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DIDACTIC ASPECTS OF DEVELOPING CRITICAL-OPERATIONAL COMMUNICATION THROUGH PEDAGOGICAL DIALOGUE IN TEACHING THE DISCIPLINE "MEDICAL RADIOLOGY"

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Abstract
This article analyzes the didactic significance of pedagogical dialogue in developing critical-operational communication in the context of teaching the discipline "Medical Radiology." The author views pedagogical dialogue not merely as a means of knowledge transmission but as a key mechanism for fostering critical thinking, prompt decision-making, and professional communicative competence. The paper substantiates the didactic conditions necessary for cultivating critical-operational communication through the use of case scenarios, visual analysis, problem-based tasks, and elements of debate within the educational process. Furthermore, it emphasizes the need to revise the traditional structure of lessons, create an active communicative environment, and foster students' skills in reflective analysis.

Keywords: pedagogical dialogue, critical-operational communication, medical radiology, didactic conditions, case scenario, visual analysis, professional communication, interactive learning, teaching methodology.

Introduction

The modern medical education system requires not only the acquisition of theoretical knowledge, but also the formation of students' ability to think clinically, draw independent conclusions, make quick and informed decisions, and participate in professional communication. In particular, visual-based clinical sciences - including medical radiology - require the doctor to analyze complex, ambiguous and ambiguous images, extract clinically significant information from them, and clearly express this information in professional speech.

This process requires the student to develop competencies such as critical thinking, operational reasoning, and communication as a specialist. However, traditional

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lectures and practical training are usually insufficient for the formation of such active cognitive and communication skills, since they are mainly focused on passive reception of information and memorization of classifications.

In this regard, the reorganization of pedagogical communication, that is, its use not only as a means of information transmission, but also as a place for meaning creation, critical discussion, and rapid exchange of ideas, becomes an urgent methodological task. The implementation of this task in teaching medical radiology is primarily associated with the didactic structure of the educational process, teaching methods, the mechanism of interactive communication and the characteristics of the pedagogical environment.

Literature Analysis

The interpretation of pedagogical communication not only as a means of information exchange, but also as a process of personal development and active knowledge acquisition is one of the modern directions of didactics. As Slastyonin V.A. noted, communication, organized in the form of equal cooperation between the teacher and the student, gives impetus to interpersonal, spiritual and cognitive growth.

Critical-operational communication encompasses the student's ability to verify, analyze and quickly comment on information. Such communication is formed by substantiating and discussing various solutions in clinical situations. Scientists such as M. Buber and P. Freire have shown interpersonal communication in education as a source of meaning creation and moral activity.

In disciplines such as medical radiology, it is important to think based on visual information. In D. Schön's concept of "reflective practice", students learn to think in real situations, analyze their own experience and draw conclusions. In international experience, communication and interpretation through visual materials play an important role in the formation of a student's professional speech. Harden and Ten Keith's studies show the development of students' critical thinking and rapid communication skills through case scenarios and simulation exercises in education. They put forward the organization of objective reasoning, evidence-based decision-making and active communication with specialists in the educational process.

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In Uzbekistan, there are also studies aimed at forming critical and communicative education in students. In particular, N.A. Khasanova analyzed the pedagogical conditions for the development of clinical thinking and communication. In her opinion, the use of case scenarios and role-playing games in the lesson strengthens the student's professional speech.

The literature review shows that in order to develop critical-operative communication, pedagogical communication needs to be didactically reoriented, and traditional lesson models need to be enriched with interactive, communication-based systems. Through this, the process of teaching medical radiology effectively develops an individual's clinical thinking, visual analysis skills, and professional communication skills.

Method and Methodology

The methodological basis of this study is modern pedagogical theories, communication psychology, didactic models and a competency-based approach to medical education. The main goal is to identify pedagogical conditions that serve to develop critical-operative communication in teaching medical radiology and to scientifically substantiate them didactically.

The following methods were used in the study:

1. Analytical-comparative method - foreign and domestic literature, teaching methodologies were analyzed and compared.
2. Pedagogical modeling - the didactic structure of the lesson and the communication mechanism were designed to form critical-operative communication.
3. Observation and content-analytical method - students' communicative activity, visual analysis and ability to express opinions quickly were observed and analyzed in the lesson processes.
4. Questionnaire and reflexive essay analysis - students' attitude to the educational process, thinking process and communication skills were assessed.
5. Pedagogical intervention based on empirical experience - interactive lessons were organized through case scenarios, simulation tasks and debates.

This methodological approach made it possible to empirically and theoretically reveal the didactic importance of pedagogical dialogue in the formation of critical-operative dialogue.

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Discussion

Modern medical education sets as a priority goal the training of a doctor who is activity-oriented, based on dialogue and has developed critical analysis skills. In particular, this goal becomes even more relevant in the teaching of the discipline "Medical Radiology", since the process of radiological analysis requires making clinical decisions about the patient without direct communication, only through images. Therefore, the formation of critical-operative dialogue in students is important not only as a means of analyzing a clinical situation, but also as a preparation for justifying one's opinion, making quick decisions and engaging in professional communication with colleagues.

