



The Impact of Reflection on the Professional Development of Future Preschool Teachers

El impacto de la reflexión en el desarrollo profesional de los futuros maestros de preescolar

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Resumen

El objetivo del presente estudio es establecer el impacto de la reflexión en el desarrollo de los futuros maestros de preescolar. El estudio involucró los siguientes métodos: prueba para determinar el nivel del componente cognitivo de la reflectividad; prueba de autodiagnóstico de habilidades reflexivas; prueba para determinar el nivel de pensamiento reflexivo; método de encuesta, método de entrevista, prueba de chi-cuadrado, factor de combinación de características. El estudio involucró a 60 encuestados. Participaron en la investigación estudiantes de 3-4 cursos de la especialidad “Educación preescolar y pedagogía correccional” de la Universidad de Kiev que lleva el nombre de Borys Hrinchenko. El estudio mostró que con la creación de condiciones pedagógicas adecuadas es posible lograr dinámicas positivas en el desarrollo de competencias profesionales en los futuros docentes de preescolar. La investigación adicional debe tener como objetivo estudiar la reflexión profesional en estudiantes de otros campos de formación, así como en profesores de diferentes niveles.

Palabras clave: Desarrollo profesional, reflexión profesional, reflexión pedagógica, educación preescolar, formación docente.

Abstract

The aim of this study is to establish the impact of reflection on the development of future preschool teachers. The study involved the following methods: test to determine the level of the cognitive component of reflectivity; reflective skills self-diagnosis test; test to determine the level of reflective thinking; survey method, interview method, chi-squared test, feature

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combination factor. The study involved 60 respondents. Students of 3-4 courses of the specialty “Preschool education and correctional pedagogy” of Kyiv University named after Borys Hrinchenko took part in the research. The study showed that with the creation of appropriate pedagogical conditions it is possible to achieve positive dynamics in the development of professional competencies in future preschool teachers. Further research should be aimed at studying professional reflection in students of other fields of training, as well as teachers of different levels.

Keywords: Professional development, professional reflection, pedagogical reflection, preschool education, teacher training

Introduction

Changes in the content of educational activities and technologies of realisation of basic values of preschool education determine the need to develop new competencies in preschool teachers (Sezen-Barrie & Marbach-Ad, 2021). In modern professional activities it is important for educators to be able to solve various problems of education and development of children of early and preschool age (Tilavova, Husenova & Hakimova, 2020). It is necessary to focus on the labour functions of the teacher, presented in the professional standard, such as education, development (Yakubu et al., 2019).

Any transformations that take place in preschool education depend on the level of professional and pedagogical competence, personal qualities of educators and specialists, as well as on the level of development of motivational and value orientation to the profession of “teacher”. This raises the question of the need to develop professional values and qualities, creative style of thinking, development of modern pedagogical technologies, self-development and full self-realization in the chosen field (Vidnere, Celma-Zida & Lusena-Ezera, 2017).

One of the conditions influencing the process of self-actualisation is reflection. The research is connected with the solution of a number of urgent problems directed on studying the influence of reflection, its place in the course of self-actualisation of teachers. Much attention should be paid to the study of approaches to the development of personality, which has the reflexive potential of means of improving professional skills. The educational process should promote the development of professional reflection of future preschool teachers (Vanichvatana, 2020).

For the other hand, one of the priority positions is the problem of training teachers who meet modern requirements of the professional standard (Frumkina, 2019). A possible solution to this problem may be the systematic work in the educational organisation to develop the deficient qualities of the teacher. One of these qualities that can influence the professionalism of the teacher and ensure compliance with the professional standard is reflection. According to

Chupakhina (2020), reflectivity as a property of personality is one of the components of reflection as a process and as a state (Uzunboylu & Tugun, 2016). The concepts of “reflection” and “reflectivity” in the scientific and professional pedagogical literature are often synonymous, so the development of scientific knowledge about reflections will be considered below, bearing in mind reflectivity as one of the integral components of reflection (Garzón Artacho et al., 2020).

The term “reflection” (from the Latin *reflexio*: “turning back”) originated in philosophy and referred to the process of thinking about everything that happens in person’s own mind. That is, it is a process of self-knowledge that reveals a person the meaning of his/her spiritual world (Amirova et al., 2020). The concept of “reflection” is inextricably linked with professional teaching. Only a thinking, reflective educator can solve professional problems in which there can be no pattern: the problem of developing the personality of a growing person (Sebalo & Teslenko, 2020). Since the concept of reflection has entered pedagogical science relatively recently, a large number of researchers turn to this topic (Huang-Yao et al., 2019). Researchers constantly focus on the problem of reflection and the impact of the profession on the individual, this issue is still relevant (Uzunboylu et al., 2017). Steady interest in various aspects of pedagogical reflection is explained, on the one hand, by a complex of psychological and social issues related to the life of these people, and, on the other — by the problems and many unresolved important aspects of this phenomenon (Koval, Polyezhayev & Bezkhlibna, 2018).

Table 1
Components of professional reflectivity of preschool teachers

Components of professional reflection of preschool teachers	The content of professional reflection of preschool teachers
Motivational-target component	The need for reflective activity, a positive attitude and interest in improving pedagogical reflection and awareness of the purposes of its use
Cognitive-operational component	Knowledge that specifies the theoretical foundations of pedagogical reflection, professional skills of the teacher to carry out reflective activities
Affective component	Knowledge that specifies the theoretical foundations of pedagogical reflection, professional skills of the teacher to carry out reflective activities Emotions that accompany the practical actions of the teacher in the implementation of reflective activities, a sense of confidence in success
Evaluation component	Self-assessment and control of reflective activity
Moral-volitional component	Personal qualities that contribute to effective reflective activity

Source: Zhelanova (2017).

