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The Impact of Differential Approach on Pupils' Psychological Development

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Abstract: This article is devoted to the issues of the impact of differential approach on pupils' psychological development in primary education. The influence of differential approach on cognitive, emotional and social development, as well as the theories of scholars such as Vygotsky, Piaget, Gardner, Bloom and Howard are deeply analyzed. The article also examines the issues of modern neuroscience achievements and practical application of individual learning strategies.

Keywords: Differential approach, psychological development, primary education, individual learning, cognitive development, emotional development, pedagogical psychology, neuroscience, educational technologies.

Introduction: The educational paradigm of the 21st century is undergoing fundamental changes. Globalization processes, rapid development of information technologies, and society's expectations from future generations force a fundamental reconsideration of the education system (UNESCO, 2020). In these circumstances, educational strategies based on individual approaches are of particular importance.

The problem of differential approach is not only a practical but also a theoretically important scientific-pedagogical issue. First, it is a way to implement one of the basic principles of modern educational philosophy – "the uniqueness of each individual and maximizing their developmental potential". Second, this approach is a scientifically grounded strategy for increasing the effectiveness of the pedagogical process, improving educational quality, and ensuring pupils' academic

success.

Differential pedagogy is a special direction in educational theory and practice that places pupils' individual differences at the center of the educational process. The epistemological foundation of this approach extends to several important philosophical-pedagogical concepts.

First, the anthropocentric approach views humans at the center of the educational process. This idea began to take shape in the works of pedagogues such as J.A. Comenius, J.J. Rousseau, and J.H. Pestalozzi in the 17th-18th centuries. Later, it found expression in humanistic psychology and person-centered education concepts.

Second, constructivist epistemology interprets knowledge not as ready-made information but as an active construction process. This approach was formed based on the works of scholars such as J. Piaget, L. Vygotsky, and J. Bruner. Constructivism emphasizes each pupil's uniqueness and individuality in creating knowledge structures, further deepening the necessity of differential approach.

Third, the systems approach understands the educational process as a complex, multi-component, interconnected system. Its theoretical foundations stem from L. Bertalanffy's general systems theory and have been developed in pedagogy by researchers such as N. Kuzmina and V. Slastenin. This approach views the educational process as a holistic system and shows the necessity of considering the mutual influence of each element within it.

The issue of individual differences has consistently attracted scientific attention throughout the history of psychology. Analyzing its developmental stages is important for a deeper understanding of the current state of differential approach.

Stage I (Late 19th - Early 20th century): Foundations of Psychometrics. During this period, F. Galton and A. Binet created methods for measuring individual differences, laying the foundation for psychometrics. Their research was mainly focused on quantitative differences in abilities.

Stage II (First half of 20th century): Formation of Differential Psychology. Differential psychology was established as an independent field of science by W. Stern. During this period, attention increased not only to quantitative but also qualitative aspects, and individual differences began to be explained more broadly.

Stage III (Second half of 20th century): Cognitive Revolution. The development of cognitive psychology led to studying individual differences not only at the results level but also at the cognitive processes level. The works of J. Carroll and R. Sternberg occupy a special place in this period, bringing new content to differential psychology through cognitive approach.

Stage IV (21st century): Neuroscientific Approach. Modern neuroscientific technologies have provided the opportunity to analyze individual differences at the brain activity level. The pursuit of understanding the biological mechanisms of individual differences based on neuroplasticity, neurochemistry, and neurochemical processes is currently strengthening the scientific foundation of differential approach.

Vygotsky's social-cultural theory serves as an important theoretical foundation for differential approach. Particularly, his concept of "Zone of Proximal Development" (ZPD) occupies a special place in the educational process. According to this theory, child development is in constant dynamic motion, and ZPD manifests uniquely and individually for each pupil.

Additionally, since pupils may have different developmental opportunities in various activities, ZPD can be interpreted as a multi-modal process. In group settings, new opportunities emerge, forming collective ZPD.

