

Improving Teaching Methodology of the Subject Human Anatomy and Physiology on the Basis of Multimedia Technologies and a Creative - Existential Teaching Method in Pedagogical Universities of the Republic of Uzbekistan

Khamdamova Malika Ilkhamovna

Doctoral student

Tashkent state pedagogical university named after Nizami,
Tashkent, Uzbekistan

E-mail: mkhamdamova52@gmail.com

ABSTRACT: To teach biological sciences is accompanied by the use of different technologies and teaching aids, since we know that for students the material to study by them is well remembered and mastered visually. The creative - existential method of teaching is a new direction in teaching biology, which requires a teacher of great skill and developed professional and special competencies. The creative - existential teaching method is based on the individualization of the educational process, which is characteristic of the multimedia competence of teachers. We know that individualization of the educational process contributes to the development of such qualities in students as independence and freedom of choice. Under individualizing the educational process, a student can choose an interactive multimedia program, to work independently with educational material, and to decide independently in what sequence to teach the topic that he is studying. The method of using multimedia means to develop the multimedia competence of teachers of biologists, firstly, it should be aimed at the best assimilation of the educational material. It is the creative - existential teaching method, which it focuses to achieve these goals. In our article, we consider one of the topical issues of our time, the development of competence in the field of multimedia and the application of a new teaching method in the educational process. Using the method of questioning teachers of biologists, we decided to identify the level of multimedia competence of teachers and the role of the creative - existential teaching method in the development of the competence of teachers in the field of multimedia. The questionnaire contains 25 questions. Using the method of mathematical statistics, we calculated the arithmetic mean and the percentage of positive answers using mathematical formulas.

Keywords: multimedia, existential, multimedia technologies, multimedia competence, creative - existential teaching method, questionnaire, and mathematical statistics.

INTRODUCTION

Sh.M.Mirziyoyev, who is the President of the Republic of Uzbekistan in his work of “We will definitely continue our national development path to a new stage” (Mirziyoyev, 2018); he sees the development of the educational system of the Republic of Uzbekistan in the following in the future:

- further strengthening the material and technical base of science and education, ensuring that it is not only consistent with the times, but also ahead of time;
- in the widespread use of advanced methods of training and retraining of teachers in cooperation with reputable foreign centers;
- to perform tasks related to the introduction of modern technologies in the field;
- comprehensive encouragement of the painstaking and responsible work of teachers and educators;

- to make every effort to develop our young generation, which is becoming a great force;

If we do a comparative analysis of the introduction of multimedia into the educational process, we can give several examples. For example, in Israel, modern teacher training forces them to adapt by exploring the means by which teachers are exposed to ITC and multimedia implementation processes. In the process of introducing ICT, in particular multimedia, teachers play a significant role; the reason for this is that teachers can influence the knowledge, skills and professional abilities of their students, as well as their beliefs, views and perceptions (Ungar O. A. & Baruch A.F. 2016). Since 2004, Indonesia has a progressive development of information and communication technologies. On this basis, a new curriculum was created on a new subject of “Informational and communication technologies”. To achieve the best result, the government has tried to equip all educational institutions with multimedia (Mahdum, Hadriana & Safriyanti M. 2019). Ireland is also highly skilled in the use of multimedia in the educational process. At University College of Cork, teachers of the department of Anatomy and Neurology describe the process of studying on the subject of Anatomy by 1st year medical students in detail that they conduct the lesson with the introduction of multimedia. When studying the “Anatomy”, along with the use of simple media such as video, animation, complex media such as virtual reality (Virtual Reality VR) and 3D are actively used. Research has shown that the use of multimedia as a form of blended learning, that is, applying multiple learning styles, provides better results than traditional lectures, enhances the learning experience, applying virtual reality (VR) also improves students’ cognitive abilities (Tamara Vagg, Joy Y . Balta, Aaron Bolger & Mutahira Lone 2020). In the Republic of Kazakhstan, the introduction of ICT into the education system is carried out because of the state policy of informatization of society and education. As part of the state program for the development of education of the Republic of Kazakhstan in 2011 - 2020, educational organizations must be equipped with new computers, digital educational resources, the necessary hardware and software. All of these initiatives are based on many scientific studies that have shown the various benefits of using ICT, in particular multimedia, in education. An example of this is increasing the motivation of students, contributing to clearer thinking. In addition, according to researchers, ICT is a tool for the best teaching of natural sciences, which once again proves the relevance of the development of multimedia competence of teachers of biology (Suleimen N. 2019).