The issues of humanisation and modernization of training of educators are constantly raised in the world scientific thought. The works of Biesta (2006) cover the democratisation of education for the future of mankind. In her work, Cernak et al. (2021) covers the issue of the role of reflection in the training of modern specialists. The introduction of multilingual space in the process of training future primary school teachers is considered in the article by Zhumabayeva et al. (2020). Learning through reflection is considered in the work of Wain (2017). Finally, the aim of the study is to identify the level of development of professional reflectivity in future preschool teachers. The research objectives are: determine criteria for the development of professional reflectivity in preschool teachers; and, identify the level of development of professional reflectivity of future preschool teachers and specialists involved in the study.

Methods

Design

The study was conducted in several stages. The purpose of the initial stage of research was to identify the level of development of professional reflection in preschool teachers. The cognitive criterion for the development of professional reflectivity was diagnosed through a test to determine the level of development of the cognitive component of reflectivity. The test includes 9 questions, 6 of which have answer options: Yes, No, It is difficult to answer, and three open-ended questions in which one needs to define reflection, reflectivity, professional reflectivity. The nature of motivation for professional activity was determined using the

questionnaire My Attitude to Professional Activity: Present and Future, which consists of eleven questions with suggested answer options. Respondents were asked to choose all the most appropriate answers.

The level of need for self-development and self-education is measured through a reflective skills self-assessment test. The test consists of 15 questions aimed at enhancing the self-esteem and self-analysis of the respondent, with the proposed answer options, each weighing from 1 to 5 points. The total number of points indicates the level of the ability to self-education and self-development.

Input diagnostics of the activity component is carried out primarily on the basis of the method of determining the level of professional reflectivity. The method consists of 20 questions that need to be answered: completely incorrect, rather incorrect, difficult to answer, rather correct, absolutely correct. Questions are aimed at self-knowledge, self-analysis. Comparing their answers with the answers offered by the author, and counting the number of coincidences, the level of professional reflectivity of the teacher is determined: Low, Medium, High.

Based on the aim and objectives of the study, the purpose of the final stage is to identify the dynamics of the levels of professional reflectivity after working with respondents at the main stage. Diagnosis was performed according to the same criteria and using the same diagnostic techniques as for studying the level of development of professional reflectivity of future preschool teachers at the initial stage of the study. After the initial analysis of the reflectivity level, future specialists were offered to undergo a series of trainings to improve professional reflection. The trainings were conducted in ZOOM conference and were aimed at increasing the level of reflectivity components.

When creating a diagnostic background for determining the reflectivity level of future teachers, the following objectives were fulfilled: first, the mechanisms of personal and professional self-development, part of which is reflection, are studied; second, qualitative and level characteristics of reflectivity of future preschool teachers influencing efficiency of their professional activity are revealed.

Motivational-value, cognitive and activity components of reflectivity are identified as criteria based on the classification of types of reflectivity. Development of diagnostic parameters of reflectivity of future preschool teachers includes determination of structure and content of reflectivity components and level of their development.

Common content parameters that reveal the qualitative characteristics of the reflectivity of future preschool teachers are: motivational-value, cognitive and activity components.

Motivational-value component should be compared with the nature of motivation of professional activity of the teacher and the level of his/her need for self-development and self-education, as motivation of professional activity and need for self-development, self-education of educator and specialist influence the success of professional reflectivity.

Adjusting the nature of motivation for professional activity, the future preschool teachers focus on the application of reflective knowledge and skills in their practical activities for its successful implementation. The growing needs of the teachers in self-development and self-education will inevitably force them to conduct a reflective analysis of their own knowledge, skills, abilities. The cognitive component is seen as a call to perceive, comprehend and understand information about oneself as a subject of professional activity and a subject of self-development; as the ability to reflect scientific and methodological knowledge and other professionally relevant information (Johnson & Coleman, 2021). Figure 1 visualizes the research design

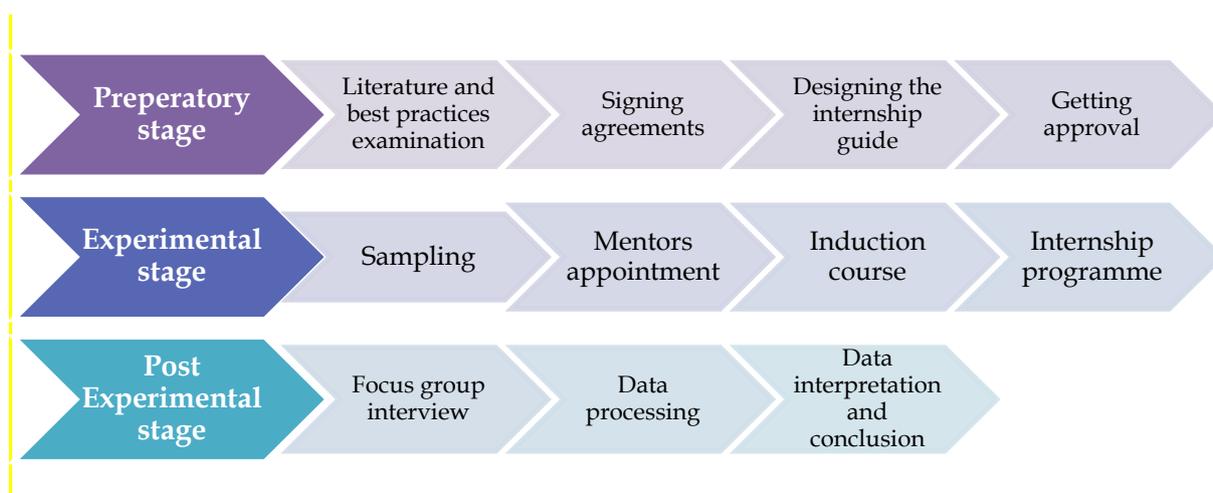


Figure 1. Visualised research design

Shows

The study involved students of Borys Grinchenko Kyiv University, 60 out of 200 students took part in the research work. Respondents were selected randomly by drawing lots from among the students of 3rd-4th years of study majoring in Preschool Education and Correctional Pedagogy. It is this number of respondents that allows to objectively study the issue raised in the study.

