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THE ORGANIZATION AND THE ANALYSIS OF THE RESEARCH RESULTS OF PREPARATION OF FUTURE LECTURERS OF PEDAGOGICAL DISCIPLINES TO PROFESSIONAL INTERACTION BY MEANS OF INTERACTIVE LEARNING TECHNOLOGIES

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The article has shown the results of experimental research of formation of readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive technologies. Also it has illuminated the logic of experimental research during 2016-2019 years in four stages: theoretical, summative, formative, productive and analytical. At the theoretical stage we have established the relevance of the research problem, defined the purpose, object, subject, research tasks. At the summative stage, the author has developed diagnostic tools to determine the levels of readiness of future teachers of pedagogical disciplines to professional interaction. The main purpose of the formative stage was the implementation of certain pedagogical conditions, such as: the motivation of future teachers of pedagogical disciplines to the interactive communication in the educational process; creation of professional and interactive environment based on the implementation of the special course "Professional interaction in the educational process of higher educational establishments"; the organization of students' reflexive activity for self-examination of readiness to professional interaction. The author has specified the features of the formation of the control and experimental groups, the observance of which guaranteed equal conditions of admission of future teachers of pedagogical disciplines in the experiment. Such factors are identified: digital indicators of levels of development of all components and overall readiness of future teachers of pedagogical disciplines in professional interactions, and almost the same quantitative composition in both categories. At the analytical stage we have announced that to prove the validity of the obtained results and the reliability of the experimental research we have used statistical methods of processing the factual material and digital pedagogical experiment using the Fisher criterion.

Key words: *Stage, professional training, future teachers of pedagogical disciplines, students, experiment, components, levels, pedagogical conditions.*

Formulation of the problem in general. The experimental and research verification of the effectiveness of forming the willingness of future teachers of pedagogical disciplines to professional interaction by means of interactive learning technologies and the realization of pedagogical conditions of such process has been carried out by conducting a pedagogical experiment, which has covered several stages of scientific exploration. The planning of the main stages of the search activity has enabled in the most optimal way to reach the scientific goal, since the general logic of the research activity was taken into account.

An analysis of the latest research and publications in which this problem has been solved and the author relies on it. The problems of the basic conditions of effectiveness of the methodology of experimental-research work, connected with carrying out pedagogical experiment, have been the subject of scientific researches of a number of scientists (A. Bartashev (2007), V. Bevz, P. Luzan (2011) and others). Separate questions of preparation of future teachers of pedagogical disciplines to professional interaction by means of interactive technologies were reflected in the scientific achievements of the following scientists: E. Barbina, O. Dubaseniuk, I. Ziazun, N. Kuzmina, O. Pehota, O. Sysoeva, L. Khomich Kichuk, A. Markova, O. Semenog and others. However, the question of determining the effectiveness of the formation of future teachers of pedagogical disciplines to professional interaction by means of interactive teaching technologies has remained beyond the scientific research of scientists.

The purpose of the article is to show the logic of organizing experimental research and analysis of the results of forming the readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive teaching technologies.

The main material of the research. The experimental work aimed at formation of readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive teaching technologies has been carried out during 2016–2019 years and has covered four stages: theoretical, summative, formative, productive and analytical.

At the first (theoretical) stage, the following steps were taken:

- set out the urgency of the problem of forming the readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive teaching technologies in the higher educational establishments of Ukraine;

- based on theoretical analysis of legal documents, sociological, psychological, pedagogical literature; comparison of modern requirements for professional training of future teachers of pedagogical disciplines with the existing practice of teaching students of this profile in higher educational

establishments revealed a number of contradictions, the solution of which requires the use of pedagogical innovations of an active nature;

– determined the purpose, object, tasks of the research.

In the process of research at the summative stage the following main results have been achieved:

- author's diagnostic toolkit has been developed to determine the levels of readiness of future teachers of pedagogical disciplines to professional cooperation in future professional work;

- components, criteria, indicators, levels of preparedness have been specified;

- pedagogical conditions have been determined and theoretically substantiated, and have been developed structural-functional model of forming the readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive teaching technologies.

