



# Methods of Pedagogical Psychology in Education

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**Abstract:** *In the conditions of modern reality, when the acquired knowledge can become outdated before the learning process ends, the methods in which the students have the opportunity to develop as individuals, improving their competencies become especially important.*

*The article discusses the approach of using the methods of educational psychology to create a learning environment that stimulates students to personal development by improving their own skills and abilities. In order to implement this methodology in practice, emphasis is placed on potential problems that may arise during its implementation, as well as ways to increase its effectiveness are indicated.*

*The methodology is based on the use of educational psychology and should be adapted to the specifics of a particular educational process. The article also describes the basic principles that teachers should be guided by when working with this technique.*

**Keywords :** Education, Pedagogical Psychology.

## I. INTRODUCTION

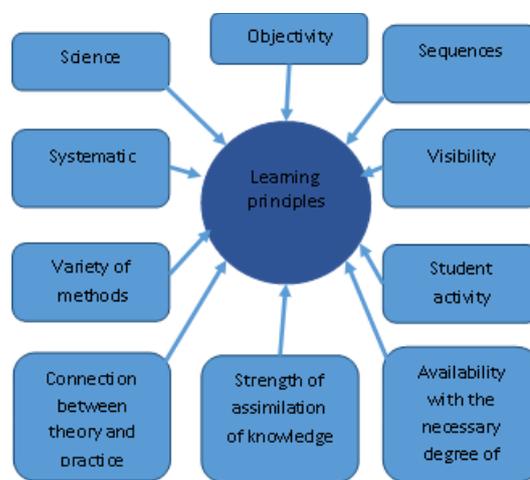
Mankind has always paid much attention to learning issues, although at different stages of the development of society, it has a different attitude to teaching methods. Pedagogy has long been considered a very traditional science, rather even conservative. The working teaching methods were not revised and improved, simply because it seemed that they were working so well [1-3].

Times are changing in the modern world; pedagogy is experiencing a new rise [4]. A dynamically developing society, rapidly changing environments, make us take a fresh look at traditional methods.

The search for ways to make the learning process more

qualitative leads researchers to search for opportunities provided by other scientific areas [5-8]. This is how knowledge from the field of digital technologies came into modern teaching methods, and this is how once pedagogy was closely intertwined with psychology.

The learning process, so that it can be called as such, should be based on the fundamental principles, which are schematically presented in Fig.1 [9-11].



**Fig. 1. Learning principles**

All these principles make the learning process truly high-quality, and it would be wrong to single out one of them, and nevertheless, it should be recognized that the strength of assimilation of knowledge, skills is the most important of them. After all, it is the acquisition of the necessary knowledge that is the main task of the learning process.

The learning process is based on the principle of the transfer of knowledge from the teacher to his students. However, in the modern world, the approach to learning as a process whose purpose is only to obtain the necessary knowledge, can already be considered obsolete.

The reason is banal, in modern dynamically changing conditions, the learning process takes about five years, leads to the fact that the acquired knowledge can already become obsolete by the end of training. That is why the saying "give a hungry fish - he will be full for a day, give him a fishing rod - and he will be full for his whole life", becomes more relevant than ever.

That is why modern training should not only provide the necessary knowledge, but also develop the necessary competencies in the students.

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II. METHODOLOGY

Modern approaches and psychological techniques can and should be actively used by teachers in the educational process. The choice of methods and methods of influencing students in order to improve academic performance is the task that is proposed to be solved by the methods of educational psychology.

A. Competencies as the basis for professional development during training.

The preliminary stage of our research was a survey among

a number of companies, the specifics of the personnel policy of which consisted in the preferred hiring of young specialists, including last-year students. The sample included 36 companies in various fields. The results are presented in the graph Fig.2

The preliminary hypothesis about the low importance of employee experience for such companies was confirmed (60% answered negatively to the question about the need for experience). In addition, it was clear that many companies were conducting additional special training for newly hired employees (59% of respondents).