Instruments

Google Forms were used for the survey. Data entry and processing was performed in SPSS Statistics 17.0. All data are given in relative (% of the number of respondents) values.

Procedure

The activity component determines the ability of future preschool teachers to organise reflective activities, process information and use it as a source of self-knowledge and self-development in personal and professional aspects. The selected criteria and relevant indicators were measured through the following diagnostic methods: questionnaires, surveys, interviews, analysis of pedagogical situations in preschool education, problem solving, assessment and self-assessment of professional activity. According to the Cronbach's criterion α , the following reliability values were obtained: “Low” - 0.83; “Medium” - 0, 82, “High” - 0, 77 (Černak & Beljanski, 2021). The questionnaires that are used are reliable, proven research methods that have been repeatedly used in pedagogical research and have shown high accuracy results. The results obtained during the survey are checked by statistical methods.

Statistic analysis

1. Chi-squared test was calculated by the formula:

$$\chi^2 = (f_1 - f_2)^2 / (f_1 + f_2) \quad (1)$$

where f_1 i f_2 — the frequencies of the compared samples.

2. The coefficient of combination of features is related to the chi-square as follows:

$$C = \sqrt{\frac{\chi^2}{\chi^2 + n}} \quad (2)$$

Results

Let us calculate χ^2 -statistics. If the significance level $\alpha=0.05$, and the χ^2 distribution for the factor table 2x2 has one degree of freedom, the critical value of χ^2 -statistics is equal to 3.841. Since the calculated value of χ^2 -statistics — 9.053 — exceeds the number 3.841, the null hypothesis is rejected. The probability p that the null hypothesis is true for χ^2 -statistics equal to 9.053 (and one degree of freedom) is 0.0026. The fact that p -value equal to 0.0026 is the probability that the difference between the sample shares of the values of reflection factors in the respondents before and after training is equal to or greater than $0.718-0.588=0.13$, if in fact their shares in both general populations are the same. Thus, there are good reasons to say that

after the training the respondents' reflection indicators increase. Studies show that the indicators of reflection after training are higher than the indicators of reflection before training.

When comparing the percentage of respondents who show high results at the initial and final stages of the study, criteria Z and χ^2 lead to the same results. This can be explained by the existence of a close relationship between the standardised normal distribution and the χ^2 -distribution with one degree of freedom. In this case, the χ^2 -statistics is always the square of the z -statistics. When assessing the level of reflectivity among future professionals in preschool education, it was found that Z -statistics is $+3.01$, and χ^2 -statistics — 9.05 . Ignoring rounding errors, it is easy to make sure that the second value is the square of the first (that is $3.01^2=9.05$). In addition, comparing the critical values of both statistics at the significance level $\alpha=0.05$, we can find that the value of χ^2 is equal to 3.841 , is the square of the upper critical value of Z -statistics, equal to $+1.96$ (that is $\chi^2 = Z^2$). Moreover, the p -values of both criteria are the same.

Thus, it can be argued that when testing the null and alternative hypotheses $H_0: p_1=p_2$; $H_1: p_1 \neq p_2$ criteria Z and χ^2 are equivalent, which indicates the reliability of the study. The cognitive criterion for the development of professional reflectivity of teachers was diagnosed using a test to determine the level of the cognitive component of reflectivity (Figure 2).

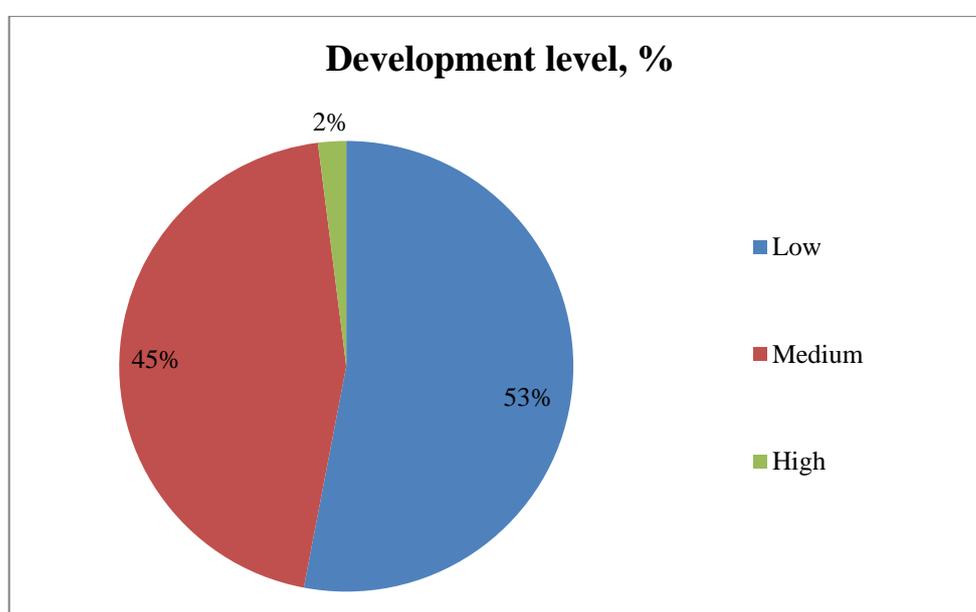


Figure 2. Distribution by the level of cognitive criterion for the development of professional reflectivity in future preschool teachers

It follows from the figure that most future educators have insufficient knowledge about reflectivity, and the concept of reflection, reflectivity, professional reflectivity in the test has not been fully defined by any future teacher. Therefore, it is necessary to organise work to explain this concept, its importance in professional activities, to focus on ways and methods of reflection. The initial level of motivational and value criterion was diagnosed by two methods, based on the indicators attributed to this criterion for the development of professional reflectivity of teachers. The nature of motivation for professional activity was determined through the questionnaire My Attitude to Professional Activity: Present and Future, which consists of eleven questions with suggested answer options. The obtained results are seen on Figure 3.

