



The Influence Of The Author's Method "Improvisation And Event Prediction" On The Formation Of Future Teachers's Professional Preparedness For Decision-Making

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Journal for Educators, Teachers and Trainers, Vol. 14 (4)

<https://jett.labosfor.com/>

Date of reception: 17 Jan 2023

Date of revision: 10 Mar 2023

Date of acceptance: 13 Mar 2023

Viacheslav Babych, Yurij Boychuk, Volodymyr Zaitsev, Oleksandr Dubovoi, Volodymyr Saienko (2023). The Influence Of The Author's Method "Improvisation And Event Prediction" On The Formation Of Future Teachers's Professional Preparedness For Decision-Making. *Journal for Educators, Teachers and Trainers*, Vol.14(4).119-127.

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ABSTRACT

The purpose of the research: identify the influence of the author's method "improvisation and prediction of events" on the formation of future teachers' professional readiness to solve difficult pedagogical situations with students.

Materials and Methods: To determine the impact of the author's method «Improvisation and prediction of events» for the formation of future teachers' professional readiness to solve complex pedagogical situations with students, we used a set of diagnostic methods: methods of diagnostics of creative thinking of E. Torrens; self-confidence questionnaire (by Reisas); Critical Thinking Test (L. Starkey); neuropsychiatric stress questionnaire (T. Nemchin).

Keywords: education, professional readiness, teaching method, difficult pedagogical situations, students.

INTRODUCTION

The improvement of the system of training future teachers should never stop. This process should be continuous and systematic. According to our observations, one of the most common problems faced by young teachers (from 1 year of work as a teacher to 5 and even 7 years) is solving difficult pedagogical situations with a student. Most often, these difficulties arise in communication with students with deviant behavior and even gifted students in adolescence. O. Dubaseniuk emphasizes that the growing requirements for the level of qualifications and social responsibility of teachers make it necessary to improve the system of pedagogical education, which is the main source of replenishment of pedagogical personnel (Kozlovskiy M. et al, 2019).

According to Stanisław Juszczyk and Yongdeog Kim, for the successful performance of the teaching profession nowadays, it is necessary not only to possess traditional didactic methods and competencies. Scientists emphasize that a teacher in his activities must constantly take into account changes in the modern environment and introduce new technologies in teaching (Juszczyk Stanisław & Yongdeog Kim, 2015).

C.P. Medina, M.R. Rosselló Ramon share a similar opinion, who came to the conclusion that to improve the level of education, it is necessary to involve new tools for the development of certain professional skills (Carme Pinya Medina & Maria Rosa Rosselló Ramon, 2015). In turn, other scientists (Kozlovskiy M. et al, 2019) rightly note that the skill of a specialist directly depends on their ability to solve complex problems. The need to prepare future teachers to solve complex professional tasks was also emphasized by other scientists, in particular: Amalija Žakelj (Amalija Žakelj, Mara Cotič, 2016), Fifi lia Xiao (Fifi lia Xiao & Bens Pardamean, 2016), Jiří Prokop (Jiří Prokop & Joanna M. Łukasik, 2015), Kálmán Sántha (Kálmán Sántha, 2019), Manja Podgoršek (Manja Podgoršek & Alenka Lipovec, 2017), Natal'ya D. Koletvinova (Natal'ya D. Koletvinova & Ruben D. Flores, 2015), V. Babych (Babych V. et al, 2022), Violetta Rodek (Violetta Rodek, 2019).

That is why, despite the large volume of various (proven by practice) interactive learning methods, in our opinion, it is still necessary to develop new interactive learning methods, which are the most justified (as close as possible to real professional activity) for neutralizing the existing shortcomings in the context of the

professional competence of future teachers (including in relation to solving difficult pedagogical situations with students).

When developing the author's teaching method «Improvisation and prediction of events» we also took into account scientific developments regarding the formation of professional competence of modern teachers: Milena Lipnická (Lipnická Milena et al, 2019), Philipsen Brent (Philipsen Brent et al, 2019), Jenaabadi Hossein Jenaabadi (Jenaabadi Hossein Jenaabadi & Naser Nastiezaie, 2017), Jolanta Szempruch Feelingof (Jolanta Szempruch, 2018), Natal'ya D. Koletvinova (Natal'ya D. Koletvinova & Ruben D. Flores, 2015), Sonja Čotar Konrad (Sonja Čotar Konrad, 2015), V. Babich (Babych V. et al, 2022), Genutė Gedvilienė (Genutė Gedvilienė & Vidmantas Tūtlys, 2019), Hanesová Dana (Hanesová Dana, 2015), Erni Ratna Dewi (Erni Ratna Dewi et al, 2016).