In the Republic of Uzbekistan, educational films and TV shows were considered the first prerequisites for the development of multimedia, created based on visual and laboratory work. These TV shows and educational films were broadcast for students in grades 9-11, and originated from 1995 (Abdurakhmanov K.P. & Beknazarova S.S. 2011). Today, in the modern sphere of education, in the training of future specialists, it is important to ensure the conditions for mastering multimedia technologies. Along with other important areas of education, the computerization of education is one of the large-scale innovations that have come in recent decades (Alimkulov S.O. & Rustamov A.Sh. 2020). The main attention was paid to the development of multimedia technologies in the Republic of Uzbekistan, as evidence of this, many Decrees and Resolutions were adopted, where special attention is paid to modern types of multimedia technologies. Special attention is paid to the comprehensive development of the education sector with the introduction of information and communication technologies. As an example, this is the Resolution of the President of the Republic of Uzbekistan by PD-No.4391, dated in 07.11.2019, about “About measures to introduce new management principles in the system of higher and secondary specialized education”. Which the most important innovations are listed, such as: expanding the opportunities for students, teachers and young researchers of the world’s educational resources, electronic catalogs of scientific literature and databases through the introduction of modern information and

communication technologies. According to the above proposals, it is clear that a new road is opening in the Republic of Uzbekistan for the large-scale introduction of new teaching methods by using information and communication technologies. In our case, we will consider the impact of creative - existential learning on the development of multimedia competence of teachers of biology.

LITERATURE REVIEW

Over the years, we often come across the term “multimedia”, but the term “existential” in pedagogy is by no means a new concept. What are the terms “multimedia” and “existential”? Nowadays, the term “multimedia” is not a novelty, as this term first appeared in 1965 (Katunin G.P. 2017). Many academic researchers have given their own definition of the concept of multimedia. Authors E.V.Arbatskiy, A.V.Daneev and O.G.Demenchenok in their works of “Conducting training sessions with the use of multimedia technology” give the following definition - multimedia (from Latin *multum* - a lot and English *media* - media) simultaneous use of various forms of information presentation. For example, a single multimedia file may contain textual, audio, graphic and video information, and possibly a way of interacting with it. The term of “multimedia” is also used to refer information carriers, allowing to store significant amounts of data and to provide fast enough access to them (Arbatskiy E.V., Daneev A.V., & Demenchenok O.G. 2016). N.T.Sukhanova, S.A.Balunova in their works of “Multimedia technologies in education” give the following definition - multimedia (Eng. - multiple environments), this is the interaction of visual and sound information under the control of interactive software using modern hardware and software, they combine text, sound, graphics, photos, video in one digital representation (Sukhanova NT & Balunova SA 2018). Because the term “multimedia” is considered a multifaceted concept by O.B. Akimov and he offers the following definitions:

- Type of information technology;
- Multimedia program;
- Information carrier;
- A product, created based on the multimedia technologies;
- Modern means of communication and computer equipment;
- Business tool;
- Combination of funds (Akimova O.B. & Vetlugina N.O. 2014)

Today it is impossible to imagine a modern occupation without multimedia education. Along with visual teaching aids, multimedia makes it possible to provide educational material in full. The authors G.I.Kharchenko and M.V.Gulakova in their works of “Use of modern multimedia technologies in the learning process” list the main advantages of using multimedia in education (Kharchenko G.I. & Gulakova M.V. 2009).

Let’s consider the essence of the term “existence”. The emergence of existentialism is associated with the name of the Danish philosopher S.Kierkegaard, who proclaimed the concept of “existence” (Latin: *existential* - existence) as the deep essence of the “human it is me”. According to S. Kierkegaard, existence is the foundation of each specific human personality, which determines its uniqueness, originality and difference from other people. Moreover, from the position of S. Kierkegaard, existence is not a definite and initially given essence to a person, but an “open possibility”; human existence precedes human essence - a person is not born a person, but becomes them (Karimova T.S. & Podlinyaev O.L. 2016). A person is free and himself is able to predetermine his attitude to the social conditions acting

on him. A.I. Herzen said that conditions must be created for students to ensure the freedom of their development. L.N. Tolstoy also understood the freedom of students as a condition for successful education and upbringing. According to him, an educational institution can become truly humane only when teachers abandon the old view of an educational institution as a disciplined company of soldiers (Borisenko E.Yu. 2015). Existential education is a relatively new branch of pedagogy, which it allows students to understand the meaning of the subject being studied (Kataeva A.G. & Kataev S.D. 2019). Yu.V. Annushkin in his work of "The existential approach in education as an alternative to the socio dynamic paradigm", notes that existentially built education helps to student in his search for values and meanings (Annushkin Yu.V. 2016). Yu.V. Annushkin in his other work as "Existential approach in education", points out that existentially built education contributes to the establishment of a number of basic values:

- The necessity and right of the student to choose his own life position, point of view on what is happening;
- The uniqueness of individual life experience;
- Personal moral position (Annushkin Yu.V. 2016).