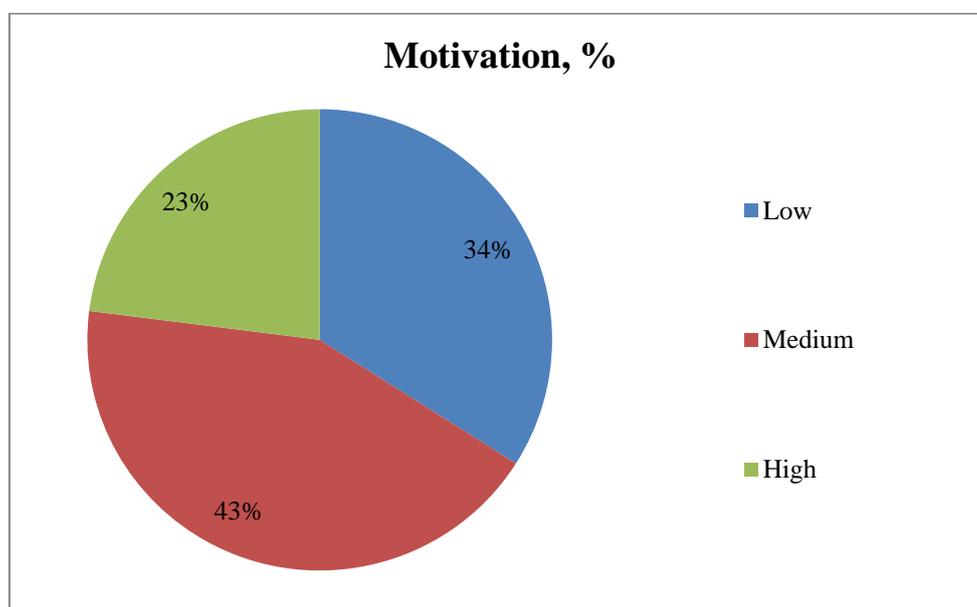


Figure 3. Distribution by level of motivation of professional reflectivity in future preschool teachers

Respondents who have a low level of motivation consider professional activity only as a channel for obtaining theoretical and practical knowledge, but they did not perceive this area as a tool for improving professional pedagogical activity. Respondents who have a medium and high levels for this indicator indicated that professional activities provide an opportunity for professional self-development, self-improvement and self-affirmation, designing innovative forms of organising classes with students and presenting them to colleagues, with effective analysis. The nature of motivation for professional activity is determined through a

questionnaire, which consists of eleven questions with suggested answer options. Future teachers were asked to choose all the most suitable answers. See Figure 4 for the results.

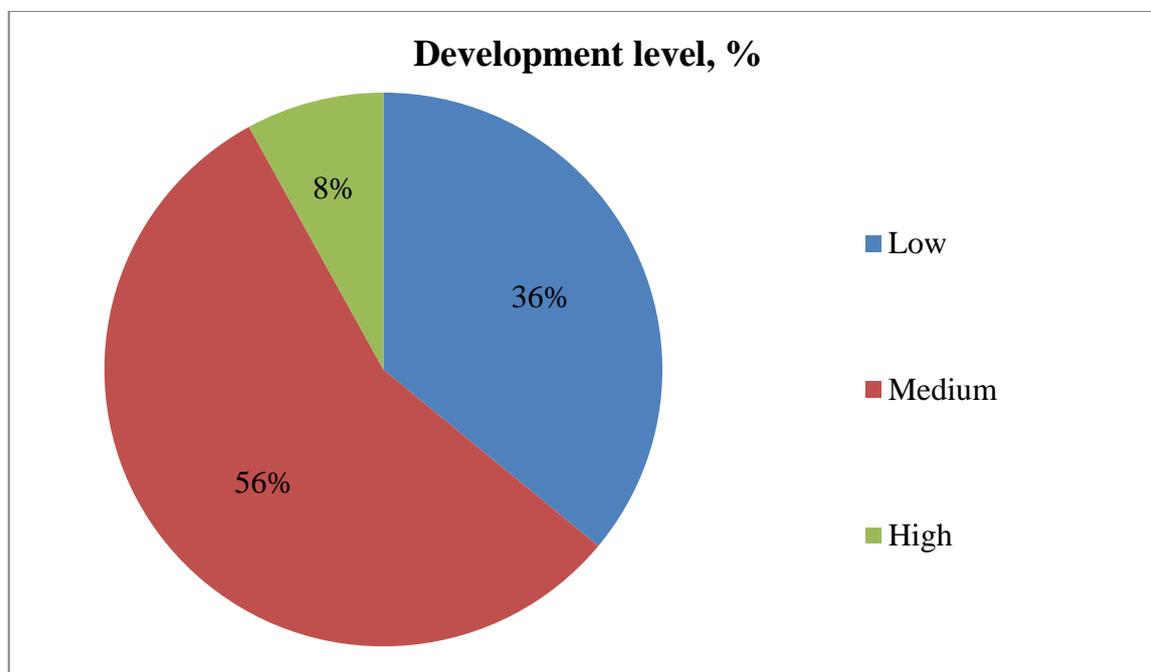


Figure 4. The nature of motivation for professional activity of future preschool teachers

The category of respondents with a low level (36%) considered professional activity only as a channel for theoretical and practical knowledge, but they did not perceive this area as a tool for improving professional pedagogical activity in preschool education in the long and short term. Future preschool teachers pointed out that professional activities provide an opportunity for professional self-development, self-improvement and self-affirmation, designing innovative forms of organising classes with students and presenting them to colleagues, with effective analysis. The level of need for self-development and self-education is measured using reflexive skills self-assessment test. The results of this test are presented in Figure 5.

