The Diagnostics of the Development of Cooperative Skills of Future Primary School Teachers

Abstract. The study has focused on the importance of implementing the main provisions of the NUS concept, which produce the educational process based on subject-subject interaction. It has been emphasised that the new paradigm of future primary school teacher training generates new ideas into educational practice based on dialogue, cooperation, co-creation, collective action, respect for each individual, the need to understand another position, etc., which are formed in the process of cooperative learning. Therefore, pedagogical higher educational establishments should provide conditions in the system of professional training for the development of students’ cooperative skills. The purpose of the study is to describe the diagnosis of the readiness of future teachers to improve cooperative skills with the help of interactive technologies in the educational process of primary school. The study applied the following methods: “Value orientations” (M. Rokych) and “Map of research of the motivational component of readiness”, questionnaires, “Map of research of the communicative component of readiness”. The authors have described the results of the study on motivational and value, cognitive, activity and communicative components of the readiness of future primary school teachers to form cooperative skills in younger students. It has been found that applicants for higher education in the second year of study are dominated by the average level of development of cooperative skills on all criteria, which aims to further improve the educational process in the lens of research. It has been emphasised that interactive technologies involve the organisation of cooperative learning, when individual tasks grow into a group, where each member of the group contributes to joint activities. The recommendations have been developed that are useful to take into account when organising the process of cooperative learning in classes at higher educational establishments.

Keywords: cooperative education, methods of diagnosing cooperative skills, professional training of future primary school teachers

INTRODUCTION

During the period of significant reforms in society (political, social, and economic), special attention to the development of professional skills of future primary school teachers is conditioned by the introduction of the conceptual foundations of the NUS, the requirements for the professional activity of primary school teachers. Specialists of this profile should consider the totality of psychological and pedagogical factors that affect the development of a primary school student and, in the future, the overall development of the personality. In the context of these changes in higher education institutions, there is a transition from passive forms of learning to active and interactive ones, in which attention is directed to the implementation of a person-oriented approach to the development of professional competence. This determines the interest in introducing interactive learning technologies, in particular cooperative ones. The introduction of cooperative technologies brings the cognitive process of higher education institutions to another, more practical level, by strengthening the activity-based approach in education, to contribute to the development of professional competence of future primary school teachers as a lever of influence on the growth of the quality of education in Ukraine.

The World Economic Forum has published the Top-10 skills required for work in 5 years:

- analytical thinking and innovation;
- active learning strategies;
- solving complex problems;
- critical thinking and analysis;

UDC 378.373.3.011.3-051:005.344-047.22(045)
DOI: 10.52534/msu-pp.8(1).2022.55-62

Mariana V. Horvat, Mariia I. Kuzma-Kachur
Mukachevo State University
89600, 26 Uzhhorodska Str., Mukachevo, Ukraine

Scientific Bulletin of Mukachevo State University. Series “Pedagogy and Psychology”, Vol. 8, No. 1
The diagnostics of the development of cooperative skills of future primary school teachers

The diagnostics of the development of cooperative skills of future primary school teachers using interactive technologies in the educational process of younger schoolchildren.

Purpose of the study – to describe the diagnosis of readiness and develop recommendations for improving the process of forming cooperative skills in future primary school teachers using interactive technologies in the educational process of younger schoolchildren.

Research objectives: 1) diagnose the readiness of applicants for the higher education in speciality 013 “Primary education” of Mukachevo State University to form cooperative skills in younger schoolchildren; 2) describe recommendations for the development of cooperative skills by means of interactive technologies in the system of professional training of future primary school teachers.

LITERATURE REVIEW

Modernisation of higher pedagogical education is determined by a number of legislative acts (the National doctrine of education development in Ukraine in the 21st century [2], the Law of Ukraine “On Education” [3], the state standard of primary general education [4], etc.), which produce requirements for restructuring the content, improving organisational forms and the nature of relations between subjects of the educational process in accordance with current regulatory documents.

Modern researchers are working on the problem of forming cooperative skills in various areas, in particular:

– features of organisation and preparation of classes using cooperative learning technologies [5];
– role of interactive learning technologies in personality-oriented training of future primary school teachers [6];
– use of cooperative training technologies in the professional training of Austrian nurses [7];
– use of cooperative learning technologies as one of the conditions for improving the efficiency of work on the development of the foundations of self-realisation and creative self-development in future teachers of preschool institutions [8];
– development of skills through collaborative learning: negotiation, leadership, teamwork, reflection, etc. [9];
– theoretical and methodological foundations of the introduction of cooperative learning technology in the educational process of higher educational institutions of Ukraine [10], etc.

