

## ANALOGY AS A MEANS OF DEEPENING KNOWLEDGE ABOUT PROFESSIONAL-PEDAGOGICAL ACTIVITY

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**Abstract:** The article is devoted to the problem of finding effective means of forming the knowledge of students – future teachers about the nature and specificity of professional activity. The purpose of this study is to reveal the educational potential of analogy as a means of deepening students' knowledge about the future professional and pedagogical activity. The paper presents theoretical provisions concerning the definition of the concept of "analogy"; its essential characteristics are considered, various classifications of analogies are given, as well as the stages of application in the educational process. The article proposes an algorithm to identify the potential of analogy by analyzing the educational content and functions that this technique performs in the development of pedagogical disciplines. The authors believe that the full potential of analogy is revealed in combination with other interactive methods and techniques. In a systematic form, the authors compare the functions, at which implementation the analogies are aimed, the examples of analogies themselves, the identified this way problematic issues and interactive methods of their solution.

**Key words:** analogy, potential, professional-pedagogical activity, interactive methods, teaching methods.

### 1 Introduction

Training of teachers as high-level professionals is the main reference point of modern education. However, as practice shows, upon completion of training specialists-starters, having a certain amount of knowledge, often still find it difficult to solve specific problems of professional activity.

Among the reasons, the researchers point to the insufficient level of formation of pedagogical thinking; lack of deep, structured pedagogical knowledge necessary for understanding the characteristics and specificity of professional activity. The solution to this problem is seen in the organization of a favorable learning environment, causing student's need to expand and improve professional knowledge and skills; contributing to the development of pedagogical thinking, interest in professional activities. This is possible primarily through the use of innovative methods, techniques and forms of training.

Today for the training of students, the use of not only traditional and innovative teaching methods, but also methods of scientific knowledge are promising. In this case, we are talking about an analogy. Being a necessary element of the process of cognition, the analogy is simultaneously one of the most important means of organizing the cognitive activity of students, the object of which is the content of pedagogical disciplines (Solovtsova, 1998).

The subject of our study is an analogy as a method of organization of training and its ability to act as an effective means of studying pedagogical disciplines. The use of analogy is sufficiently developed for the development of natural-mathematical disciplines, but its possibilities are practically not disclosed for the study of pedagogy.

The purpose of this study is to identify the educational potential of analogy as a means of deepening students' knowledge about the nature and specificity of professional and pedagogical activity.

### 2 Methods

The methodological basis of the study is: the theory of personality-oriented education; psychological concepts of development of creativity of the individual through the mastery of a variety of mental operations, including the analogy (Bruschlinsky, 2003). the concept of professional and pedagogical activity; works on the theory of activation of the individual in learning (Dobrynina, 2003; Mayorova et al, 2018; Gerasimova et al, 2019, etc); interactive learning (Panina, 2008; Batrova et al, 2018; Zaripova et al, 2016, et al).

Methods of research were: theoretical analysis of scientific literature, systematization, generalization.

In a special psychological and pedagogical literature as analogy in learning they mean a teaching method, which consists in finding similarities in some aspect between the studied objects and phenomena, different in other aspects. It is mainly used to explain the student experimentally derived new, unfamiliar concepts with the help of partially similar more familiar concepts. The analogy provides a more accurate and clear understanding of some definitions and quantities. The value of analogy as a method of learning is that it facilitates the development of educational material, activates the thought of students, encourages them to search and leads to assumptions and guesses, the correctness of which can be checked by special studies (Psychological and pedagogical dictionary, 2001).

With all the efficiency of application (does not require specialized training, special equipment), the analogy has a high efficiency: it allows you to structure and systematize the studied material, to master the necessary mental operations, to develop critical thinking, to learn to build the logic of professional and pedagogical activity.

Being the method of scientific knowledge, the analogy simultaneously allows to solve the theoretical problems of pedagogy. The acquired knowledge and skills are necessary for the design and prediction of the process of education and training in the framework of a pedagogical concept or technology, in the conditions of any educational institution.

Among the significant characteristics of the analogy, giving it a multifunctional aspect, it can be refeed the ability to deepen knowledge about the features and specifics of professional and pedagogical activity; the impact on the motivational, communicative components; high heuristic potential. An important feature of the considered reception is the fact that the final results of its application are influenced by both external factors, i.e. the organization of the process of cognitive activity of students by the teacher, and the internal factor – the individual characteristics and personal experience of students.