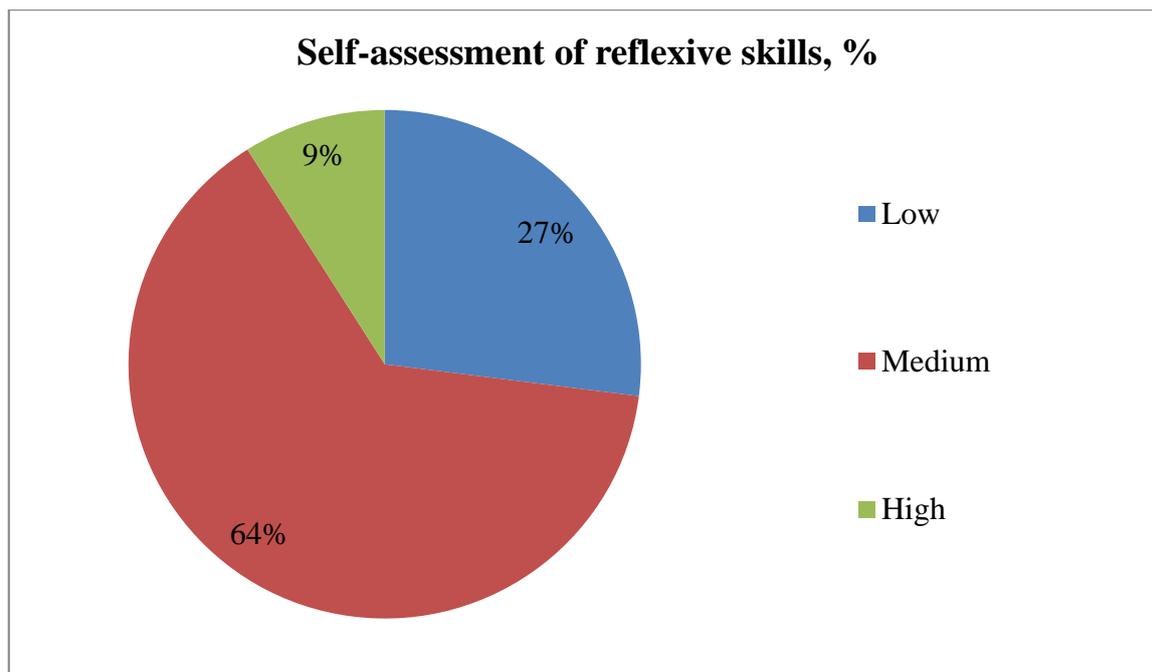


Figure 5. The level of need for self-development and self-education of future preschool teachers

The results of the diagnostics show that most future preschool teachers have a medium level of the ability to self-development and self-education. In addition, the test found respondents who have a low level of the ability to self-development and self-education. A small number of respondents had a high level of the ability to self-development and self-education. Therefore, future preschool teachers need to increase the level of the ability to self-development and self-education. Input diagnostics of the activity component is carried out primarily on the basis of the method of determining the level of teacher’s professional reflectivity. The results are presented in Figure 6.

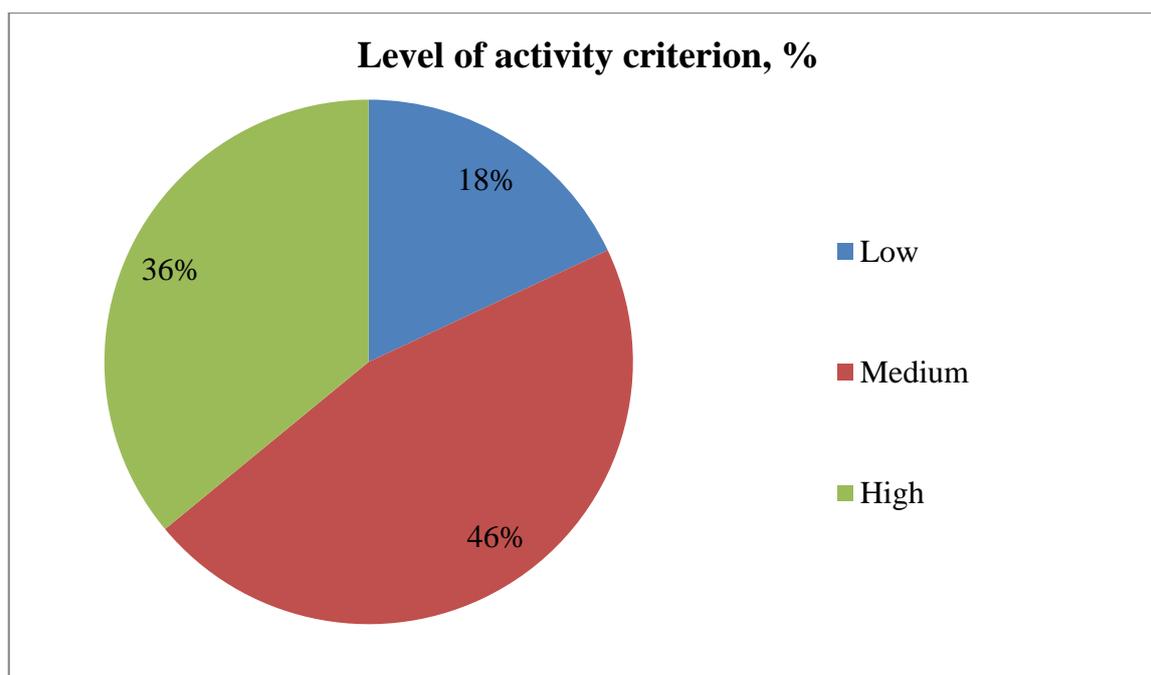


Figure 6. Distribution by the level of activity criterion for the development of professional reflexivity in future preschool teachers