The aim of the study

to reveal the influence of the author's method «improvisation and prediction of events» on the formation of future teachers' professional readiness to solve difficult pedagogical situations with students.

MATERIALS AND METHODS

To determine the influence of the author's method «Improvisation and prediction of events» on the formation of future teachers' professional readiness to solve difficult pedagogical situations with students, we used a set of diagnostic methods. We needed to establish how positive changes occur in future teachers (as a result of the author's teaching method) according to the following indicators: 1. the development of creative thinking (determined using the diagnostic method of creative thinking by E. Torrance); 2. self-confidence (determined using the questionnaire of self-confidence (according to Reyzas); 3. level of critical thinking (determined using the test «Critical thinking» L. Starkey); 4. the level of nervous and mental tension of students (determined using the questionnaire of nervous and mental tension (according to T. A. Nemchin). Each of the above-mentioned methods had its own important importance in determining the level of readiness of future teachers to solve complex pedagogical situations with students.

Mathematical and statistical processing

To compare the frequency distribution between boy-students and girl-students Pearson's chi-squared test χ^2 was used. It allows juxtaposing two empirical distributions and concluding if they are consistent with each other (Paniotto, V. I. et al, 2004).

Pearson's chi-squared test χ^2 is calculated by the formula:

$$\chi^2 = \sum_{i=1}^k \sum_{j=1}^l \frac{(N_{ij} - N_{ij}^0)^2}{N_{ij}^0}$$

Organization of the experiment

Students of the control group (120 people) and students of the experimental group (122 people) participated in the experimental work, within which the author's teaching method «Improvisation and prediction of events» was implemented. The author's teaching method was implemented (in the third year of students' studies) within the educational subjects «Pedagogy» and «Basics of Pedagogical Mastery» for 6 months. The experiment was carried out in three stages. The experiment was carried out in three stages. At the first stage, the initial level of professional readiness of future teachers to solve difficult pedagogical situations with students (in the control and experimental groups) was determined according to the following indicators: development of creative thinking, level of self-confidence, the level of critical thinking, the level of neuropsychological tension of students. At the second and third stages, we implemented the author's teaching method and determined changes in the dynamics according to the above indicators (creative thinking, level of self-confidence, level of critical thinking, level of neuropsychological tension).

When developing the author's teaching method, we started from the understanding of the definition of the teaching method (from the Greek methods – a way of knowing, a way of finding the truth) as an ordered method of interrelated, purposeful activity of the teacher and students, aimed at the effective solution of educational tasks.

Teaching method „Improvisation and prediction of events” consists of two important components. The first is somewhat close in essence to the role-playing situations method, whose purpose is that by acting out situations the definition of one's own attitude to a specific life or work situation is made, gaining experience of behavior in such a situation by performing a „role”, which is close to the real professional situation.

Students act out the pedagogical situation (namely, an individual educational conversation with a teenager on a pre-selected problem), according to the first component of the teaching method, developed by us. For this, two to four participants are selected from among the students. It depends on the number of applicants and other

factors. For example, in the case of two participants, one plays the role of a teacher, the other one – the role of a teenager. The second option involves also attracting students, who play the role of the teenager's parents. After the participants decided on the roles, they have to choose the educational problem, in our case in the context of the formation of social health of the adolescent. For example, the teacher needs to help the adolescent to take responsibility for his or her own actions (in the presence of relevant problems in the "teenager"). In this case, the description of the adolescent should indicate some of his characteristics (temperament, individual characteristics, etc.) and the problematic nature of the pedagogical situation (for example, a teenager has a tendency to be irresponsible), real examples of irresponsible behavior are chosen, which requires the necessary individual educational actions on the part of the teacher.

The difference between the method of "Improvisation and event prediction" from the method of role-playing situations is that The difference between the method of "Improvisation and event prediction" from the method of role-playing situations is that in our case a student (who plays the role of a teenager) must improvise his own actions, taking into account the influence of the teacher. While a student who plays the role of a teacher, must improvise his educational actions taking into account the improvised behavior of the student.