Various phenomena of pedagogical reality, as well as theoretical positions of pedagogical science can be subjected to analogies.

The use of pedagogical analogies in the study of pedagogy in high school involves their classification.

I. A. Solovtsova considers the following types of analogies:

- 1) depending on the level of heuristic potential: information-explanatory and heuristic. The latter have a great cognitive and developmental effect in comparison with information-explaining analogies, in connection with which they should be preferred in the process of forming the basic concepts of professional and pedagogical activity;
- 2) depending on the area of comparison: between educational and pedagogical activity; between different pedagogical phenomena; between pedagogical phenomena and other phenomena of reality.

W. Gordon proposes to use four types of analogies in order to activate thinking:

- direct analogy — offers to compare the object under consideration with something looking alike, similar to an object of natural or artificial origin;
- personal analogy (empathy) offers to "get used" to the image of the object in question, to feel its state and to find and offer the most optimal solution on the basis of your own feelings;

- symbolic analogy — finding a brief symbolic description of a task or object that characterizes the essence of the object in the form of a paradox;
- fantastic analogy offers a search for solutions in fantastic fiction (Gordon, 1961).

The use of analogy in the educational process involves a certain sequence: at the first stage, the analogy acts as a method of teaching and is used mainly by the teacher; at the second stage, students master subjectively new information with the help of analogy; at the third stage, the analogy acts for students as a means of mastering objectively new information. The dynamics of application of analogy is carried out on the way of gradual transition from teaching analogies to heuristic ones and increasing the share of the latter, in the close relationship of the development of the content of pedagogical disciplines and mental operations included in the structure of the conclusion by analogy.

### 3 Results

In accordance with the above purpose of the study, the potential of analogy as a means of deepening students' knowledge about the features and specifics of professional and pedagogical activity was evaluated in terms of their performance of the functions indicated in the research work by Solovtsova I. A.:

- informational, that allows students to master independently the content of the disciplines of the pedagogical cycle;
- clarifying, manifested in the concretization of abstract ideas, problems and complex theoretical positions;
- heuristic that can help to build a hypothesis and draft the solution of pedagogical tasks;
- systematizing, its implementation contributes to the generalization and systematization of scientific and pedagogical information.

The process of identifying the possibilities of analogy techniques in the study of pedagogical disciplines was a sequence of stages:

1. Setting the educational goal – to deepen students' knowledge about the features and specifics of future professional teaching activities.
2. Selection of elements of the content of the disciplines of the module "Pedagogy", namely: sections, topics, some theoretical positions and key concepts, the most important to achieve the goal and at the same time to allow you to use the techniques of analogy effectively. To do this, we conducted

a substantive analysis of the programs of disciplines: "Introduction to professional and pedagogical specialty", "General principles of pedagogy", "General and professional pedagogy", "Theory and methods of education", studied by bachelors in the areas of "Pedagogical education" and "Vocational training (interior design)" at the Kazan Federal University. The very effectiveness of the use of analogies implied the ability to implement:

- functions described above;
- identify and formulate any pedagogical problem/question.

The selected elements of the content were used further in the design of practical classes. In developing the technology of their implementation, we held the point of view, according to which "...now it can be considered proven that there is no single method in the form of a predetermined sequence of steps for the effective solution of all types of problems. However, it should be recognized that the integration and (or) a combination of different methods can solve almost any problem...". Therefore, we used analogies in combination with other methods and methods of teaching. If the analogy meant the wording of problem questions, there was a selection of interactive methods, which were aimed at their resolution. As interactive methods, we often used group discussions, various brainstorming techniques, Reframing Matrix, Nominal Group Technique. Further, the form of the lesson, its didactic and methodical structure was determined.

The analogies themselves were used by us as part of two main training techniques: "Four box Synectics" and "Method of focal objects". The technique of "Four box Synectics" is considered as one of the methods of synectics, based on the use of four kinds of analogies: personal, direct, symbolic and fantastic. The technique allows you to organize both individual and group work. The method of focal objects is based on random analogies that allow you to find new ideas by assigning characteristics or features of randomly selected objects to the object under study. Both methods relate to the psychological activation of creativity. And, in our case, by activating the creative thinking of students, they contributed to a deeper understanding of the essence of their future professional activity.