The existential approach is an orientation towards a personally experienced and conscious approach to the requirements of a future life. At the center of the existential approach, the personality is always described, the attitude of the individual to the meaning of life, the external world, responsibility for choosing his own life path are essential. The existential approach ensures the effectiveness of the upbringing of the socially competent personality of future teachers at all levels of higher education (Blokhina A.V. 2018). Existentialism is a philosophy of personality formation; it is a concept of personality formation. According to the above proposal, we can conclude that a person is not born a person, but becomes one.

It should be noted that the creative - existential teaching method is focused on the process of action, and not its result, in this case, the teacher is tasked with developing the creative thinking of students. Based on the above proposals, we can conclude that existence is self-organization, self-transformation, responsibility and an inner need for growth.

METHODOLOGY

We know that different types of competence are developed for different activities. The development of the competence of teachers of biologists in the field of multimedia is also relevant. Multimedia competence is the readiness to master and the ability to apply constantly updated multimedia technologies and teaching aids. In the near future, competence in the field of multimedia will be considered as a perspective direction, because steps have been taken for a large-scale transition to the computerization of education. Already today, a highly qualified staff should be able to create new multimedia products, and not use ready-made ones, because the success and quality of the lesson largely depends on the teacher's competence. In our article, we consider the development of multimedia competence of teachers of biology in the context of creative - existential learning. The existential approach is a continuous education of the personality. In creative - existential learning, the solution of contradictions occurs through education. She does not reduce education to upbringing, although she emphasizes that training is a means of educating a free personality (Korsakova I.A. 2011).

There are tasks of a higher educational institution and tasks of a teacher in the implementation of creative - existential learning in the preparation of the educational process.

The task of a higher education institution is:

- creation of such conditions in which the teacher would improve himself, discover the meaning and method of his future professional existence in the world, discover new properties of his unique personality;

- To support, develop the creativity of the individual, to stimulate the creativity of the future teacher;

The teacher's task is as follows:

- To explain the ethics of a person, the essence of being - existence, the importance of moral choice, search and definition of oneself and one's life;

- the teacher should not give answers, speak his opinion, influence the choice of views, values of future teachers - all that he does in traditional teaching (Blokchina A.V. 2018, pp. 28-29)

Under the creative - existential method of teaching, it is necessary to implement the principles of developing learning: dialogue, individualization, problematicity. The teacher should direct the student not to passive accumulation of information and experience, which to form his need and ability to think independently and creatively, the development of abilities (Bukovsky L.S. 2019). From a methodological point of view, the creative - existential teaching method is a new link in modern teaching methods. As we wrote above, the most important thing in creative - existential learning is personality, and everything is built in the environment of this personality. The development of multimedia competence using a creative - existential teaching method can lead to high achievements, since this method pays special attention to the all-round development of the individual. It should be noted that under using the creative - existential teaching method, the student's success does not always depend on the teacher, because in existential pedagogy, the improvement and growth of a personality depends on him, he is responsible for self-realization. That is, the teacher can explain the topic for years and with all his efforts, gives new information, but if the student himself does not want to develop, then the teacher's efforts will not be successful.

A survey was organized in the form of questionnaires, which consists of 25 questions, where 224 teachers of biologists of pedagogical higher educational institutions of the Republic of Uzbekistan participated. The purpose of conducting a survey among teachers of biologists of pedagogical higher educational institutions is to determine the role of the creative - existential teaching method in the development of multimedia competence of teachers of biologists. The following higher education institutions participated in the survey:

- Tashkent state pedagogical university named after Nizami;
- Nukus State Pedagogical Institute named after Ajiniyaz;
- Tashkent regional Chirchik State Pedagogical Institute;
- Jizzakh State Pedagogical Institute;
- Kokand State Pedagogical Institute;
- Navoi State Pedagogical Institute.

Sample questionnaire.

QUESTIONNAIRE FOR TEACHERS OF BIOLOGISTS

1. Are you familiar with the creative-existential teaching method?

- Yes;
- No.

2. In what extent, was the knowledge gained in the field of application of the creative-existential teaching method useful to you.

- Learned a lot of new things;

Write in detail, please:

- Low level of novelty.