The summative stage of the study involved diagnostics of the current state of readiness of students of this specialty to professional interaction with the use of specific components, criteria, indicators and levels. On the basis of diagnostics, which has been carried out by the integrated use of many methods (questioning, quizing observation, testing, solving situational problems of interactive interaction, etc.), it has been determined the state of formation of various aspects of the readiness of future teachers of pedagogical disciplines, defining the professional characteristics of students in three components (motivational, cognitive-communicative, professional-reflexive).

At the summative stage of the research conducted during 2016–2017 years students from five higher educational establishments of Ukraine participated: Mukachevo State University, Khmelnytsky Humanities and Pedagogical Academy, Vasyl Stefanyk Precarpathian National University, Cherkasy National University by Bohdan Khmelnytsky and Drohobych Ivan Franko State Pedagogical University.

The formative stage of the pedagogical experiment has been conducted during 2017–2018 years and 2018-2019 years. The main purpose of this stage was the realization of pedagogical conditions of forming the readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive teaching technologies.

At the result-analytical stage of the experimental research (2019), the reliability of the results of forming the readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive teaching technologies has been verified. Initially, we have made an experimental verification of the effectiveness of implementation in the educational process of

a set of pedagogical conditions and the author's structural-functional model of such a process in the experimental groups.

Factual digital material obtained in the process of input and final control has been systematized and processed. By means of comparative analysis of statistical data, the effectiveness of realization of the complex of pedagogical conditions offered in the study in comparison with the traditional preparation of future teachers of pedagogical disciplines has been proved. Therefore, the results of the experimental study have been systematized and generalized, their probability has been proved by using mathematical statistics methods with Fisher criterion, which is reflected in the tables, diagrams and conclusions.

The future level of readiness of future teachers of pedagogical disciplines for professional interaction by means of interactive teaching technologies has been determined in students of control and experimental groups using the same diagnostic tools in the first year.

Appealing to the complex multicomponent structure of the phenomenon under research, we have decided to study the level of willingness of future teachers of pedagogical disciplines to use a number of complementary methods that made up a complex of diagnostic methodological materials.

As the optimal organizational and pedagogical environment for the preparation of future teachers of pedagogical disciplines to professional interaction is the use of educational trainings, which combine different interactive methods used in pedagogy, so the special course "Professional interaction in educational process of higher educational establishment" has been developed and contributed to the creation of a new - professional and interactive environment.

A detailed theoretical analysis of the scientific literature has confirmed the existence of a large number of diagnostic techniques that researchers actively use to determine the formation of certain qualities. However, a complex of methodological materials for establishing the levels of preparedness of future teachers of pedagogical disciplines to professional interaction by means of interactive teaching technologies have not been found. Therefore, we have adapted well-known and developed diagnostic materials to diagnose such readiness, taking into account the requirements of objectivity, validity, reliability. A set of techniques has been developed, designed to detect the status of all readiness indicators.

The division of students into experimental (EX) and control (CG) groups has been carried out taking into account certain features and requirements, the observance of which guaranteed the same conditions for future teachers of pedagogical disciplines to enter into the experiment. The main requirement was the identity of the control and experimental groups by the level of formation of

all components of the readiness of future teachers of pedagogical disciplines for professional interaction and almost the same quantitative composition. Thus, on the basis of the analysis of the results of the entrance control, it has been established that the formation of all components of the readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive technologies of students of CX and CG has close values, which testifies to the same conditions of students' entering into the experiment.

In order to simplify the process of mathematical and statistical calculations at all stages of the research, we have used a five-point scale of assessment of readiness levels. An average (EL) has also been calculated, due to the need to use it in calculating the Fisher criterion to prove the reliability of the obtained results.

The final level of preparedness of future teachers of pedagogical disciplines to professional interaction by means of interactive learning technologies has been established by using the same methods as at the stage of entrance control, but with more interactive tasks. The final control was carried out after studying the students' selected for experimental study of disciplines.

The analysis of the received data at the stages of entrance and final control have shown that in the control and experimental groups progressive changes in the willingness of future teachers of pedagogical disciplines to professional interaction by means of interactive learning technologies have been noted. However, EX students have showed the best results in all components of such readiness.

The reliability of the obtained results and the reliability of the experimental research have been proved using statistical methods of data processing of the pedagogical experiment (Shtulman, 1988). The number of students in the control and experimental groups was sufficient to prove the validity of the results of our experimental study.

