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AGE-SPECIFIC PSYCHOLOGICAL FACTORS IN THE DEVELOPMENT OF INTEGRATIVE THINKING AMONG 7th–9th GRADE STUDENTS

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Abstract: This article analyzes the age-specific psychological factors influencing the development of integrative thinking among 7th–9th grade students. Adolescence is considered a sensitive period in the formation of complex cognitive processes, including analytical thinking, causal reasoning, reflection, forecasting, and the ability to integrate knowledge from different fields. The development of integrative thinking is directly connected with students' individual psychological characteristics, learning motivation, emotional-volitional stability, reflective abilities, and the pedagogical conditions of the educational environment.

Keywords: adolescence, 7th–9th grade students, integrative thinking, cognitive development, psychological factors, reflection, motivation, causal analysis, forecasting, psycho-diagnostics, psycho-correction.

Introduction

In modern educational psychology, the development of students' thinking processes is regarded as one of the most important conditions for improving the quality of education and preparing young people for independent intellectual activity. Contemporary society requires students not only to memorize educational material, but also to analyze information, compare different viewpoints, identify relationships between phenomena, apply knowledge in new situations, and make reasoned conclusions. In this context, integrative thinking becomes a significant psychological mechanism that enables students to connect knowledge, experience, concepts, and practical situations into a unified system.

The relevance of this issue is especially evident in relation to 7th–9th grade students, because this age corresponds to adolescence, a period characterized by intensive changes in cognitive, emotional, motivational, and personal development. During adolescence, students gradually move from concrete and reproductive forms of thinking toward more abstract, analytical, reflective, and predictive forms of reasoning. At this stage, they begin to understand not only separate facts, but also the internal relationships between events, concepts, causes, consequences, and possible future outcomes.

Integrative thinking is particularly important for adolescents because it allows them to overcome fragmented perception of knowledge and develop a holistic understanding of the world. A student with developed integrative thinking can connect information from different school subjects, use previous experience in solving new problems, evaluate situations from different perspectives, and make meaningful conclusions. Therefore, the development of integrative thinking among 7th–9th grade students is not only a cognitive task, but also a psychological, pedagogical, and developmental necessity.

Purpose and Objectives of the Study

The purpose of the study is to analyze the age-specific psychological factors that influence the development of integrative thinking among 7th–9th grade students and to develop practical recommendations for improving this process through psychodiagnostic and psycho-correctional approaches.

The objectives of the study are to identify the psychological and pedagogical factors affecting students' thinking processes, to reveal the role of integrativity in the development of adolescent thinking, to analyze the importance of reflection, motivation, causal reasoning, and forecasting in integrative thinking, to determine the influence of individual psychological, emotional-volitional, motivational, and educational factors, and to substantiate the need for a psycho-correctional program aimed at developing integrative thinking among schoolchildren.

Object and Subject of the Study

The object of the study is the process of psychodiagnosis and psycho-correction of thinking processes among 7th–9th grade students.

The study involved 290 students from three regions: 140 students from Tashkent region, 120 students from Bukhara region, and 30 students from Samarkand region.

The subject of the study is the age-specific psychological factors that determine the development of integrative thinking among 7th–9th grade students.

Theoretical and Methodological Foundations

Integrative thinking is a complex cognitive process that enables an individual to combine separate pieces of information, establish meaningful relationships between them, and construct a holistic understanding of a problem or phenomenon. Unlike simple reproductive thinking, integrative thinking requires comparison, generalization, abstraction, causal analysis, reflection, and the ability to transfer knowledge from one context to another.

In psychological science, the development of thinking has been widely studied in the works of L.S. Vygotsky, J. Piaget, A.N. Leontiev, S.L. Rubinstein, D.B. Elkonin, and L.I. Bozhovich. Vygotsky emphasized the social and cultural nature of cognitive development, showing that higher mental functions are formed through interaction, speech, and learning. Piaget associated adolescence with the emergence of formal operational thinking, which allows the child to operate with abstract concepts, hypotheses, and logical relationships. Leontiev and Rubinstein interpreted thinking as a process connected with activity, motivation, goals, and the resolution of problem situations.

From the point of view of developmental psychology, adolescence is a period in which thinking becomes more independent, reflective, and socially mediated. The adolescent begins to analyze not only external events, but also personal experiences, motives, values, and future possibilities. This creates psychological conditions for the development of integrative thinking, because the student gradually learns to connect different aspects of reality into a meaningful whole.