In this regard, teaching based on pedagogical dialogue is considered a strategic solution. Pedagogical communication is not a one-way transfer of information, but an active, equal, meaningful and purposeful communication between the teacher and the students. In this communication, students have the opportunity to express their thinking activity, independent view, evidence-based point of view. In radiology classes, it is possible to stimulate critical thinking in students through “deliberately misleading” images (for example, CT or ultrasound images that simultaneously correspond to two different definitions). In such tasks, students are required to read the image, make a quick choice between various possible diagnoses, and then defend this choice - this process develops critical-operative communication in a practical way.

This communication develops not only the ability to provide information, but also the ability to reason, analyze, formulate thoughts, argue and express a professional attitude. Methodologically, it is these aspects that need to be reconsidered and integrated through pedagogical technologies. This idea can be described as follows: First, quality, not quantity, is the transformative nature of communication. An increase in pedagogical communication (i.e., quantity-S.Sh.) does not always ensure the cognitive activity of the student. Qualitative communication, in turn, stimulates critical thinking, teaches to react quickly to events, requires speech activity, argumentation and interpretation. In particular, an increase in the number of questions asked by the teacher (quantitative communication) can provoke an automatic response reflex in the student, but asking questions through cases based on incorrect, contradictory information (qualitative, systematic communication) develops the student's ability to reason.

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Secondly, systematicity turns communication into a didactic strategy.

Qualitative pedagogical communication is not accidental. It should include the following as a planned, interactive part of the educational process:

• gradual increase in the complexity of communication;

• role alternation in diagnostic situations (student - analyst, defender, critic);

• planned introduction of argumentation and debate formats;

• students' ability to prepare reflexive reports to illustrate the results.

Thus, systematicity is a fundamental condition for the development of intellectual activity, critical and creative approaches.

Thirdly, cognitive load forms intellectual endurance in communication, that is, the mental endurance, intellectual flexibility and critical attitude of the participants in the communication.

The communication formats given to students are often aimed at repeating information; finding the correct answer; memorizing. This, in turn, means a low level of cognitive load. If communication requires drawing conclusions based on incorrect information, evaluating several possible diagnoses, refuting or supporting the opinion of a colleague, and giving a quick and substantiated answer, then such communication has a high cognitive load. This forms the student's ability to critically-operative thinking, emotional tolerance, professional speech, and quick decision-making.

In our opinion, critical-operative communication is one of the main conditions for the formation of a clinically mature doctor with a high speech culture and analytical skills in modern medical education. In particular, this task is of particular importance in teaching such disciplines as medical radiology. A doctor in this field mainly works with indirect (visual) information. In this case, he must be able to quickly and accurately interpret the data, as well as quickly and accurately present clinically significant information, justify the diagnosis, and also actively participate in collective decision-making with colleagues.

It is worth noting that pedagogical communication in medical education should not be considered only as an auxiliary form of communication. It is advisable to reconsider it as a purposeful and systematic method aimed at forming critical-operative communication in future doctors. From this point of view, the methodological problem is that traditional forms of teaching, including lectures, presentations, monological explanations, do not allow students to form the ability

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to freely express their opinions, argue and conduct professional reasoning in ambiguous clinical situations.

In our opinion, critical-operative speech potential develops only in a pedagogical environment built on mutual communication. Because in this environment, the student is created the opportunity to analyze ambiguous clinical situations, freely express his point of view, as well as defend and discuss alternative approaches. In such a situation, the teacher does not participate as a source of truth. He/She acts as a facilitator who directs students to direct discussion and organizes intellectual interaction. In this case, the main task of the teacher is to develop analytical thinking, evidence-based speech, and the ability to make operational arguments in future doctors.

It is necessary to design special pedagogical conditions for the development of critical-operational communication in future doctors. The following are proposed as these conditions:

• Integrating interactive case scenarios with uncertain outcomes into the Medical Radiology course to stimulate interpretive discussions;

• Using structured diagnostic debates and exercises that require students to justify different diagnostic points of view;

• Using tasks for verbal interpretation of visual material, including the practice of “description before diagnosis”;

• Developing reflexive and operational speech skills through step-by-step feedback, mutual explanation, and dialogical assessment formats.

During the study, pedagogical dialogue is considered not only as a means of interaction between a teacher and a student. It is studied as a fundamental methodological category that serves to develop the critical-operative communication of a future doctor. Solving the methodological problem does not consist only in introducing innovative teaching forms, that is, updating the content of training courses. It requires reconsidering the role of the teacher. In this case, it is appropriate to consider him not as a transmitter of information, but as an organizer who forms professional verbal thinking in the educational process. This expresses the main point of the conceptual problem in modern education. It is appropriate to describe it as follows:

Firstly, lessons in a new format are not a task, but a means. Innovative teaching forms (case studies, PBL, simulation, debates, scenarios, etc.) are methods aimed

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at solving a methodological problem, but not a goal. If the role of the teacher in today's environment remains traditional, that is, if he acts as a transmitter of information (lecturer), a task controller, and a person who demands ready-made answers, then even innovative teaching forms cannot develop the student's critical, independent, and operational thinking.