Diagnostics of the level of professional reflexivity of future teachers revealed that about half of respondents have a medium level of professional reflection, who are partially able to perform reflective analysis (self-analysis) of pedagogical activities, and 18% of respondents with low level of professional reflection, who can use their reflective skills in pedagogical activities, the experience in identifying their professionally significant qualities, abilities, needs, status.

Based on the analysis of diagnostic data obtained at the initial stage of the study, the need to develop and implement a special area of methodological work that promotes the development of professional reflexivity in future teachers was determined. The proposed direction of methodical work should promote the acquisition and assimilation by students of knowledge about professional reflexivity, the interdependence of the processes of personal and professional self-development and reflective processes, the possibility of developing professional reflexivity. The objectives aimed at development of cognitive, motivational-value, and activity criteria of professional reflexivity of future teachers were fulfilled in the course of realisation of this direction of methodical work.

Based on the aim and objectives of the study, the purpose of the final stage of work is to identify the dynamics in the levels of professional reflexivity of future preschool teachers after working with them at the main stage. Diagnosis was performed according to the same

criteria and using the same diagnostic techniques as to study the level of professional reflectivity. Re-analysis of the development of the cognitive criterion of professional reflectivity of teachers revealed the following changes (Figure 7).

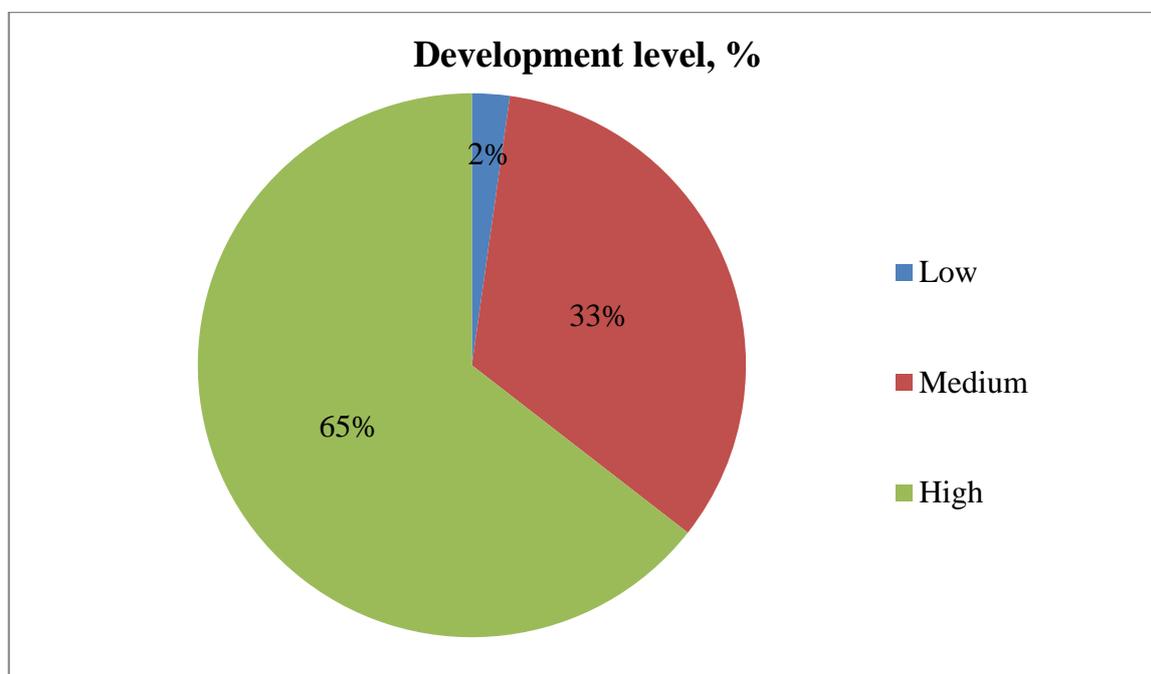


Figure 7. Distribution by the level of cognitive criterion for the development of professional reflectivity in future preschool teachers at the final stage

At the end of the study, all respondents have a high level of cognitive criterion for the development of professional reflectivity in teachers. The results of a re-study of the motivational preferences of teachers showed changes in all indicators. It should be noted in particular that the importance for teachers of the indicators “the desire to avoid criticism from the head or colleagues” has decreased. Significance of the indicators of satisfaction with the process and the result of work, and the possibility of the most complete self-fulfilment in this activity for all respondents at the stage of final diagnostics, as well as the indicator “I reflect on my activities, allocating special time” were first noted. The results of the final diagnostics of changes in the level of the ability to self-development and self-education are presented in Figure 8.