Summarising the results of the study on the use of interactive technologies, in particular during the organisation of activities in groups, A. Bida expressed suggested that “students are better prepared for classes, take an active part in the assimilation of programme material in laboratory classes, while creating subject-subject relations between the student and the teacher, changing the attitude of students to classes” [11, p. 45]. Describing the current stage of development of the process of professional training of primary school teachers in Ukraine, L. Koval noted that “trends in the functioning of the new four-year primary school have made it necessary to develop personal and professional training of teachers and further develop the system of training future specialists”. At the same time, the researcher expressed a warning that “the modernisation of the system of training future teachers based on the timely response to innovative processes that occur in school education is conditioned by the fact that the mass pedagogical experience of universities is dominated by a gnostic approach to professional training, in which future specialists do not deal with the real context of professional activity, but with academic subjects, that is, the main goal of training remains the formation of strong scientific and subject knowledge” [12, p. 89].

L. Koval pays special attention to the readiness of future primary school teachers to model group interaction of students in the classroom according to the concept of the New Ukrainian School.

Interesting results of the study are presented by M.-E. Osiceanu, M. Danac on the organisation of the educational process based on cooperative learning: its positive and negative aspects and components: principles of cooperative learning, methods of organising groups, designing tasks in cooperative groups, coordinating educational activities in groups [13].

The problem of applying cooperative learning technologies in the process of training future primary school teachers, which are based on the organisation of interaction between students in small groups, is one of the underinvestigated aspects in pedagogy, which emphasises its importance.

MATERIALS AND METHODS

The level of formed cooperative skills of future primary school teachers was assessed on the premises of the pedagogical faculty, speciality “Primary education” of Mukachevo State University. The experiment was attended by 20 students of group PO-3, educational degree “bachelor” 2019 admission. The choice is conditioned by the fact that second-year students already had some ideas about the organisation of the educational process in the school since they mastered such disciplines as “Introduction to the speciality”: “Didactics”, “General foundations of pedagogy and the history of its development” and began to master professional methods of educational branches of primary education. The ascertaining
experiment was conducted during September 2021. Motivational and value, cognitive, activity, and communicative components of readiness of future primary school teachers to form cooperative skills were identified.

The method “Value orientations” (M. Rokych) was used to establish the level of development of the motivational and value component of the readiness of future primary school teachers to form cooperative skills [14]. The methodology developed by M. Rokych is based on the ranking of certain values. Respondents were offered lists of terminal and instrumental values that needed to be placed in order of their subjective significance (1 – low level of significance, 7 – high). One point indicates values that do not have any significance. Two – those that, in general, can be acceptable. Three – those that may be important. Four – values with a specific meaning. Five – important statements, but not a priority. Six – important values. And seven – what is put above all else. Processing the results obtained allowed the survey to conclude that the majority of students are focused on life-specific goals. At the same time, for a deeper study of the identified component of readiness for the development of cooperative skills of a future primary school teacher, respondents were asked to answer a number of questions from the questionnaire “map of research of the motivational component of readiness”. Maximum possible number of points \( N_{\text{mv}} \) which could be obtained by a future teacher according to these indicators, was 14 (\( N_{\text{mv}} = 7 \times 2 \)).

To determine the level of formedness of the cognitive component of readiness of future primary school teachers for the development of cooperative skills, the study used a self-developed method of self-assessment of students by the level of their training – a test method for determining the level of theoretical knowledge. The test questionnaire consisted of 15 questions, the score of which was determined by the following indicators: 7 or less correct answers – low level, 8-11 correct answers – medium, 12-15 – high.

To identify the level of formedness of the activity component of readiness for the development of cooperative skills of the future primary school teacher, a survey was conducted. Students were offered a self-assessment form, adapted to this study for investigating the readiness to form cooperative skills in younger schoolchildren, which consisted of 20 questions. Using a 5-point rating scale, respondents had to determine their level of readiness for a particular feature, circling the score that corresponds to their opinion (1 – not at all; 5 – fully proficient) [15].