To test the hypothesis of the study by means of mathematical statistics, we used a comparison of variances to establish by the Fisher Formula 1 (F-criterion) (Kyveryalg, 1980, p. 277).

$$F_{emp} = \frac{\sigma_1^2}{\sigma_2^2} \quad (1)$$

The main components of this formula are:

F_{emp} – empirical (calculated from experimental data) value of the Fisher test for control and experimental groups, the value of which was compared with the theoretical F-criterion (F_{krit});

σ_1^2 – greater variance digital indicator;

σ_2^2 – lower variance digital indicator.

The variance values have been calculated at the introductory and final determination of the levels of preparedness of future teachers of pedagogical disciplines to professional interaction by means of interactive learning technologies according to the formula 2:

$$\sigma^2 = \frac{\sum f(x_i - \bar{x})^2}{N} \quad (2),$$

where

f – number of future teachers of pedagogical disciplines who have shown a certain level of readiness to professional interaction by means of interactive learning technologies with such digital expression (high - 5 points; sufficient - 4 points; satisfactory - 3 points; low - 2 points);

$(x_i - \bar{x})$ – the difference between the digital values of each level and the value of the average (AV);

N – the total number of students in the groups where the variance is calculated.

To prove the validity of the obtained results, we have calculated indicators of the Fisher empirical criterion in control (Femp-KG) and experimental groups (Femp-EX) and were compared with those of theoretical F-criterion (Fkrit) in standardized tables (Kyveryalg, 1980, p. 278). Such comparative analysis confirmed the reliability of the obtained results.

Summary. Therefore, the results obtained in the process of experimental verification of the proposed pedagogical conditions of forming the readiness of future teachers of pedagogical disciplines to professional interaction by means of interactive learning technologies, testify to the effectiveness of the proposed method of teaching students and the feasibility of its introduction into the educational process. The developed special course "Professional interaction in the educational process of the higher educational establishment" can be supplemented with new interactive tools to optimize the formation of the investigated readiness.

The prospects for further exploration in this area have been seen in the coverage of the methods of using the developed educational and methodological materials in the process of studying individual disciplines by future teachers.

References

1. Batarshv, A. V., Alekseeva, I. Yu. & Mayorova, E. V. (2007). *Diagnostika professionalno vazhnykh kachestv [Diagnostics of professionally important qualities]*. Saint-Peterburg: Piter (rus).
2. Bevz, V. *Osnovni polozhennia shchodo provedennia treninhiv [Basic provisions for training]*. Retrieved from <http://osvita.ua/school/technol> (date of appeal: 15.11.2019) (ukr).
3. Kyveryalg, A. A. (1980). *Metody issledovaniya v professionalnoy pedagogike. [Research methods in professional pedagogy]*. Tallin: Valgus (rus).
4. Luzan, P. H., Sopivnyk, I. V., & Vyhovska, S. V. (2011). *Osnovy naukovo-pedahohichnykh doslidzhen [Fundamentals of scientific and pedagogical research]*. Kyiv: NAKKKiM (ukr).
5. Shtulman, E. A. (1988). Spetsifika metodicheskogo eksperimenta. [Specificity of the methodological experiment]. *Sov. Pedagogika*, 3, 61–65 (rus).

Література

1. Батаршев А. В., Алексеева И. Ю., Майорова Е. В. Диагностика профессионально важных качеств. Санкт-Петербург : Питер, 2007. 192 с.
2. Бевз В. Основні положення щодо проведення тренінгів. URL: <http://osvita.ua/school/technol> (дата звернення: 15.11.2019).
3. Кыверялг А. А. Методы исследования в профессиональной педагогике. Таллин : «Валгус», 1980. 334 с.
4. Лузан П. Г., Сопівник І. В., Виговська С. В. Основи науково-педагогічних досліджень. Київ : НАКККіМ, 2011. 314 с.
5. Штульман Э. А. Специфика методического эксперимента. *Советская педагогика*. 1988. № 3. С. 61–65.