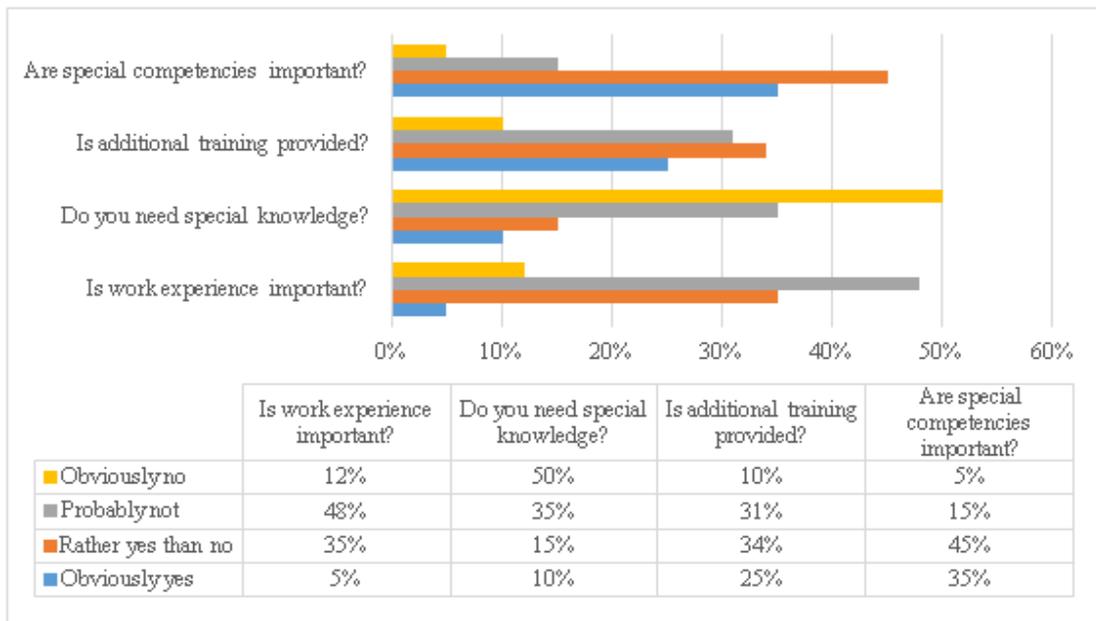


Fig. 2. Results of the initial survey of companies

For many companies, it was especially important for the candidate to have the necessary competencies. An additional questionnaire made it possible to identify 9 competencies that were most often mentioned in the questionnaires as preferred. Their list and frequency of references are presented in Fig.3

It can be noted that the three competencies “Interpersonal Communication”, “Negotiating”, “Teamwork Skills”, which have an increased interest among the interviewed employers, have little potential for development with the traditional training approach.

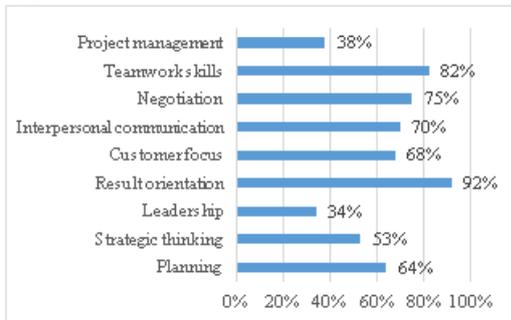


Fig. 3. Survey results of respondent companies

A prerequisite for the development of the methodology was the hypothesis that the approaches used in the learning process cannot give the desired results for the development of the learner’s personality and give impetus to the development

of his competencies. Surveys conducted among companies have shown that this hypothesis is true. Graduates had rather strong knowledge in the acquired profession, but their competencies did not always meet the requirements of potential employers.

Summarizing the list of necessary skills and competencies for graduates, a generalized list of universal competencies was developed, the development of which should be given attention to:

- 1) tendency to control their activities;
- 2) involvement of emotions in the process of activity;
- 3) willingness and ability to learn independently;
- 4) attention to the problems associated with the achievement of goals;
- 5) adaptability: lack of feelings of helplessness;
- 6) willingness to use new ideas to achieve the goal;
- 7) perseverance;
- 8) the ability to make decisions;
- 9) personal responsibility;
- 10) the ability to work together to achieve the goal;
- 11) the ability to encourage other people to work together to achieve their goals;

12) the ability to listen to other people and take into account what they say;

Of course, this set of competencies cannot be considered final, on the contrary, each of the teachers should personally analyze this list and, if necessary, supplement it, taking into account personal professional experience.

Nevertheless, in the proposed methodology, these parameters will be taken as basic.

**B. Educational psychology as a way of forming the necessary competencies.**

A key feature of the proposed methodology will be the training of a group of students under the guidance of a curator, the name of the method is “Pro-active group”.

The solution of this problem will be based on a change in the type of thinking designed by the goals, content and teaching methods.

The formation of the learner’s personal competencies: knowledge and understanding of oneself are developed, the ability to control the process of assimilation of new knowledge, the ability to critically evaluate one’s and others’s actions, independence in evaluations and self-esteem, the habit of seeking evidence, the tendency to discuss ways to find answers to any questions, the ability to argue one’s own opinion. Such training is carried out in the joint educational activity of the teacher and the student, in which the teacher tries to explain less himself, and more to direct the students' mental search activity in the right direction.