3. In your opinion, what is the effectiveness of the creative - existential teaching method?

- Efficiency lies in the individualization of the learning process, in the freedom of choice of students, in the independent activity of students;

- I do not consider this teaching method effective.

If you do not find this teaching method effective, then indicate the reason:

4. How do you feel about the application of the creative - existential teaching method in teaching biological sciences?

- I have a positive attitude, since biological sciences require the teacher to use new teaching methods;

- Negative attitude.

If your attitude is negative, then state the reason:

5. Why did you choose the creative - existential teaching method when teaching biological sciences?

Show the reason:

6. How do you think the creative - existential teaching method corresponds to your teaching technique?

- corresponds to the highest degree;

- matches poorly.

7. How well do you think the lesson will be organized by using the creative - existential teaching method?

- Best organized;

- There are shortcomings in the organization of the lesson;

Please, list the disadvantages:

8. What problems do you see when organizing a lesson using a creative - existential teaching method?

- I see no problems;

- When organizing the lesson, the following problems were admitted.

Please, describe the row:

9. In what extent are you satisfied with the organization of the creative - existential teaching method in the classroom?

- Fully;

- Partially.

10. From a methodological point of view, what biological sciences are appropriate to teach using a creative - existential teaching method?

- Zoology, Anatomy and Human Physiology;
- Botany, Cytology, Ecology;
- Genetics, Selection;
- All branches of biology.

11. What do you think, have the learning objectives been achieved by using the creative - existential teaching method?

- Yes;
- No.

12. In your opinion, are you ready for the introduction of the creative - existential teaching method into the educational process?

- Yes;
- No.

13. Would you advise with another teacher to use a creative-existential teaching method?

- Yes;
- No.

14. What is the connection between the multimedia competence of the teacher and the creative - existential teaching method?

Please, write in detail:

15. In your opinion, does a teacher need competence in the field of multimedia?

- Yes, sure;
- No, not needed.

Please, write in detail:

16. Do you find difficulties to use multimedia and teaching technologies?

- Yes.

Please, write in detail:

- No.

17. What do you think, in your opinion, will it contribute first of all to increasing the multimedia competence of teachers?

Please write in detail:

- It is difficult to answer.

18. In what extent, do you think does the creative - existential teaching method contribute to the development of multimedia competence?

- Fully.

Please, write in detail:

- It is difficult to answer;

19. What is taken into account primarily in the development of a teacher's multimedia competence in the context of a creative and existential teaching method?

Please, write in detail:

– It is difficult to answer.

20. How should the teacher's multimedia competence be assessed, under using creative-existential learning in biology classes?

Please, write in detail:

– It is difficult to answer.

21. In your opinion, what positive changes will occur in the educational process, under using creative - existential learning?

Please, write in detail:

22. How would you define the role of the creative - existential teaching method in the organization of the educational process?

Please write in detail:

23. What do you think is the best way to support the interest of teachers in the application of the creative - existential teaching method in the educational process?

Please write in detail:

24. What help would you like to receive in overcoming pedagogical difficulties?

Please write in detail:

25. In your opinion, are you ready to introduce a creative - existential teaching method into the educational process?

- Yes;

- No.

RESULTS

In general, for teachers of biologists of the Republic of Uzbekistan, the use of a creative - existential teaching method in the educational process is an innovation that needs to be improved over the years by working hard. We came to this conclusion by looking at the results, obtained on the basis of questionnaires for teachers. Today multimedia competence is necessary for a teacher, especially a biologist, as an integral part of pedagogical skills. Why did we come to this reasoning? Because today, to organize an effective lesson, a teacher needs to be able to master all the intricacies of introducing multimedia into the educational process. Using the questionnaire, we decided to identify the level of multimedia competence of teachers and find out whether teachers are ready to introduce a creative - existential teaching method into the educational process. Six pedagogical universities of the Republic of Uzbekistan took part in the survey. The questionnaire consists of 2 types of questions. The cumulative answer to the question of the first type is expressed by the arithmetic mean of the answers of all survey participants, and the answer to the question of the second type is represented by two numbers, showing the share of positive and the share of negative answers

(expressed as a percentage) of the total number of respondents. When processing a large array of statistical data, it is convenient to divide the general complex into samples and to calculate the required values, first for each sample separately, and then find the result common to the entire complex. Questions of the first type, it requires a specific answer, there are 18. Questions of the second type consist of answers “yes” and “no”, there are 7. We first sorted the collected questionnaires by universities, crossed out the questionnaires that had errors or were empty, evaluated the results of the questionnaires on a five-point scale. Further, using the method of sequential processing of the survey results, we calculated the arithmetic mean and the percentage of positive answers by using mathematical formulas (Chumichkin A.A. 2009).