The second aspect of this method is that other students who are divided into macro groups, try to predict the actions of the adolescent after each "teacher's" educational reception. The conditions for organizing and conducting the method are as follows: after the direct participants of the game, who play the role of "teenager" and "teacher", announced to the microgroups the problem, according to which an individual conversation will take place, the "teacher" tries to have a positive effect on the "teenager", trying to achieve the desired result. Given the fact that a teenager (especially a difficult teenager) can respond to the educated actions of the "teacher", students of microgroups try to anticipate the actions of a teenager for a specific educational reception of "teacher". This is how it works: after the next speech of the "teacher" (or educational reception) on the command of the teacher "time", the participants of the game stop acting (play their roles) as if they pressed "pause". At this time (for 1-2 minutes), students of microgroups write on a piece of paper the actions of a teenager, which, in their opinion, should now arise from the previous speech of the "teacher", that is, to predict the reaction of the "adolescent" to a particular educational technique, based on the main characteristics of the "adolescent", which were voiced in advance by the participants who play their roles.

The difficulty for a student who plays the role of a "teenager" is to play (improvise) his behavior on the proposed educational techniques of the "teacher" is needed in this way, that they were as close as possible to the real ones, taking into account the peculiarities of the age period of the student ("teenager") and its main characteristics. This, in turn, requires from the student not only the manifestation of artistry, looseness, the ability to reincarnate, but also a quick analysis, which would allow, knowing the conditional characteristics of the "adolescent" to choose adequate to the real adolescent reaction to the proposed "teacher" of specific educational techniques. Such conditions are extremely important, as other students (representatives of microgroups) will also try to predict the actions of the adolescent on the basis of knowledge in the field of age psychology, their own life experience (when they were adolescents) and basic observations of other adolescents. According to the rules of organization of the method, each educational influence of the "teacher", after which the teacher stops time, is indicated by numbers (for example, "Action № 1"). In turn, the representatives of the microgroup, writing on the sheet the next actions of the "teenager" they are trying to predict, put the number "action" on the back of the sheet, then give the sheet to conditionally named "controllers" who distribute records separately for each microgroup.

At the end of the played educational situation "controllers", whose tasks also include recording the reactions of the "teenager" to the educational techniques of the "teacher" according to each individual "Action", compare the student's play with the predicted by each individual microgroup, trying to determine which microgroup better (or more often) predicted the reaction of the "teenager" to each educational technique.

After the "controllers" together with the teacher have determined the winner, it is also advisable for each microgroup to analyze the actions of the "teacher", identifying his mistakes or, conversely, the positive aspects, and also the actions of the "adolescent" in the context of the reality of the conditional adolescent's behavior played by the student. This analysis is performed by each member of the group and must be evaluated by the teacher. The challenge of the method is also to, first, students who observed the participants' actions in practice faced difficult situations that may arise in their realities of future professional activity, secondly, gained experience in analyzing such actions, which in some way will allow to use the positive aspects in their pedagogical activities and avoided the errors that are more common in such cases.

Despite the fact that this method is quite difficult both for its organization by the teacher and for the students themselves and, accordingly, has many disadvantages (which will be discussed below), in our opinion, it has a fairly high practical value. We explain this, first, by the fact that students, trying to predict the reaction of the adolescent to the educational techniques of the "teacher" according to the specific situation, fall into such conditions that require them to deeply immerse themselves in a specific educational situation, secondly, gain some experience in the context of building individual educational conversations (as close as possible to real).

The advantages of the method, in our opinion, also include the fact that future teachers learn to build their educational techniques, while avoiding unwanted reactions of the adolescent, which, in turn, can negatively affect the results of the educational conversation. Thus, given the above, this method with its successful application and appropriate motivation of students can also help to reveal students' inclinations to improvised and artistic actions.

The proposed method, in our opinion, is more convenient in the context of training future teachers for educated work specifically with adolescent students, which, as noted earlier, has significant differences and features compared to schoolchildren of other age periods.

However, experience shows the existence of numerous shortcomings of the proposed method. These include the following: a) not always in the academic group there are students who are ready to act out situations in roles with improvisation of actions and reactions depending on the chosen role (Students who are involved in amateur performances, ie, perform on stage most successfully to improvise and also show artistry, and with a temperament of mostly sanguine and choleric); b) each individual adolescent may react differently to the same educational approach, therefore, the role of the "teenager" played by the student may differ significantly from the reaction to the same educational approach of a real teenager, which, in some ways, makes it difficult to predict the reaction of the "teenager" whose role the student plays; c) acting out educational situations, as well as their further analysis takes a long time.