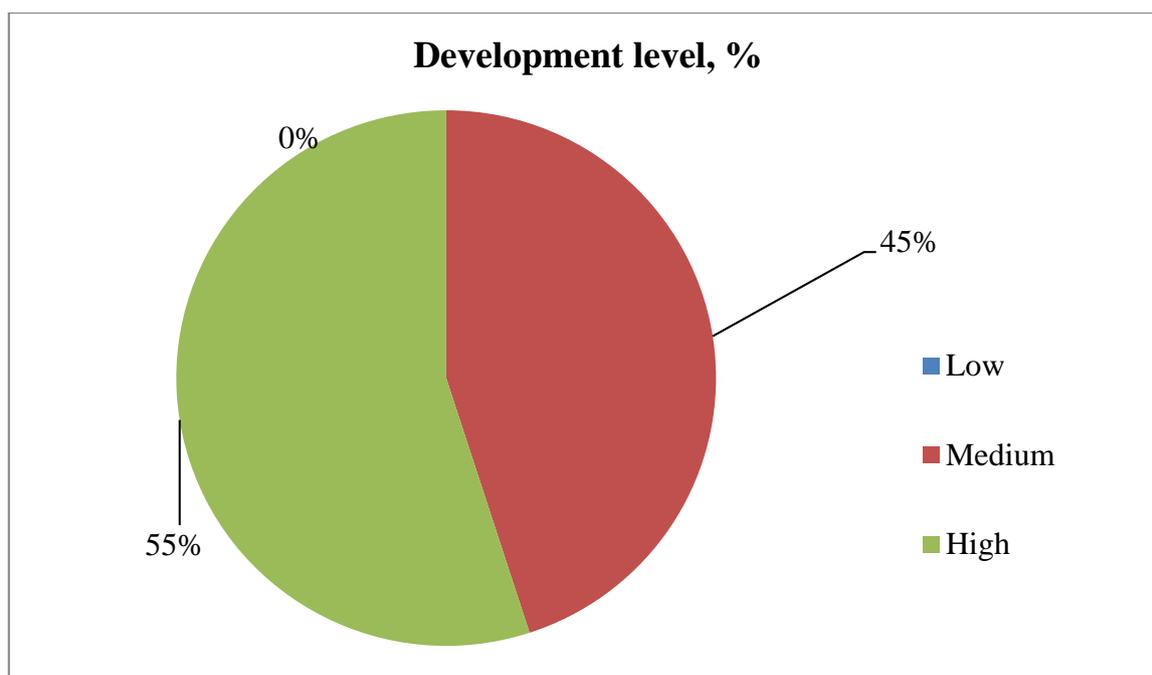


Figure 8. The nature of motivation of future preschool teachers for professional activities at the final stage

Diagnostics of the level of assessment of the ability to self-development and self-education at the end of the study revealed an improvement in this indicator in all respondents. The training allowed to show a high level of development of the ability to self-development and self-education. None of the respondents had a low level of development of the ability to self-development and self-education. The testing of the achieved results of the motivational and value criteria for the development of professional reflectivity in future preschool teachers confirmed the correctness of the chosen forms, methods and exercises to improve this criterion. Final Diagnostics of the activity component is carried out on the basis of the method of determining the level of teacher’s professional reflectivity. The results of this diagnostics are presented in Figure 9.

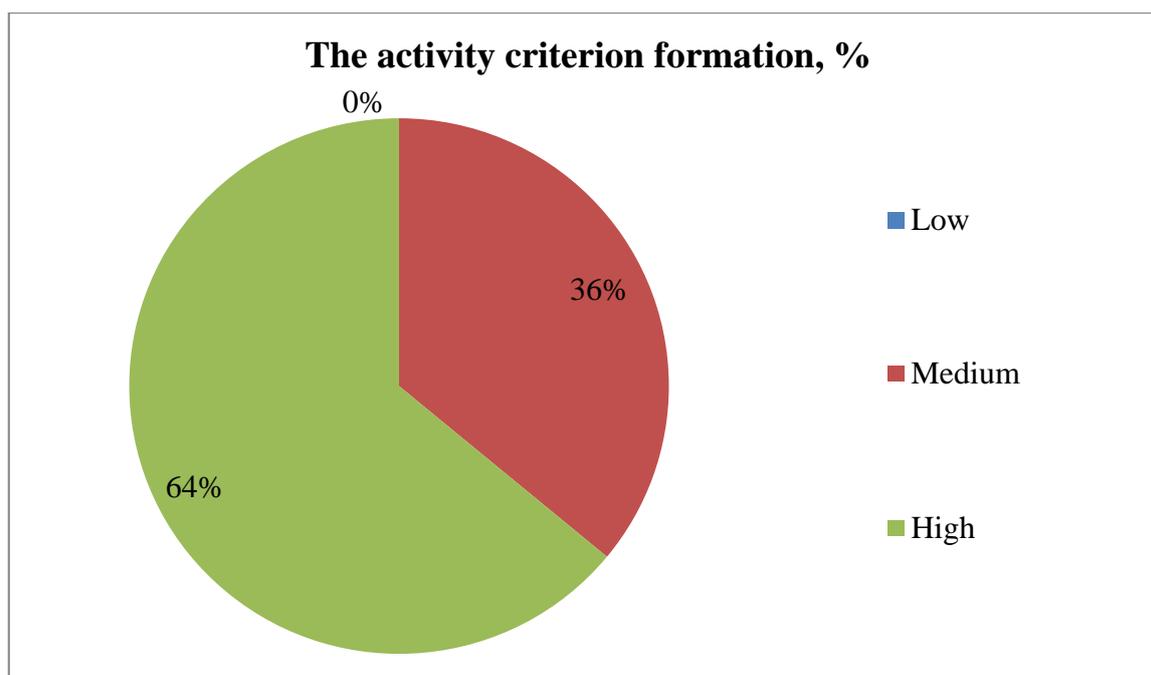


Figure 9. Distribution by the level of the activity criterion for the development of professional reflectivity in future preschool teachers at the final stage

The level of professional reflectivity of future preschool teachers, as the diagnosis showed, has significantly improved. At the end of the experiment, all respondents had a medium and high levels of professional reflectivity. Diagnostics of the level of the ability to self-development and self-education at the end of the study revealed an improvement in this indicator in all respondents. Due to the delivered training 15 respondents were able to show a high level of development of the ability to self-development and self-education. None of the respondents had a low level of the ability to self-development and self-education. Thus, the testing of the achieved results of the motivational and value criterion for the development of professional reflectivity in future teachers confirmed the correctness of the chosen forms, methods and exercises to improve this criterion.