**ОРГАНІЗАЦІЯ ТА АНАЛІЗ РЕЗУЛЬТАТІВ ДОСЛІДЖЕННЯ
ПІДГОТОВКИ МАЙБУТНІХ ВИКЛАДАЧІВ ПЕДАГОГІЧНИХ
ДИСЦИПЛІН ДО ПРОФЕСІЙНОЇ ВЗАЄМОДІЇ ЗАСОБАМИ
ІНТЕРАКТИВНИХ ТЕХНОЛОГІЙ НАВЧАННЯ**

М. О. Томашевська

У статті висвітлено результати експериментального дослідження формування готовності майбутніх викладачів педагогічних дисциплін до професійної взаємодії засобами інтерактивних технологій. Висвітлено логіку розроблення дослідно-експериментальної роботи протягом 2016–2019 років у чотири етапи: теоретичний, констатувальний, формувальний, результативно-аналітичний. На теоретичному етапі встановлено актуальність досліджуваної проблеми, визначено мету, об'єкт, предмет, завдання дослідження. На констатувальному етапі розроблено авторський діагностичний інструментарій для визначення рівнів готовності майбутніх викладачів педагогічних дисциплін до професійної взаємодії. Основною метою проведення формувального етапу була

реалізація визначених педагогічних умов: мотивація майбутніх викладачів педагогічних дисциплін до інтерактивної взаємодії в освітньому процесі; створення професійно-інтерактивного середовища на основі впровадження спекурсу «Професійна взаємодія в освітньому процесі закладу вищої освіти»; організація рефлексивної діяльності студентів для самоаналізу готовності до професійної взаємодії. Конкретизовано особливості формування контрольних та експериментальних груп, дотримання яких гарантувало однакові умови вступу майбутніх викладачів педагогічних дисциплін в експеримент. Такими факторами визначено: цифрові показники рівнів сформованості всіх компонентів і загалом готовності майбутніх викладачів педагогічних дисциплін до професійної взаємодії; майже однаковий кількісний склад в обох категоріях груп. На результативно-аналітичному етапі підсумовано, що для доведення вірогідності отриманих результатів і достовірності експериментального дослідження використовувалися статистичні методи обробки фактологічного цифрового матеріалу педагогічного експерименту з використанням критерію Фішера.

Ключові слова: етап, професійна підготовка, майбутні викладачі педагогічних дисциплін, студенти, експеримент, компоненти, рівні, педагогічні умови.

ОРГАНИЗАЦИЯ И АНАЛИЗ РЕЗУЛЬТАТОВ ИССЛЕДОВАНИЯ ПОДГОТОВКИ БУДУЩИХ ПРЕПОДАВАТЕЛЕЙ ПЕДАГОГИЧЕСКИХ ДИСЦИПЛИН К ПРОФЕССИОНАЛЬНОМУ ВЗАИМОДЕЙСТВИЮ СРЕДСТВАМИ ИНТЕРАКТИВНЫХ ТЕХНОЛОГИЙ ОБУЧЕНИЯ

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В статье отражены результаты экспериментального исследования формирования готовности будущих преподавателей педагогических дисциплин к профессиональному взаимодействию средствами интерактивных технологий. Освещена логика развития исследовательско-экспериментальной работы в течение 2016–2019 годов в четыре этапа: теоретический, констатирующий, формирующий, результативно-аналитический. На теоретическом этапе установлена актуальность исследуемой проблемы, определены цель, объект, предмет, задачи исследования. На констатирующем этапе разработан авторский диагностический инструментарий для определения уровней готовности будущих преподавателей педагогических дисциплин к профессиональному взаимодействию. Основной целью проведения формирующего этапа была реализация определенных педагогических условий: мотивация будущих преподавателей педагогических дисциплин к интерактивному взаимодействию в образовательном процессе; создание профессионально-интерактивной среды на основе внедрения спецкурса «Профессиональное взаимодействие в образовательном процессе учреждения высшего образования»; организация рефлексивной деятельности студентов для самоанализа готовности к профессиональному взаимодействию.

Конкретизированы особенности формирования контрольных и экспериментальных групп, соблюдение которых гарантировало одинаковые условия вступления будущих преподавателей педагогических дисциплин в эксперимент. Такими факторами определены: цифровые показатели уровней сформированности всех компонентов и готовности будущих преподавателей педагогических дисциплин к профессиональному взаимодействию; почти одинаковый количественный состав в обеих категориях групп. На результативно-аналитическом этапе для доказательства достоверности полученных результатов и достоверности экспериментального исследования использовались статистические методы обработки фактологического цифрового материала педагогического эксперимента с использованием критерия Фишера.

Ключевые слова: этап, профессиональная подготовка, будущие преподаватели педагогических дисциплин, студенты, эксперимент, компоненты, уровни, педагогические условия.

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