Pedagogical psychology also shows that integrative thinking depends on the organization of the educational process. If teaching is based only on memorization and reproduction of ready-made knowledge, students' thinking remains fragmented and passive. However, when the educational process includes problem-based learning, interdisciplinary tasks, discussion, reflection, project work, and independent analysis, students acquire the ability to integrate knowledge and apply it in different situations.

Age-Specific Features of 7th–9th Grade Students' Thinking

The age period of 7th–9th grade students is characterized by significant cognitive changes. At this stage, adolescents develop the ability to reason beyond immediate concrete situations, compare different concepts, understand abstract relationships, and analyze complex problems. Their thinking becomes more flexible and more dependent on internal motivation and personal meaning.

One of the most important age-specific characteristics of adolescent thinking is the transition from external regulation to internal regulation. Younger students often rely on direct instructions from teachers and adults, while adolescents increasingly try to understand the

purpose of tasks, evaluate their own actions, and make independent decisions. This transition creates favorable conditions for the development of integrative thinking because integration requires active internal mental work.

Another important feature is the development of reflection. Reflection allows students to analyze their own thinking process, understand mistakes, evaluate the logic of their answers, and search for alternative solutions. Without reflection, integrative thinking remains limited, because the student may combine information mechanically without understanding the deeper relationships between facts and concepts.

The development of abstract thinking is also essential. In grades 7–9, students begin to work more actively with theoretical concepts in mathematics, natural sciences, history, literature, and social sciences. These subjects require the ability to establish relationships between facts, laws, causes, consequences, and general principles. Therefore, the school curriculum itself creates important opportunities for developing integrative thinking, provided that teaching methods are organized appropriately.

Psychological Factors Influencing the Development of Integrative Thinking

The development of integrative thinking among adolescents is influenced by several psychological factors. These factors do not operate separately, but interact with each other as a complex system.

The first factor is cognitive readiness. This includes the level of development of attention, memory, logical thinking, comparison, generalization, abstraction, and problem-solving skills. A student who has developed cognitive operations can more easily connect information from different sources and form generalized conclusions.

The second factor is learning motivation. Integrative thinking develops more actively when the student is interested in understanding the content of learning rather than merely receiving a grade. Cognitive interest encourages the student to ask questions, search for explanations, compare information, and apply knowledge creatively. Without motivation, integrative thinking may remain weak because the student does not feel an internal need to connect and deepen knowledge.

The third factor is reflection. Reflective ability helps students understand how they think, why they make certain conclusions, what mistakes they make, and how they can improve their reasoning. Reflection transforms ordinary learning activity into conscious intellectual development.

The fourth factor is emotional-volitional stability. Adolescents often experience emotional instability, anxiety, fear of failure, and sensitivity to evaluation. If these emotional states are not regulated, they may negatively affect thinking processes. A student who is afraid of making mistakes may avoid complex tasks and remain dependent on ready-made answers. Therefore, emotional security and psychological support are necessary conditions for the development of integrative thinking.

The fifth factor is social interaction. Integrative thinking develops effectively in dialogue, discussion, group work, and collaborative problem solving. When students listen to different opinions, compare arguments, defend their position, and reconsider their views, they learn to integrate diverse perspectives.

The sixth factor is forecasting ability. Integrative thinking is closely connected with the ability to predict possible consequences, evaluate different options, and make responsible decisions. In adolescence, forecasting develops gradually and requires systematic pedagogical and psychological support.

Pedagogical Conditions for the Development of Integrative Thinking

The educational environment plays a decisive role in the development of integrative thinking. Teachers should not limit students to the reproduction of definitions and rules, but should encourage them to compare, analyze, connect, and interpret information. Interdisciplinary tasks are especially effective because they allow students to see the relationship between different areas of knowledge.

For example, when studying historical events, students may analyze their social, economic, psychological, and moral consequences. In literature lessons, they may connect the behavior of characters with psychological motives and social conditions. In natural sciences, they may examine the relationship between environmental processes, human activity, and social responsibility. Such tasks help students understand that knowledge is not isolated, but interconnected.

Problem-based learning is another important pedagogical condition. When students face a problem that cannot be solved by simple memorization, they are forced to analyze information, search for relationships, compare alternatives, and draw conclusions. This activates integrative thinking and develops intellectual independence.

Reflection-based learning is also essential. At the end of lessons, students should be encouraged to answer questions such as: What did I understand? How did I reach this conclusion? What information helped me? What alternative explanation is possible? What mistake did I make and how can I correct it? Such questions strengthen students' reflective and integrative thinking.