The development of the communicative component of the readiness of future primary school teachers to form cooperative skills in younger schoolchildren was determined by the level of development of speech abilities. Students were asked to fill out an adapted “map of the study of the communicative component of readiness” [16]. Quantitative assessment indicators and their characteristics were as follows:

- “0” points were awarded to students who did not have the desire to establish communicative relationships with students to organise the educational process and did not know how to do it well;
- “1” – used to evaluate future teachers who showed episodic aspirations and skills for the above-mentioned activities;
- “2” – students who showed in their professional activities a high level of the manifestation of the communicative component of readiness to form cooperative skills in younger schoolchildren.

Comparative, quantitative, and qualitative analysis of the results obtained determined the existence of a relationship between the studied phenomena.

RESULTS AND DISCUSSION

The concept of the New Ukrainian School focuses on the personal development of primary school students: creative and critical thinking, key and subject competencies, talents, and abilities. Modelling of the modern educational process that would implement these goals should include interactive group learning technologies, in particular, cooperative ones. Determining the effectiveness of training future primary school teachers for the development of cooperative skills involved the use of diagnostic tools that allowed identifying the degree of formedness of its components. The readiness of future primary school teachers to apply cooperative skills in professional activities is considered as an integrative personality development, which acts as a set, interaction, and interpenetration of motivational and value, communicative, cognitive, and activity components. According to these components:

- the motivational criterion provides for the development of the orientation of the future specialist in accordance with professional activity; the manifestation of interest in the chosen profession; a positive attitude to educational and future professional activities; the desire to develop professional abilities, self-awareness as a future professional. The purpose of professional training of a future primary school teacher in accordance with the requirements of the professional standard for professions “Primary school teacher of a general secondary education institution” is to acquire the ability of higher education applicants to solve complex specialised tasks of primary education” [17]. Here, one of the general competencies is “the ability to act based on ethical considerations (motives);
- communicative criterion (communicative component) – teamwork, interpersonal skills; the ability to clearly and convincingly express their thoughts and feelings using verbal and nonverbal means of communication, the ability to communicate with clients, colleagues, representatives of interacting organisations; tact and tolerance in communication. The professional standard for professions “Primary school teacher of a general secondary education institution” states that “to organise monologue, dialogue, and polylogic forms of communication with younger students, other participants in the educational process, representatives of society, respecting human rights and social values; form judgments that take into account social, scientific and ethical aspects” (PR-01) [17]. The thorough study, which has become a reference point in the investigation of the designated component, presented by
The choice of the form of organisation of the educational seminar, “round table”-seminar, business game-seminar, etc. - conventional forms: press conference-lecture, “brainstorming”-independent work) and by the introduction of non-conventional methods, forms and means of teaching for higher education (lectures, seminars, laboratory and practical classes, guided by: individual values (active life, productive life) – 5.6; values of professional self-realisation (interesting work, public recognition) – 5.02; values of knowledge – 3.9; values of development – 3.25; possibility of creative activity – 2.95 (average indicators are indicated).

![Average indicators](image)

**Figure 1. Students' terminal values (average indicators)**

Among the most significant instrumental values (Fig. 2), students indicated (average indicators): responsibility – 5.4, honesty – 4.8, education – 4.25, responsiveness – 3.8, self-control – 3.75, tolerance – 3.3, breadth of views – 2.7. It is
Note that respondents are much less attracted to responsiveness – 3.8; self-control – 3.75; tolerance – 3.3, and breadth of views – 2.7, that is, quite important instrumental values for professional activity fade into the background.

![Average indicators](image-url)

**Figure 2.** Students' instrumental values (average indicators)

At the same time, the study of the results of the questionnaire "Map of research of the motivational component of readiness" for the formation of cooperative skills of a future primary school teacher showed: 5 students received from 0 to 8 points (the lowest score received is 4), 11 students received from 9 to 11 points, and 4 students received from 12 to 14 points (the maximum number of points is 13). Notably, no student scored 14 points.

These indicators allowed calculating the coefficient of formedness of students' motivational component of readiness for the development of cooperative skills of the future primary school teacher \( K_{M} \). Its minimum value was calculated by the equation (1):

\[
K_{M\text{min}} = \frac{n_{M\text{min}}}{N_{M}}
\]

where \( n_{M\text{min}} \) – the minimum number of points received by one student according to the observation card data (this is 4 points), \( N_{M} \) – the maximum possible sum of points of formedness of the motivational component (in the study \( N_{M} \) it was 14 points).

