Kyivska Rus», «Main directions in the help for people with special educational needs», «Historical periods in the development of inclusive education» and others. Multiple choice tasks such as «Characterize directions of the help for people with special educational needs», «Compare charitable assistance in old times with modern one», «Analyze historical periods in the development of inclusive education» etc. were offered. Interactive assignments were used to determine students' ideas of the children with special educational needs. For example, in the exercise «a bag of associations» the students were asked to find associations appearing while speaking about the children with special

educational needs. Thus, the word combination «children with special educational needs» was written on the blackboard, the students were asked to write words associated with it and put them in «the bag of associations». Every student explained his or her association. We should stress, that such associations as wheelchair, magnifying glass, hearing aids, pity, closeness, different, misery, sorrow, uncertainty, loneliness, etc. prevailed.

The topic «Subject and main categories of didactics. Learning process and its structure. Different approaches to teaching» of the course «Pedagogy» in module «Theory of education and teaching» was supplemented by the topic «Different approaches to the implementation of inclusive education in Ukraine». At the seminar a round-table discussion on this topic took place. The students chose different roles and prepared reports about effective cases of implementation of inclusive education in Ukraine as if they were representatives of the education administration authority, health care and social policy, heads of educational facilities, psychologists, guidance counselors, teachers, parents etc. The main goal of this assignment was to prove the necessity to unite all facilities in order to direct the efforts to full adaptation of people with special educational needs in society.

Module «General patterns in the development of a person» in the course «Physiology» was supplemented by the topic «Children with special educational needs as actors of inclusive education» in which the issues of essence, reasons and classification of psycho-physical developmental disorders of the children with special educational needs were considered. At the seminars special attention was paid to interactive tasks which encouraged simulation of a certain problem and implied empathy to children with special educational needs. For example, while doing the task «Imagine the situation» the students were offered to imagine as if they having infantile cerebral paralysis got on the bus and were made a mockery of their movements and after that could not even take a seat as all of them were occupied by other people. The students by means of brainstorm described their impressions from the situations. They were asked «Were you sick at heart? Did you change your attitude to surrounding people? Were the people on the bus right when they had not offered a seat for you? Why did the people act in such a way?». The discussion of the problem followed bringing up the questions like «Is it difficult to imagine yourself a person with disabilities? Did you change your attitude to such people?»

We should mention that the content of every discipline in the primary school education teaching methods was complemented by a number of issues, for example by an issue of teaching techniques in primary school inclusive

education. In the discipline «Methodology of the Ukrainian language teaching» the topic «Main methods, techniques and types of grammar assignments» in the module «Methods for teaching grammar» was supplemented by the topic «Innovative techniques for teaching grammar in inclusive education». At the seminars the students practiced to use different types of these teaching techniques. The students were asked to choose an effective teaching technique to solve one or another problem. For example, in inclusive class a problem may be in difficulty to learn names of letters and their configuration. In this case the students used the method of pictograms in the technique of figurative thinking (pictograms are small and simple pictures with significant feature of an object or notion), differentiating the meaning in order to enhance productive absorbing all the material. The essence of this method is in association of letters with objects of reality and grouping them according to significant features (what the letter is like). According to this method, in Ukrainian alphabet there are letters-wheels or letters-sun («О», «С», «З», «Ф», «Ю», «Р», «В»), letters-ladder («Н», «Е»), letters-mushrooms or letters-hammers («Г», «Т»), letters-fence («Ш», «Ц», «Щ», «И»), letters-beetles («Ж», «Х») etc.

While simulating teaching letters in inclusive class the students acted as if they were primary school teachers. They practiced tasks for determining similarity of letters. The students, who acted as if they were usual children in an inclusive class associated letters with objects of reality, gave examples of a similar object, found the letters in headings, drew them, transformed one letter into another. The students who acted as if they were the children with special educational needs were offered to choose pictures similar to the letters from ready pictograms. Then students-teachers using interactive technique «Working together» in pair work asked students-children to construct an object similar to some letters (letter «Ж», for example) from different material (sticks, strings, etc.). The students-children had the same material and in turn construct letters. The students who acted as the children with special educational needs were offered a special scheme of step-by-step construction of these objects.

Thus, acquiring effective teaching techniques in inclusive education enhanced future primary school teachers' ability to construct the elements of methodological teaching system and assess critically its effectiveness in teaching either usual children or the children with special educational needs.

The result of our experiment allows us to make a conclusion that multidisciplinary approach is the most effective and secures focused, systematic and consistent process of the future primary school teacher training for inclusive education.

Conclusions. The analysis of foreign scientists' research indicates that the development of inclusive education requires effective future teacher training on regular basis.

The offered multidisciplinary approach to the future primary school teacher training for inclusive education was implemented through integration of inclusive content in the curriculum. The results of the experiment proved that the authors' approach enhances the effectiveness of a future primary school teacher training for inclusive education.

Our research does not put the issue to rest. We are planning to direct our further research in the field of psychologist training for inclusive education.