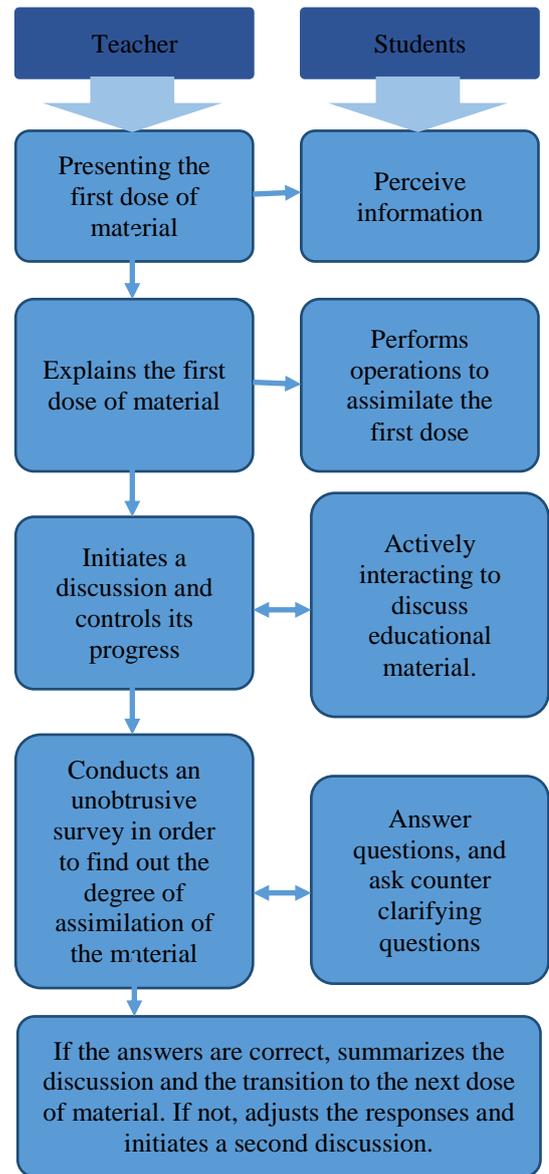
**The task of the experiment** will be to use the methods of pedagogical psychology with the aim of teaching the necessary knowledge and developing the personal competencies of students.

**The essence of the approach** to the learning process will be to comply with a number of basic principles of the proposed methodology, aimed at forming the learner’s personal competencies:

- ability to control the process of assimilation of new knowledge;
- the ability to critically evaluate their own and others' actions;
- independence in evaluations and self-esteem;
- a penchant for debatable ways of finding answers to questions;
- ability to argue one’s opinion;
- skill of interaction and work in a group;
- ability to conduct constructive dialogue.

By the method of organizing training, this will be an active form of training, involving a technique such as discussion (dialogue): students are not from the words of the teacher, but independently seek and find answers to theoretical questions. The teacher at the same time raises questions that prompt thinking. Questions are asked in such a way that the trainees rely as much as possible on the previously learned theory and thereby learn to practically apply it.

The educational process diagram shown in Fig.4, the advantages of the discussion as a psychological method in teaching is that it allows students participating in it to develop both interpersonal communication skills and increase their ability to argue their point of view, to control and systematize information and personal confidence.



**Fig. 4. The scheme of the educational process, involving discussion**

**The results of the experiment** will be controlled by testing methods at the intermediate and final stages, as well as by questioning before and after the training course.

We focus on a number of advantages of this approach:

- The material is provided in batches, the teacher can control the volume of each dose of the material, in order to avoid information overload.
- It is possible to control the process of assimilation, and eliminate misunderstandings at an early stage of its occurrence.
- The teacher encourages students to actively discuss the material, which helps to increase their personal competencies.
- The discussion generates group interaction between students, forcing them to learn to critically perceive both their own and other people's opinions.

- The teacher has the opportunity to direct the discussion in the right direction, thereby forcing students to work out the material more carefully and focus on those points that may be interpreted incorrectly.

Naturally, this approach imposes additional requirements both on the learning process itself and on the teacher. Let's pay attention to the complex and potentially problematic places of this approach:

- Discussion of the material will take longer than traditional lectures
- The teacher must have the skills to conduct the discussion and be able to control its progress
- In the early stages, a number of students may take a passive stance and try to avoid discussion.
- Students may have a phobia of expressing their own opinion, as it may be incorrect, instead, students will support the opinion of the teacher or potential leader.