Table 1 shows examples of the use of the potential of analogies in individual topics of pedagogical disciplines based on the reception of "Four box Synectics". Also in this table the functions on which implementation the analogy is aimed, problematic issues and interactive methods are pointed, for their subsequent resolution in practice.

Table 1. Potential analogies based on the technique of "Four box Synectics»

The discipline	Section, theme of discipline	Educational element (concept) and the analogy offered by students on the basis of the technique Four box Synectics	Function, performed with this analogy
Introduction to vocational teaching profession	Changing the nature of teaching in modern conditions	<b>Concept:</b> "Teaching activities» <b>Direct analogy:</b> "Pedagogical activity is like swimming against the current. You try your best to move forward, but as soon as you weaken the effort, you are carried down the river"	<b>Systematizing function:</b> contributes to the generalization of information about the essence of the process of self-development of the teacher and its continuous nature in modern conditions
	<b>Problematic issue:</b> "What new, non-existing in the traditional professional activities tasks that require continuous self-development, face modern teachers?» <b>Interactive method:</b> brainstorming		
	Pedagogical skills and pedagogical competence	<b>Concept:</b> "Pedagogical skills» <b>Direct analogy:</b> "Pedagogical skills are like playing a musical instrument. To perform a complex composition you need to train for a long time, fully master the performing skills, otherwise no one wants to listen to the layman"	<b>Clarifying function:</b> the specification of the theoretical provisions on the essence of the concepts of pedagogical skill and pedagogical competence
General and professional pedagogy	<b>Problematic issue:</b> "What is more important in skill as the highest level of pedagogical activity: talent or diligence?» <b>Interactive methods:</b> Reframing Matrix		
	Pedagogical	<b>Concept:</b> "Teaching»	<b>Information function:</b>

	process as a system phenomenon	<b>Direct analogy:</b> "The process of teaching is like a LEGO game. Just as the details must be put in a certain sequence and fit together, so the elements of knowledge must form a complete system. It depends on the teacher"	allows students to learn by themselves the concept of the principle of consistency in learning <b>Heuristic function:</b> helps to solve the pedagogical problem
	<b>Problematic issue:</b> "Can the modular structure of professional training programs come into conflict with the principle of consistency in training? If so, how can the teacher resolve this contradiction by organizing project activities?" <b>Interactive methods:</b> Nominal Group Technique		
Theory and methods of education	Approaches to the formation of personality	<b>Concept:</b> "A person-centered approach" <b>Direct analogy:</b> "A student-centered approach for a teacher is like walking on the edge of a knife. The teacher balances between the opportunity to benefit or harm the child's personality if he or she incorrectly determines his or her personal characteristics"	<b>Explanation function:</b> the specification of theoretical positions about approaches to parenting <b>Systemizing function:</b> contributes to the generalization of information about the role of the teacher in creating conditions for self-knowledge
	<b>Problem question:</b> "Can the teacher as a professional know and understand the personality of the student better than he knows himself and understands?" <b>Interactive methods:</b> a problematic discussion		
General principles of pedagogy	Relationship of theory and practice in teaching	<b>Concept :</b> "Pedagogical practice" <b>Direct analogy:</b> "Pedagogical practice is like a trip abroad. It seems to be the language is learned and outlined the route and the map is there, but still scary, unusual and may be confused"	<b>Explanation function:</b> the concretization of the unity and differences of theory and practice in teaching
	<b>Problem question:</b> "Some teachers believe that all theoretical provisions should be fully implemented in every act of pedagogical activity - is the key to its success. Others believe that the highest level of activity can be achieved only through the acquisition of experience, all the theoretical provisions are very abstract and should be advisory in nature. Who's right?" <b>Interactive methods:</b> cross-discussion		

#### 4 Discussion

Thus, on the one hand, analogy is a method of scientific knowledge, and on the other, it is an effective method of learning that can be applied independently. However, as it is shown in our study, its full potential is revealed in combination with other interactive methods and techniques.

#### 5 Summary

The practical significance of the study is to reveal the possibilities of analogy method for the study of pedagogy in General, and in particular, to deepen the understanding of the essence and specificity of pedagogical activity.

Further research suggests determining the influence of analogy on the motivation of the study of pedagogical subjects and the desire for professional self-development.

#### 6 Conclusions

The results of the study can be recommended to teachers and students when choosing effective tools for the development of pedagogical thinking, interest in professional activity in the study of subjects of the pedagogical cycle.

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