Then:

\[
K_{M\text{min}} = \frac{4}{14} = 0.29
\]

By analogy, the maximum value of the coefficient of formedness of the motivational component of readiness for this activity in future teachers was determined \( K_{M\text{max}} \):

\[
K_{M\text{max}} = \frac{13}{14} = 0.93
\]

Therefore, the coefficient of formedness of the motivational component of readiness for the development of cooperative skills of a future primary school teacher varies from 0.29 to 0.93.

Test tasks for identifying the levels of the cognitive component are modelled taking into account the list of professional disciplines in the curriculum and the amount of knowledge on the research problem in their content. The obtained indicators correlate with the scores obtained by students as a result of their testing. Only 25% of respondents showed a high level of knowledge, 55% – average, and 20% – low. The results of testing students on the level of formedness of cooperative skills are presented in Figure 3.

The form of self-assessment of the formedness of practical skills and readiness for the development of cooperative skills in younger schoolchildren for the study of the activity component contained 20 statements. The task had the following meaning: "Using a 5-point assessment scale, determine your level of readiness for a particular feature, circling the score that, in your opinion, corresponds to you (1 – not at all; 5 – fully proficient)." Analysis of the results showed that the level of formedness of cooperative skills and professional skills is at an elementary level in 15% of respondents; at an average level – in 65% of students; at a high level – in 20%. The results of a survey of future primary school teachers conducted before teaching practice showed that a significant part of students rated their readiness for organising group work with students in the classroom, during excursions, and organising extracurricular activities.

An important role in primary school is played by the ability to organise, interact, and communicate with students. The map of the study of the communicative component of readiness contained 10 statements, which had to be evaluated with 0, 1, or 2 points. The maximum possible number of points that could be obtained for these indicators was 20 (\( N_{M} = 10 \times 2 \)). According to the results of the analysis of the observation map of the communicative component of readiness for the development of cooperative skills in younger schoolchildren, the following data were obtained: 4 students received from 0 to 10 points (the lowest score received was 6), 13 students received from 11 to 15 points, and 3 students received from 16 to 20 points (the maximum number of points was 17). Notably, no student scored 18 points or higher. The survey results showed that the vast majority of students have episodic aspirations and skills for communication activities. The generalised results of all the above components are shown in Figure 3.
The results of the experiment showed that students have an average level of formedness of cooperative skills. The national doctrine of education development of Ukraine [2] defines a strategy for further modernisation of education, which requires graduates of higher educational institutions to master productive technologies of cognition and improve the creative potential of the individual. Ukrainian researchers, in particular, N. Kichuk [19], Y. Kobyuk [20], Z. Onyshkiv [21], propose to apply the best experience of the European countries in professional and pedagogical training of future primary school teachers, in particular, “polyparadigmality: conventional academic, technological, individual, and research”. In accordance with this, higher education institutions are faced with the following tasks: to improve the quality of training of future teachers, to form pedagogical skills and abilities, to educate the future teacher as an active creative person. This prompted researchers to develop innovative approaches in the training of teachers.

Proof of the above is the results of a survey of 20 primary school teachers of the Mukachevo amalgamated territorial community. They were asked to answer the question: “What do you think are the advantages of a group form of educational activity in comparison with other organisational forms?”. Their answers were as follows:

1. Over the same period of time, the amount of work performed is significantly higher (10%).
2. High efficiency in mastering knowledge and developing skills (5%).
3. Skills to defend personal opinion are acquired (15%).
4. All students take part in solving the problem (15%).
5. Interest in learning increases, because with such an organisation of work, immersion in solving the question quickly occurs (20%).
6. Develops logical thinking (25%).
7. The ability to teach students business cooperation techniques is formed (10%).

Analysis of teachers’ responses indicates that the organisation of cooperative work requires teachers to have such competencies as the ability to analyse, integrate and synthesise information, organise group active activities of schoolchildren, conduct discussions and other types of communication.

Any technology has its own specific features, and their successful use requires the teacher to be competent and knowledgeable in them. First of all, it is worth mentioning the difficulties that arise in the process of applying cooperative technologies in the educational process of primary schools. These include:

- ignorance of the essence of cooperative learning technology;
- inability to apply it in practice;
- lack of understanding of the place of technology in the lesson structure.