It is important to understand that the teacher in this process acts as the curator of the discussion, in no case should it be allowed for the teacher to be perceived as a person during the discussion, whose opinion a priori dominates the point of view of everyone else. In such cases, the purpose of the discussion, as a way of teaching and developing competencies, will not be achieved - students will receive training material, but their personal skills will not be properly developed.

### III. EXPERIMENT

As a base for conducting an experiment and practicing this technique in practice, a group of 21 students was selected, engaged in IT specialties - software developers.

For the purity of the experiment, and in order to eliminate the possible influence of the adaptation period at the university, a second-year group was chosen for the experiment. Students of the group already have basic knowledge of the chosen specialty, and by the time the experiment began, part of their educational process was the creation of an individual software project. The project did not have any specific requirements, except that it should be done individually by each student, as well as its complexity should allow the student to implement it in one academic semester, i.e. six months.

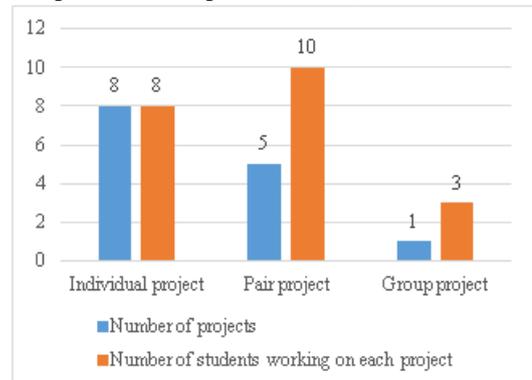
Students participated in the experiment on a voluntary basis. Three teachers leading specialized disciplines were appointed as curators and supervising the course of the experiment and the learning process. These teachers already conducted training courses for these students and were familiar with their students.

To implement the objectives of the experiment, the following changes were made to the educational process:

- students were allowed to create not an individual, but a group project;
- the maximum group size of one project should not exceed four people;
- students are not recommended, but it is also not forbidden to engage in the implementation of the project on their own;
- group compositions and project topics can be changed at the request of students.
- students choosing individual projects have the right to refuse it and join any existing group, subject to its consent.

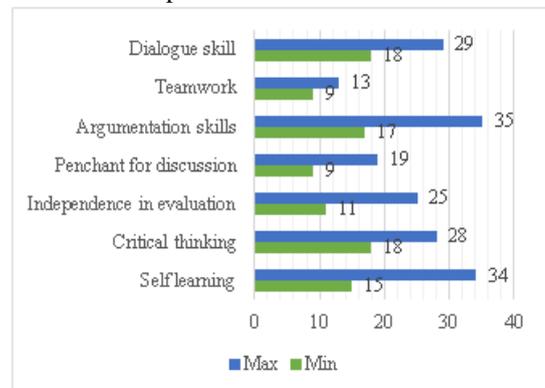
These rules were supposed to encourage students to work in a group, and not to force it to do. The curators hypothesized that some students would choose individual projects due to personal characteristics.

The data on the distribution of students are presented in Fig.5, which is typical, the hypothesis was confirmed (38% of students preferred independent work).



**Fig. 5. Distribution of students on projects based on personal preferences**

Also, before the start of the educational process, a survey of teachers-curators was conducted in order to assess the existing level of students' competencies, an important factor was that the teachers already worked with these students in the first year, which means they could adequately evaluate them. Fig. 6 shows the consolidated result of processing questionnaires. The assessment was carried out on a 50-point scale, the result included a weighted average score set by teachers, the maximum and minimum ratings for each of the competencies were indicated.



**Fig. 6. Students competency level before the experiment**

### IV. RESULT AND DISCUSSION

Evaluating the results of the work according to the Pro-Active Groups methodology, the following can be noted. After 3 months of study in the group, a change in the nature and approach to the study of all students was noted. Initial strong individualism was replaced by pronounced cooperative cooperation, students began to interact more actively with each other in solving educational problems.

As a result, for the third month, the projects and compositions of the groups on which the students worked were completely revised and changed.

The result is shown in fig. 7, students abandoned individual projects, and began to work together, initially group projects were also redistributed, and if initially they were formed on the basis of the friendly relations of the students participating in them, now the groups were formed on the principle of interest in the topic project of each of the participating.