Let us denote by formulas:

N - general summation, total number of teachers (224)

j_i - sample intervals;

L - number of samples (6 universities)

i - sample number

n_i is the number of teachers by university:

a - Tashkent state pedagogical university named after Nizami - 52 teachers; b - Nukus State Pedagogical Institute named after Ajiniyaz - 40 teachers; c - Tashkent regional Chirchik State Pedagogical Institute - 28 teachers; d - Jizzakh State Pedagogical Institute - 35 teachers; e - Kokand State Pedagogical Institute - 32 teachers; f - Navoi State Pedagogical Institute - 37 teachers;

For example, we have a summation of 224 people ($N = 224$), divided into six samples ($L = 6$) of n_i people: $n_1 = a = 52$, $n_2 = b = 40$, $n_3 = c = 28$, $n_4 = d = 35$, $n_5 = e = 32$, $n_6 = f = 37$. When answering the first type of question, the following estimates were obtained:

I. Tashkent state pedagogical university named after Nizami.

When was the answer for the first type of question, the following estimates were obtained:

$x_o = 3; 2; 4; 2; 5; 2; 1; 2; 4; 3; 2; 1; 4; 2; 3; 4; 1; 5; 5; 2; 3; 4; 1; 2; 1; 5; 4; 3; 1; 5; 4; 5; 4; 1; 2; 5; 4; 3; 1; 5; 5; 4; 1; 2; 5; 1; 3; 3; 4; 5; 4; 5$.

$a = 52$

$$\bar{x}_1 = \frac{\sum x_o}{a} = \frac{3+2+4+2+5+2+1+2+4+3+2+1+4+2+3+4+1+5+5+2+3+4+1+2+1+5+4+3+1+5+4+5+4+1+2+5+1+3+3+4+5+4+5}{52} = \frac{163}{52} = 3,133.$$

II. Nukus State Pedagogical Institute named after Ajiniyaz.

When was the answer for the first type of question, the following estimates were obtained:

$x_p = 5; 2; 1; 5; 2; 3; 4; 3; 3; 5; 1; 5; 3; 2; 2; 1; 3; 2; 5; 1; 2; 4; 5; 1; 1; 5; 3; 4; 5; 3; 3; 3; 5; 1; 2; 1; 5; 1; 3$.

$b = 40$

$$\bar{x}_2 = \frac{\sum x_p}{b} = \frac{5+2+1+5+2+3+4+3+3+5+1+5+3+2+2+2+1+3+2+5+1+2+4+5+1+1+5+3+4+5+3+3+3+5+1+2+1+5+1+3}{40} = \frac{116}{40} = 2,9.$$

III. Tashkent regional Chirchik State Pedagogical Institute.

When was the answer for the first type of question, the following estimates were obtained:

$x_q = 5; 3; 1; 3; 4; 1; 2; 5; 1; 4; 1; 3; 4; 2; 5; 1; 2; 2; 2; 4; 4; 5; 1; 1; 1; 4; 1; 4$.

$c = 28$

$$\bar{x}_3 = \frac{\sum_q x_q}{c} = \frac{5+3+1+3+4+1+2+5+1+4+1+3+4+2+5+1+2+2+2+4+4+5+1+1+1+4+1+4}{28} = \frac{76}{28} = 2,714.$$

IV. Jizzakh State Pedagogical Institute.

When was the answer for the first type of question, the following estimates were obtained:

$x_r = 4;2;1;4;5;2;5;1;1;3;4;3;3;2;5;4;4;2;2;1;1;2;3;5;4;5;5;5;1;2;2;1;3;4;2;5.$

$d = 35$

$$\bar{x}_4 = \frac{\sum_r x_r}{d} = \frac{4+2+1+4+5+2+5+1+3+4+3+3+2+5+4+4+2+2+1+1+2+3+5+4+5+5+5+1+2+2+1+3+4+2+5}{35} = \frac{107}{35} = 3,0571.$$

V. Kokand State Pedagogical Institute.

When was the answer for the first type of question, the following estimates were obtained:

$x_s = 4;4;4;1;2;3;5;5;1;1;2;2;2;3;4;4;5;5;1;2;4;5;1;2;2;2;1;3;3;3;4;5.$

$e = 32$

$$\bar{x}_5 = \frac{\sum_s x_s}{e} = \frac{4+4+4+1+2+3+5+5+1+1+2+2+2+3+4+4+5+5+1+2+4+5+1+2+2+2+1+3+3+3+4+5}{32} = \frac{95}{32} = 2,97.$$