Secondly, the methodological problem lies in interpersonal pedagogical relations. Methodological problems in education arise mainly from the method of conveying content, the distribution of roles, relationships and initiatives between the teacher and the student.

Thirdly, the teacher is the architect of educational dialogue. In modern education, the teacher must act as the author of the didactic script, the initiator of critical-operative dialogue, a trainer who must “encourage” the student to think, and the organizer of socio-cognitive activity.

Fourthly, updating the content is only updating knowledge, and revising the role is a methodological change.

These ideas have their scientific basis. In particular,

Vygotsky's theory of “active collaborative learning” emphasizes that growth in education depends on pedagogical activity.

J. Bruner, analyzing the role of the teacher in the methodology of "scaffolding" (intellectual support and guidance) in education, defines the teacher as a leader, and then as a facilitator of student independence.

E.Kh. Shulman, putting forward the concept of "pedagogical content knowledge" in education, emphasizes that the teacher should have not only scientific knowledge, but also the ability to correctly direct the student's thinking process.

At this point, it is worth noting that the renewal of lesson forms is not enough to solve the methodological problem. In order for these renewals to awaken the student's thinking activity, the role of the teacher must change from a transmitter of information to a person who organizes communication and stimulates thinking. This is a methodological condition for innovative teaching methods to be effective. Medical radiology, as a field of medicine based on visual interpretation, requires future specialists to have the ability to clearly, concisely and competently interpret visual information, to distinguish pathological signs based on well-known patterns, and to convey clinically significant information in a concise, clear form. In the educational process, this means the need to introduce teaching methods aimed at

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developing students' skills of rapid and critical communication based on visual materials. However, the current traditional lectures and practical classes do little to form communicative skills in teaching radiology, since the educational process is mainly focused on memorizing classifications and algorithms, and not on discussing and justifying solutions. A comparative analysis of current methodologies for teaching radiology and the requirements for training specialists leads to the conclusion that the main methodological problem in this area is the insufficient coverage of pedagogical cooperation as a means of developing critical-operative communication. In most cases, the educational process is limited only to question-and-answer communication on diagnostic signs. At the same time, there is almost no practice of discussing ambiguous clinical cases, defending assumptions, and analyzing errors. Therefore, there is no systematic approach aimed at developing students' ability to think and communicate in conditions of uncertainty, justify professional actions, and critically evaluate visual information. This methodological problem can be solved by relying on a number of scientific approaches:

• Problem-based learning (PBL) — creating open clinical situations, in which the student is required not only to find the “right answer”, but also to justify his opinion and discuss it in a group.

• Dialogical pedagogy — viewing interaction as a space for creating meanings, that is, organizing the process of enlightenment through interpersonal communication.

• Psycholinguistic approach to specialist speech — analyzing the relationship between speech activity and the structure of professional thinking.

• Competency-based approach in medicine - as a basis for integrating cognitive, behavioral, and communicative aspects in physician training.

Thus, the methodological task is not just to transfer the knowledge, but to develop pedagogical conditions and forms of educational activity that activate critical-operative communication in students. This is done through processes such as interaction, discussion, visual analysis, and group solving of clinical cases.

The organization of critical-operative communication in medical radiology education includes not only language and communication skills, but also the ability to think clinically, make quick decisions, and reason based on evidence. To form these skills, the didactic foundations of education should be reconsidered.

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1.Reshaping learning objectives. While in traditional education, learning objectives are mainly focused on memorizing information, the objectives for developing critical-operative communication are reformulated as follows:
• critical analysis of information;
• development of alternative diagnostic hypotheses;
• ability to respond to the opinions of colleagues;
• interpretation of the clinical picture through communication.
2. Reconstruction of the lesson structure. The lesson structure for the formation of critical-operative communication should include the following elements:
• starting a dialogue based on a visual stimulus (X-ray, CT, MRI, ultrasound images);
• joint analysis and hypothesis clarification (in a group or in pairs);
• problematic questions and analytical timings (for example, "what different diagnoses did you think of?");
• forming a culture of listening to the dialogue and arguing.
3. Introducing interactive methods. Interactive, collaborative and visual-analytical methods are very important for organizing critical-operative communication. In particular:
• case scenarios (with an uncertain outcome),
• role-playing debates and playing the role of experts (for example, "radiologist vs. doctor"),
• simulation analysis (discussion of the image on the screen and assessment of the consequences),
• oral defense of essays and clinical conclusions.
4. Creating an environment of active communication. To ensure the participation of students in critical dialogue, the teacher should:
• ask open questions;
• allow for mutual debate;
• discuss mistakes (not for the purpose of criticism, but for the purpose of learning);
• create an atmosphere that inspires the exchange of ideas.
5. Reflection and self-assessment. At the end of the lesson, students form a reflexive dialogue by assessing their speech activity, ability to justify, and their attitude to the opinions of others. This process enriches the experience of “expressing one’s opinion in one’s place,” “defending,” and “learning.”

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In conclusion, the formation of critical-operative dialogue serves to form the ability of a doctor to visually analyze, present evidence, and express professional opinion in dialogue in radiology education. This process requires a new approach didactically at the level of educational goals, methods, and lesson structure.

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