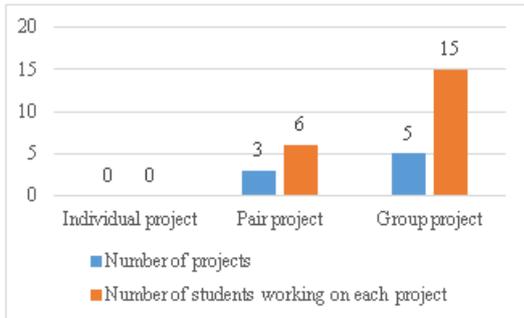


Fig. 7. Distribution of students by project groups (3 months of study)

The curators, noted that the result of the work was, firstly, students chose more complex tasks for their projects, and secondly, despite the increased complexity of the projects themselves, the number of completed projects increased by the end of the training course.

Previously, students at the end of the semester passed 60% of completed projects and 40% at different stages of readiness, this was considered an acceptable result. Now, despite the fact that the complexity of the projects has increased, students were able to complete 90% of the projects, and another 10% needed minor improvements. Based on the results of the work, a survey was conducted to assess changes in the personal competencies of students, the results of which are presented in Fig. 8.

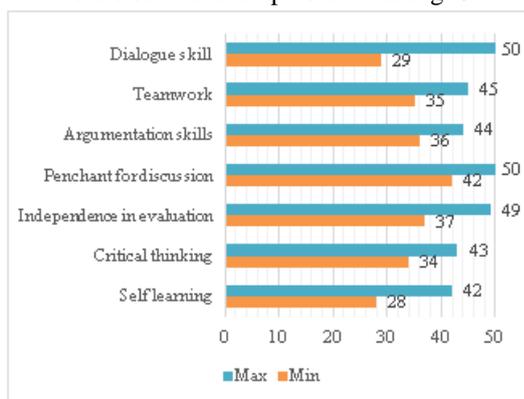


Fig. 8. Competency assessment results at the end of the training course

According to the results of six months of work, curators noted the growth of communication and managerial skills of most students.

It was noted that students became more willing to enter into the discussion and initiate it themselves on issues of interest to them. The very nature of the discussion has become much more meaningful - students took the initiative in the course of

the dialogue, and did not hesitate to defend their own point of view. This shows an increase in the Skills of the Dialogue competency from 18-29 points to 29-50 points and the Skills of Argumentation competency from 17-35 points to 36-44 points.

Of particular note are the increased teamwork skills, if previously students cooperated with each other in extreme cases, preferring to solve problems individually, then after the experiment they began to demonstrate effective work and teamwork. Students willingly shared ideas and ways of solving problems arising during the training. It should be noted that students studying according to the traditional scheme for the second year also showed cooperation skills, but usually team work was more difficult for them. The growth of the Teamwork competency assessment occurred from 9-13 points to 35-45 points.

Separately, I want to summarize the experience of teachers-curators of this experimental group. Based on the results of six months of work, they provided their own observations and comments on this technique:

- Teachers working according to this methodology should not count on quick results; teamwork skills in the group began to appear only in the second month.
- You should be very careful about students who do not want to get involved in the discussion process, it is necessary to conduct individual conversations in order to identify possible problems with the student and unobtrusively direct him in the right direction.
- The discussion process needs to be clearly but unobtrusively controlled, on the first couple the teacher and the most initiative students will have the main initiative in the discussion, in the future the teacher should only initiate the discussion process and adjust its course, students should conduct it themselves with minimal intervention.
- The process of forming working groups may be delayed if it is observed and it will interfere with the effectiveness of the educational process, the teacher should take the initiative and form the missing groups himself, but this should not be done immediately, students should have time to get used to the new conditions.
- Conflict situations both during the educational process, and especially during the discussion discussion, should be carefully considered, but it is not necessary to attribute individual heated debates to the conflicts during the discussion.
- It is difficult to avoid, but should not be allowed to form individual leaders whose opinion will be considered overwhelming, and of course the teacher himself must avoid the temptation to become an indisputable authority if this happens, students do not support the discussion.

The teachers also noted that the time they worked on the training material significantly increased, but at the same time noted that the quality of mastering it increased, as a result of the practical classes there was no need to repeat the material.

## V. CONCLUSION

The methodology of “Pro-active groups” has shown its effectiveness, despite the increased labor costs of teachers, the quality of training has improved. Using the approaches of educational psychology made it possible in practice to solve the problems of students' personal development.

The experiment showed that when implementing this methodology, the specifics of each particular educational process should be taken into account, and if necessary, corrected.

It is also worth noting that despite the fact that the applied approach was aimed at developing competencies, it can be used to solve any other educational problems. The effective use of educational psychology allows you to adapt it to various conditions.

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