VI. Navoi State Pedagogical Institute.

When was the answer for the first type of question, the following estimates were obtained:

$x_t = 3;3;4;4;2;1;2;1;4;5;5;3;4;4;1;2;2;4;4;5;2;1;3;3;1;2;2;5;4;4;4;2;1;1;1;4.$

$f = 37$

$$\bar{x}_6 = \frac{\sum_t x_t}{f} = \frac{3+3+4+4+2+1+2+1+4+5+5+3+4+4+1+2+2+4+4+5+2+1+3+3+1+2+2+5+4+4+4+2+1+1+1+4}{37} = \frac{108}{37} = 2,92.$$

Now we need to determine the arithmetic mean of the estimates of the entire summation. The sums of estimates for each sample must be added together and the total number of estimates divides the obtained result: (Chumichkin A.A. 2009)

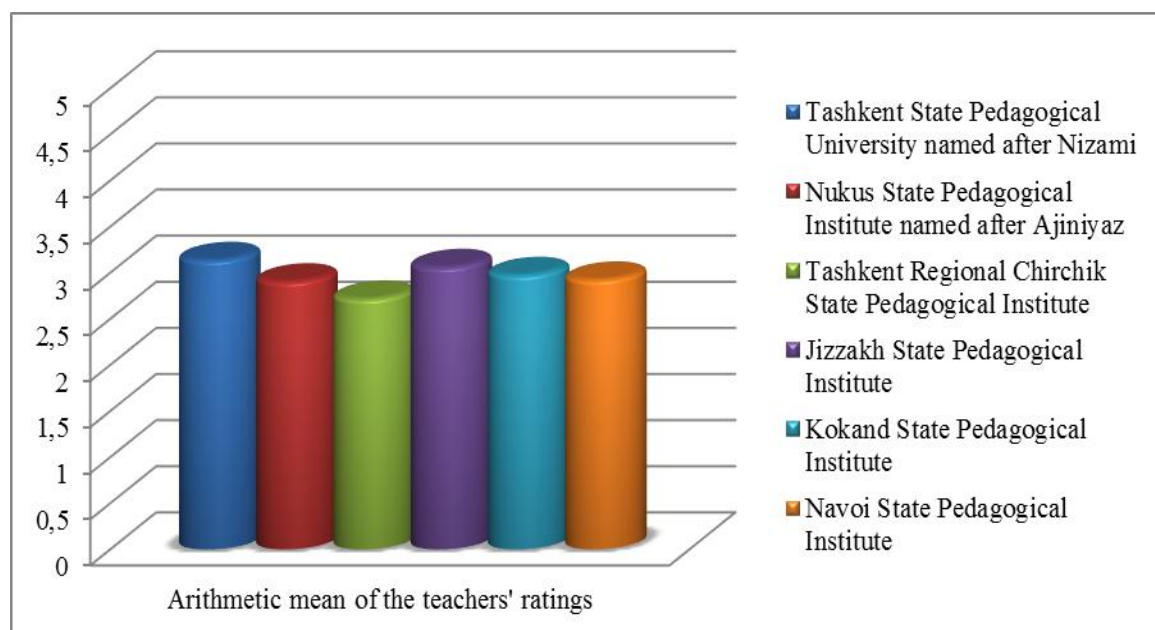


Figure 1. Arithmetic mean of the assessments of teachers of pedagogical universities of the Republic of Uzbekistan

$$\bar{X} = \frac{\sum_o x_o + \sum_p x_p + \sum_q x_q + \sum_r x_r + \sum_s x_s + \sum_t x_t}{N} =$$

$$\frac{163 + 116 + 76 + 107 + 95 + 108}{224} = 2,97$$

Questions of the second type consist of seven questions, which had to be answered briefly “yes” or “no”. Next, we need to determine the percentage of positive responses as follows:

1. $x_o = 42$ out of 52 answered positively (Tashkent state pedagogical university named after Nizami).
 2. $x_p = 31$ out of 40 answered positively (Nukus State Pedagogical Institute named after Ajiniyaz).
 3. $x_q = 17$ out of 28 answered positively (Tashkent Regional Chirchik State Pedagogical Institute).
 4. $x_r = 28$ out of 35 answered positively (Jizzakh State Pedagogical Institute).
 5. $x_s = 24$ out of 32 teachers answered positively (Kokand State Pedagogical Institute).
 6. $x_t = 25$ out of 37 teachers answered positively (Navoi State Pedagogical Institute).
- The percentage of positive answers for each sample is determined by the following formula:

$$x_i^p = \frac{x_i \cdot 100\%}{n_i}$$

Let's calculate the share of positive answers by universities:

$$x_o^p = \frac{42 \cdot 100\%}{52} = 80,7\% ; x_p^p = \frac{31 \cdot 100\%}{40} = 77,5\% ; x_q^p = \frac{17 \cdot 100\%}{28} = 60,7\% ;$$

$$x_r^p = \frac{28 \cdot 100\%}{35} = 80\% ; x_s^p = \frac{24 \cdot 100\%}{32} = 75\% ; x_t^p = \frac{25 \cdot 100\%}{37} = 67,56\% ;$$

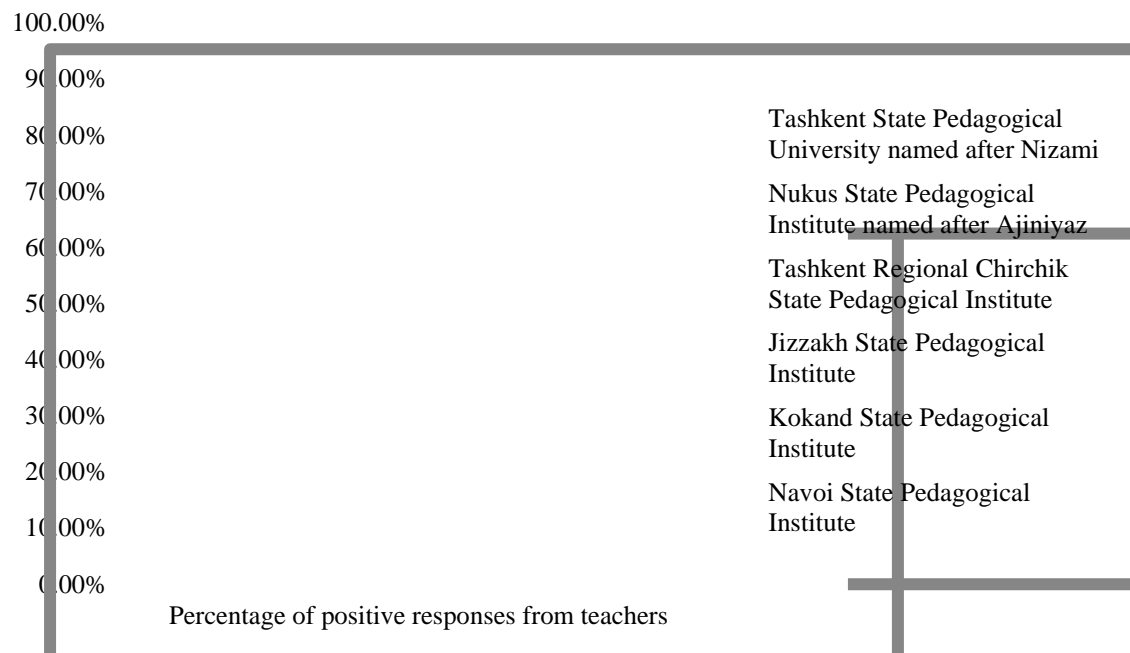


Figure 2. Monitoring of positive answers of teachers of pedagogical universities of the Republic of Uzbekistan in percentage

Percentage of the whole summation:

$$X^p = \frac{\sum (x_i^p n_i)}{N}$$

$$X^p = \frac{80,7\% \cdot 52 + 77,5\% \cdot 40 + 60,7\% \cdot 28 + 80\% \cdot 35 + 75\% \cdot 32 + 67,56\% \cdot 37}{224}$$

$$\frac{4196,4\% + 3100\% + 1699,6\% + 2800\% + 2400\% + 2499,72\%}{224} = 74,5\%$$

(Chumichkin A.A. 2009)

SUGGESTIONS

Based on the study of the works of the author Bukovsky L.S. (Bukovsky L.S. 2019) and having analyzed the work of other authors, we offered the following recommendation.

I. It is recommended to organize classes because of 5 stages of the content of classes and 9 factors based on creative - existential learning, the goal of which is to develop the multimedia competence of biologists.

Stage 1. Creative attitude - this stage is the beginning of the lesson, it is used at the stage of welcome, introduction, the purpose of which is to involve students in a creative format of lessons.

Stage 2. Mastering knowledge - the stage of the teacher explaining new material with the goal, which is the use of creative techniques by the teacher, where information is transformed into knowledge.