To avoid such difficulties, the paper will give some provisions that are useful to consider when organising the process of cooperative training in HEIs:

1. All students should be involved in activities. For this purpose, it is advisable to choose such interactive exercises of cooperative learning that involve the active participation of everyone together with the teacher.
2. It is necessary to create a psychological attitude among all applicants for education to directly participate in various forms of activity. In this regard, it is useful to warm up, constantly encourage active participation in work, and provide opportunities for self-realisation.
3. The number of applicants should be limited (25-30). Only under this condition can there be productive work in small groups: the idea and suggestions should be heard, and each group will have the opportunity to present the results of its activities.
4. It is advisable to create comfort for joint group activities, which provides: the ability to easily transfer from one group to another, or from a small group to a large one. It is better to place the tables together so that each participant sat half-turned, could see the teacher (class leader) and had the opportunity to communicate in a small group. It is also important to prepare in advance manuals, research materials or cards necessary for active creative activities.
5. The rules and algorithm for performing the exercise should be discussed at the very beginning of the lesson and not violated (here it is advisable to recall the rules for working in groups).
6. The grouping of participants in the educational process should be based on voluntariness: it is appropriate
to use the principle of random choice. In addition, it is useful to apply the recommendations of O. Pometun [22] on the choice of methods.

In the process of forming cooperative skills in future primary school teachers, it is advisable to consider that interactive technologies provide for the organisation of cooperative learning, when individual tasks develop into group ones, where each member of the group contributes to joint activities. Thus, when preparing future teachers, great importance is paid to improving the organisation of their educational activities. With the introduction of technologies of cooperative learning and the widespread use of the method of group generation of ideas, intergroup dialogue, the method of participation of everyone, it is possible to increase not only interest in group learning among both teachers and applicants for education, but also to create conditions for high-quality mastery of those cooperative skills and experience that are in demand in the modern labour market.

The above indicates that the success of the development of cooperative skills will depend on the readiness of future primary school teachers for group interaction. To work in pairs, the following exercises can be used: “One against another”, “One – two – all together”, “Think, work in pairs, exchange thoughts”, “Rotary threes”, “Two – four – all together”, “Dialogue”, “Carousel”. The exercises “Jigso”, “Co-op Co-op”, “Learning together”, “Search method”, “Synthesis of thoughts”, “Joint project”, “Information search”, “Robin round” and others will help to develop skills in solving complex problems and creative tasks that require collective discussion. These methods are adapted to the Ukrainian educational practice of higher education, they can be combined in the process of modelling classes and used in combination with conventional teaching methods during classes: lectures, seminars, practical and laboratory classes. This combination will increase the effectiveness of the educational process in higher education institutions, improve relations between applicants for higher education, create a solid foundation for the development of independence, creative and critical thinking, mastering the skills of cognitive activity, and personal development.

CONCLUSIONS

The conducted research gives grounds for the conclusion that ensuring an effective process of forming cooperative skills of future primary school teachers requires a change in approaches to the implementation of professional training. The answer to the challenges of our time is the use of cooperative learning technology, which is based on subject-subject interaction, the development of cognitive skills and abilities to independently construct pedagogical situations in the educational process of primary school.

The use of the described methods for diagnosing readiness for this type of activity allowed identifying the level of readiness of students at the stage of introducing a cycle of professional-oriented disciplines into the educational process. The results of the diagnostic experiment showed that 60% of students have an average level of cooperative skills development. The coefficient of formedness of the motivational component in future teachers, which can affect the change in readiness for the development of cooperative skills of a future primary school teacher, ranges from 0.29 to 0.93. Compliance with these recommendations and active use of cooperative teaching methods will help to change the indicators of readiness of future primary school teachers for the development of cooperative skills in younger students.

However, the study is not exhaustive on the problem of preparing primary school teachers for the formation of cooperative skills in younger schoolchildren. In further research, attention will be focused on improving and identifying new approaches to the formation of their cooperative skills as a component of readiness for professional activity.

The answer to the challenges of our time is the use of cooperative learning technology, which is based on a person-oriented approach, the development of cognitive skills and abilities to independently construct existing knowledge and acquire new.

REFERENCES

Діагностика сформованості кооперативних умінь майбутніх учительів початкової школи

Анотація. У статті спрямовано увагу на важливість реалізації основних положень Концепції Новії української школи, які продукують освітній процес на засадах суб'єкт-суб'єктної взаємодії. Наголошено, що нова парадигма підготовки майбутнього вчителя початкової школи генерує в освіту нові ідеї на основі діалогу, спілкування, інтерактивності. Науковці встановлюють, що ключовим фактором успіху у процесі навчання є здатність учителів до кооперативної діяльності.

Ключові слова: кооперативне навчання, методи діагностики кооперативних умінь, фахова підготовка майбутнього вчителя початкової школи