Psychodiagnostic Approach to Integrative Thinking

The psychodiagnosis of integrative thinking should include the assessment of several indicators. These include the ability to connect concepts, identify relationships between phenomena, use knowledge from different subjects, analyze causes and consequences, make generalized conclusions, and predict possible outcomes.

Psychodiagnostic work should not be limited to test methods alone. Observation, interviews, analysis of students' written work, problem-solving tasks, reflective questions, and group discussions should also be used. Such a complex approach allows the school psychologist and teacher to understand not only the level of students' thinking, but also the reasons for difficulties in integrative reasoning.

The diagnostic process may be organized in several stages. At the first stage, the general level of cognitive development is identified. At the second stage, the student's ability to establish interdisciplinary and causal relationships is analyzed. At the third stage, reflection and self-assessment are studied. At the fourth stage, the results are used to develop individual or group psycho-correctional recommendations.

Psycho-Correctional Support for Integrative Thinking

Psycho-correctional work aimed at developing integrative thinking should be systematic and gradual. It should include exercises for comparison, classification, generalization, causal analysis, forecasting, and reflection. The main purpose of such work is not only to improve intellectual performance, but also to teach students how to think consciously, independently, and flexibly.

Group discussions are effective because they help students compare different opinions and integrate them into a more complete understanding. Case studies are also useful because they require students to analyze real or simulated situations from several perspectives. Concept maps help students visually represent relationships between ideas and develop systematic understanding. Reflective diaries allow students to analyze their own thinking and observe personal progress.

Psycho-correctional work should also include motivational support. Students should understand why integrative thinking is important for learning, communication, future professional choice, and personal development. When students see the practical value of integrative thinking, their cognitive activity increases.

Psychological Model of Integrative Thinking Development

The development of integrative thinking among 7th–9th grade students can be represented through the following psychological model:

Cognitive interest → Learning motivation → Analytical activity → Establishing relationships → Reflection → Integrative understanding → Independent conclusion → Forecasting

This model shows that integrative thinking begins with cognitive interest and motivation. When the student is interested in the content of learning, he or she becomes intellectually active. Analytical activity then allows the student to identify important features of the problem. Establishing relationships connects separate elements into a system. Reflection helps the student understand the process of thinking, while integrative understanding leads to independent conclusions and forecasting.

Discussion

The analysis shows that integrative thinking among adolescents develops under the influence of age-specific psychological changes and pedagogical conditions. Adolescents are psychologically ready to move toward more complex forms of reasoning, but this process requires systematic support. If the educational environment does not stimulate independent analysis, students may remain at the level of reproductive thinking.

The development of integrative thinking is especially important because modern education requires students to solve complex problems that cannot be understood within the boundaries of one subject or one type of knowledge. Integrative thinking helps students understand the complexity of social, natural, moral, and personal phenomena.

The study of 290 students from Tashkent, Bukhara, and Samarkand regions confirms the need to consider individual, motivational, emotional, and educational factors in the development of thinking processes. This means that psychodiagnostic and psycho-correctional work should be individualized and adapted to the real psychological needs of students.

Practical Recommendations

In order to develop integrative thinking among 7th–9th grade students, teachers should regularly use interdisciplinary tasks, problem-based questions, discussions, project activities, and reflective exercises. Students should be encouraged not only to answer questions, but also to explain the logic of their answers, identify relationships, compare alternatives, and predict possible consequences.

School psychologists should conduct periodic diagnostics of students' thinking processes and identify difficulties related to integration, reflection, motivation, and emotional stability. Based on the results, individual and group psycho-correctional sessions should be organized.

Parents should also support adolescents' independent thinking at home by listening to their opinions, discussing life situations, encouraging questions, and avoiding excessive criticism. A supportive family environment strengthens the student's confidence and intellectual independence.

Conclusion

The development of integrative thinking among 7th–9th grade students is a complex psychological and pedagogical process determined by age-specific cognitive, motivational, emotional-volitional, reflective, and social factors. Adolescence creates favorable conditions for

the formation of integrative thinking because students begin to think more abstractly, analyze relationships, evaluate their own actions, and predict future outcomes.

The effectiveness of integrative thinking development depends on systematic psychodiagnosis, psycho-correctional support, motivational stimulation, reflective learning, and the organization of an educational environment that encourages independent and interdisciplinary thinking. Therefore, the development of integrative thinking should be considered one of the priority tasks of modern school psychology and pedagogy.

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