Stage 3. Analysis or demonstrative pause represents the analysis by students of the information received from the teacher in the classroom. At this stage, in an atmosphere of

demonstrative pause, students have the opportunity to analyze independently the received material.

Stage 4. Consolidation - this stage is practical and represents the implementation of creative exercises by students in order to consolidate the covered material.

Stage 5. Application and communication - this stage is the basis of the lesson, the purpose of which is to develop students' multimedia competence.

Factors contributing to the application of the creative - existential teaching method:

1. Awareness - to perceive himself (herself) as a creative person, capable of creating something new;
2. Originality - flexibility in ideas and thoughts, resourcefulness, willingness to challenge assumptions;
3. Independence - self-confidence, management of one's behavior;
4. Open-mindedness - susceptibility to new things, to other points of view;
5. Interest - breadth of interests, curiosity, a tendency to experiment;
6. Intuitiveness - discernment, the ability to see implicit connections and relationships;
7. The need for loneliness - introspection, reflexivity (tendency to self-awareness), the ability to work alone;
8. Risk appetite - willingness to try something new;
9. Craving for complexity - interest in the incomprehensible and mysterious (Bukovsky, 28-29).

II. Under developing a lesson by using creative - existential learning, the teacher should take into account the following features, since this teaching method is focused on the student's personality:

- Take into account the physiological (age, state of health), physical (impact on the body through the senses), mental (mood) characteristics of students;
- Take into account the peculiarities of increasing the student's independent activity;
- Take into account the peculiarities of using multimedia teaching aids;
- Take into account the peculiarities of the state of educational and methodological support of the educational process (the quality of textbooks, educational and methodological kits).

DISCUSSION AND CONCLUSION

The results of the questionnaire allowed us to conclude that the most of the teachers of biologists, conducting their teaching activities in the Republic of Uzbekistan are not afraid to experiment and use new teaching methods in the educational process. A controversial issue is raised among teachers. What do we understand when do we say that is this a new teaching method? For a teacher, a new teaching method is when you introduce into your teaching practice something new, different, something that you have not yet used. This is especially difficult when you first started teaching. This is a difficult psychological stress for a teacher, since you need to give all one hundred percent to show students the effectiveness of this teaching method. In addition, we are pleased that seventy-four percent of teachers are ready to carry out this complex process. At the same time, the multimedia competence of the teacher develops effectively, since the teacher makes every effort to show the effectiveness of the new teaching method, where special emphasis is placed on the individualization of the educational process.

1. The teachers of Kokand, Jizzakh and Navoi Pedagogical Institute filled out the questionnaire, which we provided in a very similar way. The teachers of the first university found difficulties generally to answer questions of 9, 11, 12 and 21. The teachers of the

second university mostly found difficulties to answer of 9, 11, 21, 23, and 25. And the teachers of the third university generally found difficulties to answer of 6, 7, 9, 11, 23, 25 questions that are compiled on the basis of increasing the effectiveness of classes and the introduction of a creative - existential teaching method in the educational process.

2. According to the results of the survey, it is noticeable that the teachers of the Tashkent state pedagogical university named after Nizami participated actively in the survey. We came to this conclusion after examining the positive answers to the questions provided in the questionnaire. We should note that the city of Tashkent is the center of development of all spheres of education, and therefore, in our opinion, it was not difficult for teachers to fill out a questionnaire.

3. Nukus State Pedagogical Institute named after Ajiniyaz is considered a developed pedagogical university of the Republic of Uzbekistan. According to the results of the questionnaire, which were answered by the teachers of the institute, they found it difficult to answer to questions of 18, 23 and 25. These questions are devoted to the introduction of a creative - existential teaching method in the educational process. Since the creative - existential teaching method is a new teaching method, teachers are encouraged to work on themselves, improving their qualifications and teaching practice on the use of modern teaching technologies that enhance the individualization of the educational process.

4. The Tashkent regional Chirchik State Pedagogical Institute is considered a new pedagogical university, which has been operating for the third year. Teachers, working at the Tashkent regional Chirchik State Pedagogical Institute found difficulties to answer of 3, 5, 7 and 23, 25 questions. The first three questions are compiled based on improving the effectiveness of classes.

5. The Republic of Uzbekistan, despite the fact that it gained recently its independence, is rapidly taking steps to develop the education sector. At the same time, the role of pedagogical universities is very high. Pedagogical universities are distinguished by the fact that they support most of the education and upbringing of the younger generation. This is not a little important task, which determines the path of development and self-realization of students. Earlier in the article, we examined the effectiveness of the creative - existential teaching method in developing the competence of teachers in the field of multimedia.

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