Although this method in some ways resembles other interactive methods, including role-playing games, simulations of life situations and others, in our opinion, it can also be considered as a stand-alone method, as its main purpose is to develop in future teachers the ability to predict the actions (reactions) of the adolescent to educational techniques, which in some way will avoid the teacher unwanted mistakes in teaching. In addition, the proposed method helps to prepare a student of pedagogical specialty for individual educational activities with adolescents in the context of the formation of his social health in the unpredictable actions and reactions of adolescents, which, in turn, brings students closer to the real conditions of their future professional activity.

The difference between the method of teaching improvisation and methods close to it is also that, firstly, the actions of students who play the role of "teacher" and "teenager", in some cases "father" and "mother" are not based on a pre-written script, and are built exclusively on the improvisation of participants in the pedagogical situation, secondly, students can choose the problem themselves (in the context of raising a socially healthy teenager).

RESULTS

During the first stage of the experimental work, when comparing the control and experimental groups at the ascertainment stage (initial level) in terms of all indicators of professional readiness of future teachers to solve difficult pedagogical situations with students (creative thinking; level of self-confidence; level of critical thinking; the level of neuropsychological stress) the empirical value of the criterion is established X^2_{emp} less than critical value 5,99. Therefore, the differences between the distributions of the control and experimental groups before the experiment are insignificant ($p > 0,05$).

At the second stage (3 months after the introduction of the author's teaching method into the practice of training future teachers), it was established that in the experimental group the number of students who experienced positive changes in the development of creative thinking increased by 7,7%. In the control group, positive changes in creative thinking occurred in 2,6% of students. Also, certain positive changes were recorded in both groups regarding the level of self-confidence. In the control group, the number of students whose self-confidence increased by 1,6%. In the experimental group, the number of students whose level of self-confidence increased increased by 3,4% of students. Also, certain noticeable advantages were observed in the experimental group (compared to the control group) in relation to critical thinking. In the control group, the number of students in whom positive changes in critical thinking were recorded increased by 2,1%, in the experimental group – by 3,8%. A decrease in the number of students with a high level of neuropsychological tension in the control group occurred by 0,7%. In the experimental group, the number of students with a high level of neuropsychological stress decreased by 3,1%. For convenience, the dynamics of the level of professional readiness of future teachers to solve complex pedagogical situations with students at the second (current) stage of experimental work is presented in Figure 1.

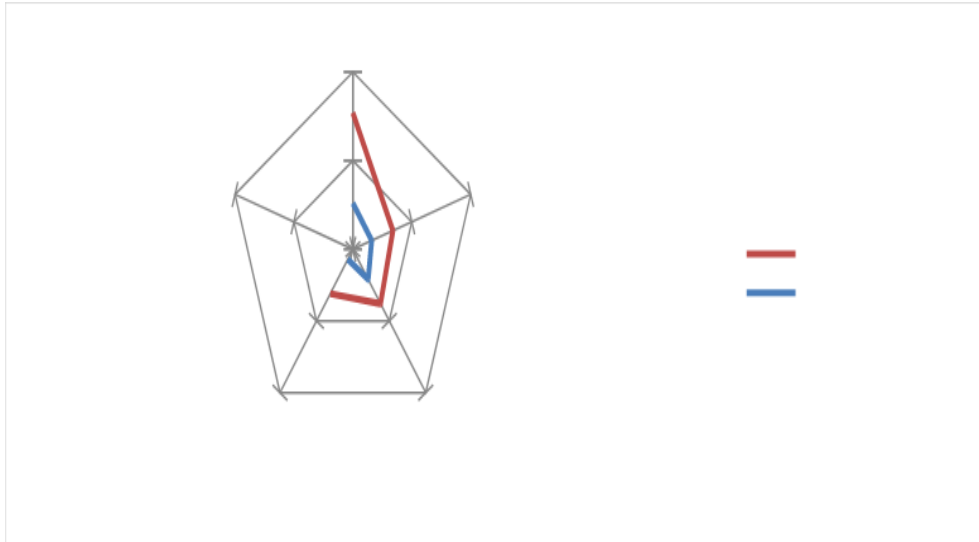


Figure 1: Dynamics of the level of professional readiness of future teachers to solve difficult pedagogical situations with students at the 2nd (current) stage of experimental work.