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РЕЗЮМЕ

Мальшевская Ирина. Избранные методические аспекты подготовки будущих учителей к работе в условиях инклюзивного образования.

В статье рассмотрена проблема подготовки будущего учителя к работе в условиях инклюзивного образования. Осуществлен компаративный анализ опыта подготовки педагогических специалистов к работе в условиях инклюзивного образования в США. Анализ исследований зарубежных ученых доказывает, что развитие инклюзивного образования в Украине нуждается в эффективной системной подготовке будущих учителей к работе в условиях инклюзивного образования. Определены прогрессивные направления подготовки американских учителей. Определено, что зарубежный опыт подготовки учителей для инклюзивного образования в США оптимизирует совершенствование отечественной образовательной системы в соответствии с потребностями детей с особыми образовательными потребностями.

Установлено, что практическая реализация многопредметного подхода способствовала повышению эффективности подготовки будущих учителей в учреждениях высшего педагогического образования к работе в условиях инклюзивного образования.

Ключевые слова: дети с особыми образовательными потребностями, инклюзивное образование, содержание обучения, технологии обучения, подготовка будущих учителей для инклюзивного образования, многопредметный подход, компетентностный подход, интеграция, компаративный анализ.

АНОТАЦІЯ

Малишевська Ірина. Вибрані методичні аспекти підготовки майбутніх учителів до роботи в умовах інклюзивної освіти.

У статті розглянуто проблему підготовки майбутнього вчителя до роботи в умовах інклюзивної освіти. Здійснено компаративний аналіз досвіду підготовки педагогічних фахівців до роботи в умовах інклюзивної освіти в США. Аналіз досліджень зарубіжних науковців доводить, що розбудова інклюзивної освіти в Україні потребує ефективної системної підготовки майбутніх учителів до роботи в умовах інклюзивної освіти. Окреслено прогресивні напрями підготовки американських учителів. Визначено, що зарубіжний досвід підготовки вчителів для інклюзивної освіти у США оптимізує вдосконалення вітчизняної освітньої системи відповідно до потреб дітей з особливими освітніми потребами.

У контексті нової освітньої практики інклюзивної освіти та досліджень американських науковців, актуальним є вдосконалення підготовки майбутніх учителів до роботи в умовах освітньої інклюзії шляхом наповнення навчальних дисциплін новим інклюзивно зорієнтованим змістом. Запропоновано багатопредметний підхід підготовки майбутніх учителів до роботи в умовах інклюзивної освіти на засадах інтеграції інклюзії у зміст загальних навчальних курсів та методик фахових дисциплін. Завдання багатопредметного підходу реалізували на базі системотвірних технологій навчання, зорієнтованих на підготовку майбутніх учителів до роботи з дітьми з особливими освітніми потребами в умовах інклюзивної освіти.

Установлено, що практична реалізація багатопредметного підходу сприяла підвищенню ефективності підготовки майбутніх учителів у закладах вищої педагогічної освіти до роботи в умовах інклюзивної освіти. Здійснене дослідження не вичерпує всіх аспектів окресленої проблеми. Перспективу подальших досліджень вбачаємо у розв'язанні проблеми підготовки психологічних кадрів до роботи в умовах інклюзивного навчання дітей з особливими освітніми потребами.

Ключові слова: діти з особливими освітніми потребами, інклюзивна освіта, зміст навчання; технології навчання; підготовка майбутніх учителів для інклюзивної освіти, багатопредметний підхід, компетентнісний підхід, інтеграція, компаративний аналіз.

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INFORMATION AND COMMUNICATION TECHNOLOGY APPLICATION IN ENGINEERING EDUCATORS' FUTURE PROFESSIONAL ACTIVITIES

The article substantiates the relevance of the use of information and communication technology in future engineering educators' professional activity. The "information and communication technology" definition has been clarified from the educational perspective of its interpretation. It is revealed the specific features of information and communication technology as a modern scientific and technical branch manifested in the dynamic improvement of ICT means, constant influence on the development of productive forces, and a high potential of production processes and relations. It is determined that intrinsic motivation is a catalyst for professional self-improvement and self-development. An empirical analysis of a motivation level in masters (graduates of engineering and pedagogical specialties) for information and communication technology use is carried out. The development trajectories of the investigated quality in engineering educators are offered.

Key words: informatization, professional education, engineer-teacher, information and communication technology (ICT), information environment, professional training, information training, pedagogical conditions, motivation for ICT use, masters in engineering and pedagogical specialties.

Introduction. In the era of globalization, education is becoming a significant factor in a country's social stability, its economic well-being, competitiveness, and national security. At the same time, the 21st century lays down new demands on education creating opportunities for educational activity diversification. First of all, it is connected with finding ways to update it improving educational process efficiency and quality, in particular, through the development of information technology, computer equipment, and distance learning.

The UNESCO report "Learning: the treasure within" (*The main provisions*, 1996) emphasizes the urgent need to impart ever-increasing knowledge and skills as they are the basis of professional activity. The report also stated that the relationships between the subjects of the educational process, the study of