Besides, the changes in the level of the activity component of the development of professional reflectivity in respondents were assessed in the final lesson “How do I reflect in my professional activities?”, namely in the course of the discussion of training to improve reflection. The obtained data indicate that special trainings are able to stimulate professional reflection of future preschool teachers. At the same time, respondents obviously need supervision from experienced teachers with a high level of professional reflectivity in the course of training. From the point of view of professional development, reflective trainings conducted for students are unlikely to play a major role for the latter. However, patronage of students will complicate their tasks and, therefore, give impetus to professional reflection, aimed not only at

their experience but also at helping each other, which involves reflection on the difficulties faced by future preschool teachers. During the continuous educational activities, students tried to use the knowledge gained during the previous classes. Conducted classes on the development of professional reflectivity of the teacher provided an improvement in the professional skills of future preschool teachers.

Discussion

The difficulties faced by future preschool teachers are identified: weak development of reflective skills, which manifested in the difficulties caused by self-analysis and self-assessment of their own pedagogical activities and mutual analysis of pedagogical activities of colleagues; insufficient professional knowledge that allows to effectively implement different types of reflection (reflection on the objectives of pedagogical activity; reflection on the goals of pedagogical activity; reflection on the content of pedagogical activity; reflection on the specifics of pedagogical activity; reflection on the conditions of pedagogical activity; reflection on the level of intellectual development; reflection on the emotionality of the subjects of the pedagogical process). Vanichvatana (2020) and Zhelanova (2017) also covered similar issues in their works.

The pedagogical conditions created during the experiment contributed to the development of professional reflectivity of future preschool teachers, which is confirmed by the results of the study of Uzunboylu et al. (2017). The process of creating diagnostic parameters of reflectivity of future teachers allowed to structure the concept of “professional reflectivity of a preschool teacher” in the context of the study and fill it with its content, which was also the case in Tilavova, Husenova and Hakimova (2020). This served as a basis for determining the levels of reflectivity of future teachers and allowed tracing the dynamics of its components (motivational-value, cognitive, activity), which permeate all professional activities of teachers and the structure of their personality. The analysis of the reflectivity components allowed to single out its content parameters, according to which the level characteristics of reflectivity of future preschool education specialists were determined. Miller and Shifflet (2016) also did that in their works.

Selected forms and methods of working with future preschool teachers for the development of professional reflectivity have proven their effectiveness for the development of all reflectivity criteria. However, it should be understood that the development of professional reflectivity of future teachers should be regular and consistent. Holubnycha and Besarab (2021) came to similar conclusions. Therefore, the study was aimed at finding conditions for the

development of reflectivity of future teachers, which updated the process of personal and professional self-development, that should continue based on the forms, methods and techniques of reflective practice. The effectiveness of pedagogical conditions is proved in the process of pedagogical experiment on the basis of the developed criterial evaluation system. A similar work was performed by Johnson and Coleman (2021).

Criteria for assessing the effectiveness of the implemented pedagogical conditions for the organisation of independent work were selected as follows: functionally competent, with an indicator: the level of components of professional competence; educational criterion with indicators of academic success, the level of skills of independent work; motivational criterion with indicators of motivation for educational activity, professional education and personal criterion with indicators of the level of self-regulation and level of reflection. Frumkina (2019) also tried to form his own system of criteria for the study of reflection.

Evaluation of the effectiveness of pedagogical conditions of the organisation, providing the development of professional reflection in students, was carried out during the pedagogical experiment and the results showed a positive dynamics of all indicators on all these criteria and in general on the dynamics of reflection levels of students to reduce acceptable and optimal growth and creativity. Such results contradict the data obtained by Chupakhina (2020), who claim that professional reflectivity cannot be developed during training, it can only be the result of professional activity.

Professional reflectivity of teachers requires purposeful work on its development, especially for future preschool teachers, which contradicts the opinion of Frumkina (2019), who indicates that there are no features of the development of reflection in professionals of different educational levels. However, the question remains open about ways to assess the effectiveness of training to increase the reflectivity of future specialists, their impact on the quality of pedagogical reflection, which is the basis of professional development of teachers.

The main limitations of the study can be called the formation of the sample only among students of the Free Economic Zone of Kyiv and with a limited number of respondents, due to the specifics of the training area under study. This, in turn, does not distort the reliability of the results obtained because the sample is formed in such a way as to cover all the executions of students studying in the average free economic zone of Ukraine.

Conclusions

In modern education, the study of reflectivity, including professional reflectivity of teachers, has a long history and is the subject of research of many scholars. The study deals

with the topical problem of developing the professional reflectivity in future teachers as a mechanism of personal and professional self-development. The system of work on the development of professional reflectivity in future preschool teachers involves the creation of pedagogical conditions in the course of methodical work. The study of this issue allowed drawing a number of general conclusions.

These studies can also be used to monitor the level of professional reflection of the future teacher. The humanistic focus of the study involves the creation of an atmosphere of friendliness, trust, respect for the individual. The results of the study cannot be used for the application of any repressive measures, but should be only stimulating in the qualitative change of students' attitudes to their pedagogical activities. The results of the study of the development of reflection in students represent a unique material on the ontogenetic history of professional development of personality. Awareness of external information about the advantages and *disadvantages of the subject of professional development contributes to the transition to a state of self-regulation and self-monitoring.

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