At the third stage (6 months after the introduction of the author's teaching method into the practice of training future teachers), it was established that in the experimental group the number of students who experienced positive changes in the development of creative thinking increased by 12,8%. In the control group, positive changes occurred in 4,9% of students. According to the second indicator, it was established that in the control group the number of students whose level of self-confidence increased by 2,8%. In the experimental group, the number of students whose self-confidence increased was recorded at 5,7% of students. According to the third indicator, the number of students in the control group who experienced positive changes in critical thinking increased by 4.1%, in the experimental group – by 6.2%. According to the fourth indicator, it was established: in the control group, a decrease in the number of students with a high level of neuropsychological stress by 1,2% was recorded. In the experimental group of reduction of high levels of neuropsychiatric stress, there was 4,2 %.

For convenience, the dynamics of the level of professional readiness of future teachers to solve complex pedagogical situations with students at 3 (final) stage of experimental work is presented in Figure 2.

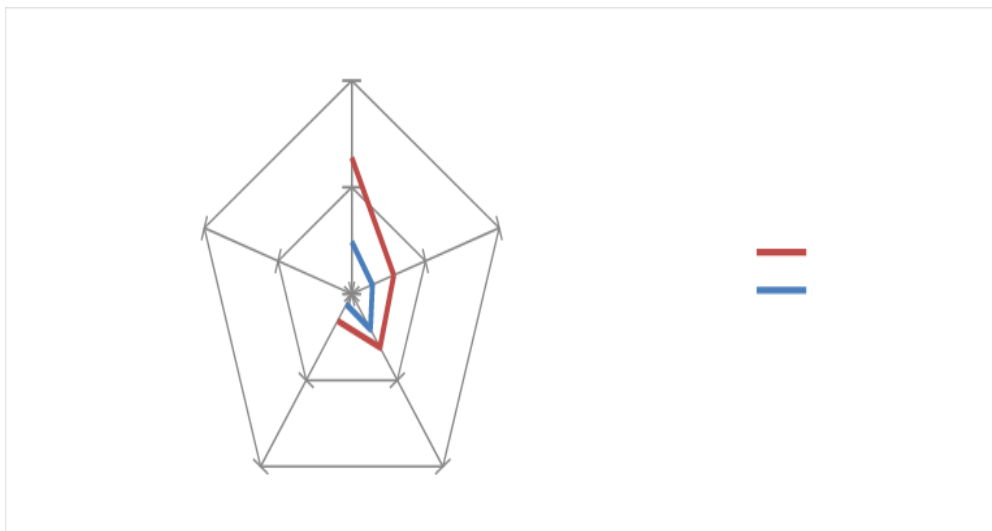


Figure 2: The dynamics of the level of professional readiness of future teachers to solve complex pedagogical situations with students at 3 (final) stage of experimental work

With the help of the table (Table 1), it is also possible to see the advantages of the experimental group compared to the control group in terms of the level of professional readiness of future teachers to solve difficult pedagogical situations with students at the 2nd and 3rd stages of experimental work (both in percentages and by determining the empirical value of the Pearson test χ^2 when comparing the control and experimental groups).

Table 1: The dynamics of changes in the professional readiness of future teachers to solve difficult pedagogical situations with students at the 2nd and 3rd stages of experimental work

Indicators of professional readiness to solve difficult pedagogical situations	The 2nd stage of experimental work			The 3rd stage of experimental work		
	Control group%	Experimental group %	The empirical value of the Pearson χ^2 test when comparing the control and experimental groups	Control group	Experimental group %	The empirical value of the Pearson χ^2 test when comparing the control and experimental groups
Development of creative thinking	2,6	7,7	p<0,001	4,9	12,8	p<0,001
Confidence in yourself	1,6	3,4	p<0,001	2,8	5,7	p<0,001
Critical thinking	2,1	3,8	p<0,001	4,1	6,2	p<0,01
The level of neuropsychological tension	Decreased by 0,7	Decreased by 3,1	p<0,001	Decreased by 1,2	Decreased by 4,2	p<0,001

We can also see from the table that it is already at the 2nd stage of experimental work (3 months after the introduction of the author's method into the practice of training future teachers) noticeable advantages in favor of the experimental group on all indicators were recorded as statistically significant. The empirical value of the Pearson χ^2 test when comparing the control and experimental groups p<0,001.

It will also be fair to note, that when comparing the results of the research of the second and third stages of the experimental work, a slight decrease in the positive dynamics in the experimental group was recorded in relation to such indicators as: level of self-confidence, level of critical thinking, level of neuropsychological tension. Instead, the development of creative thinking until the completion of the third stage of experimental work will be maintained in a stable positive dynamic. At the same time, although the level of positive dynamics in the experimental group according to three indicators (level of self-confidence; level of critical thinking; level of neuropsychological tension) slows down somewhat, we note that such a slowdown is not significant (p>0.05) and positive the dynamics are still preserved compared to the control group (in which the author's teaching method was not implemented).

DISCUSSION

It must be stated that the problems of testing (studying the effectiveness) of author's teaching methods in higher education are not often found even in modern scientific literature. Meanwhile, we discovered a number of scientific works that are somehow correlated with our research. So, A. Szczurek-Boruta notes in her report on her research, that teachers quite often describe themselves as a researcher, a "guide" who actively helps students. It is also emphasized that each teacher is an individual who teaches through the prism of his experience. And just as the characteristics of the teacher's environment affect his work, it is the harmonious pedagogical interaction with the macro- and micro-environment that can positively affect the further educational process (Szczurek-Boruta Alina, 2017). Accordingly, the above confirms the need to find new teaching methods, which, firstly, would encourage the student in the future professional activity of the teacher to systematically search for new teaching methods and techniques. Secondly, relevant new methods of teaching in higher education should be as close as possible to the professional activity of a future specialist (teacher) in close and comfortable interaction with students, especially in solving difficult pedagogical situations with teenagers, which most often arise in communication with teenagers with deviant behavior and even gifted students.

Research of Stanisław Juszczyk and Yongdeog Kim also correlate with our research, since, according to scientists, a teacher must constantly take into account changes in the modern environment in his activities, and implement new technologies in teaching (Juszczyk Stanisław & Yongdeog Kim, 2015). In its turn C.P.Medina, M.R.Rosselló Ramon also came to the conclusion that in order to improve the level of education, it is necessary to involve new innovative tools for the development of certain professional skills (Carme Pinya Medina & Maria Rosa Rosselló Ramon, 2015). In our research, we implemented the learning method, aimed at increasing the level of readiness of future teachers to solve difficult pedagogical situations, which, according to the results of the study, confirmed its effectiveness.

In the research of N. Sansone, D. Cesareni, I. Bortolotti, S. Buglass it is noted, that for the sake of quality education of modern students of general educational institutions (which would meet the modern requirements for students to acquire the necessary life skills) it is extremely important for teachers and students of pedagogic specialties to acquire competencies in collaborative learning technologies (Nadia Sansone et al, 2019). In the teaching method proposed by us, we strived in every way, so that when applying it, future teachers not only

acquire the necessary knowledge, skills and experience in solving difficult pedagogical situations, but were in constant interaction with each other, both within their microgroup and in interaction with other microgroups as a whole (carrying out analysis, discussion and determination of unresolved tasks by students who played the role of "teacher" and "student" in solving a given pedagogical situation).

CONCLUSIONS

1. After the introduction of the author's teaching method (in the experimental group), the level of readiness of future teachers to solve difficult pedagogical situations increased significantly (by all indicators: creative thinking, level of self-confidence, level of critical thinking, level of neuropsychological stress) compared to the results in the control group. Such differences were found to be statistically significant. The empirical value of the Pearson χ^2 test when comparing the control and experimental groups $p < 0,001$.
2. It was established that the author's teaching method developed by us has different effects on the development of the necessary components that contribute to solving difficult pedagogical situations. The teaching method proposed by us has the most positive effect on the development of students' creative abilities. Somewhat less positive dynamics were recorded in relation to increasing the level of self-confidence and decreasing the level of nervous and mental stress among students.
3. Comparing the research results of the second and third stages of the experimental work, a slight decrease in the positive dynamics in the experimental group was also recorded in relation to such indicators as: level of self-confidence, level of critical thinking, level of neuropsychological tension. Instead, the development of creative thinking until the end of the third stage of experimental work is maintained in a stable positive dynamic. At the same time, although the level of positive dynamics in the experimental group according to three indicators is slightly slowing down (level of self-confidence; level of critical thinking; the level of neuropsychological tension), note that such a slowdown is insignificant ($p > 0,05$) and the positive dynamics still remains compared to the control group (in which the author's teaching method was not implemented).
4. The implementation of the author's teaching method has confirmed its effectiveness in terms of increasing the level of professional readiness to solve difficult pedagogical situations with adolescent students.

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