The positive aspect of this approach is that it explains pupils' individual developmental processes, reveals the dialectical relationship between education and development, and emphasizes the important role of social environment. However, the theory also has some limitations: ZPD is difficult to measure precisely, situations outside cultural context are insufficiently studied, and individual biological factors are often undervalued.

While Piaget's theory defined universal stages of cognitive development, these views are reinterpreted in the context of differential approach. Modern research shows that each child's transition through developmental stages has individual differences. For example, some children may experience stages in parallel, or certain cultural and social factors may influence the rate of development.

Additionally, neo-Piagetian approach representatives emphasize the domain-specific nature of development, noting that individual differences are expressed not only in time but also in developmental trajectory. According to them, meta-cognitive strategies play an important role in development, giving pupils the opportunity to consciously manage their learning process.

Howard Gardner's multiple intelligence theory also emerges as an important idea supporting differential approach. This theory emphasizes the necessity of considering various forms of intelligence in the

educational process. Gardner's views are partially confirmed by neuroscientific data: for example, different forms of intelligence are associated with different brain regions, and clinical observations show independent impairments of certain intelligences.

Additionally, cross-cultural studies show important differences in assessing intelligence types. However, critical approaches to the theory also exist. Some scholars emphasize that high correlation between intelligence types supports the g-factor idea. Furthermore, some intelligence forms identified by Gardner may actually be viewed as abilities or skills, and there are methodological difficulties in practically applying the theory.

Bloom's taxonomy identifies six levels of cognitive activity and helps prepare appropriate-level tasks for each pupil in differential approach. This system includes knowledge, comprehension, application, analysis, synthesis, and evaluation stages.

Modern neurodidactics achievements provide opportunities for deeper understanding of the educational process. Brain plasticity holds special importance in neuroscience. Synaptic plasticity shows the strengthening or weakening of neural connections during the learning process, and this process depends on age, experience, and environmental conditions.

Structural plasticity represents brain structure changes as a result of intensive learning. For example, in children who have deeply mastered mathematical skills, parietal lobe activity significantly increases. Most importantly, neuroscientific research shows that each child's brain develops differently, scientifically justifying the necessity of differential approach.

Individual differences in attention and working memory processes are also of great importance in differential approach. The development of executive functions in children does not proceed uniformly some show self-control, planning, and adaptation abilities in problem situations at early stages, while in others, this process develops more slowly. Therefore, considering pupils' executive functions in the educational process is important.

Based on M. Posner's model, three main attention networks are distinguished: voluntary attention, alerting attention, and executive attention. Individual differences exist among pupils in each network some may quickly respond to alerts, while others may excel in maintaining focused and long-term attention.

Therefore, in differential approach, pupils need to be assessed and supported not only by general abilities but also by various components of attention. Working memory also plays an important role in this process, as mastering new knowledge, solving complex tasks, and applying previous experience directly depend on working memory efficiency. Since the volume and flexibility of working memory in children vary, the need for individual approach in education increases further.

Differential approach is of great importance in ensuring pupils' psychological development in primary education. Through this approach, pupils' abilities, interests, and needs are considered, and their cognitive, emotional, and social development is effectively ensured.

Modern psychological and neuroscientific research confirms the effectiveness of differential approach. This approach not only improves academic results but also positively affects children's overall psychological development.

Recognizing each pupil's uniqueness and providing appropriate education is important, and modern technologies facilitate the implementation of differential approach. Wide implementation of this approach increases the effectiveness of the educational process and helps reveal each child's full potential.

REFERENCES

Ansari, D., & Coch, D. (2006). Bridges over troubled waters: education and cognitive neuroscience. Trends in Cognitive Sciences, 10(4), 146-151.

Bertalanffy, L. von (1968). General System Theory: Foundations, Development, Applications. New York: George Braziller.

Binet, A., & Simon, T. (1916). The Development of Intelligence in Children. Baltimore: Williams & Wilkins.

Bloom, B.S. (1956). Taxonomy of Educational Objectives: The Classification of Educational Goals. Boston: Allyn and Bacon.

Bruner, J.S. (1960). The Process of Education. Cambridge, MA: Harvard University Press.

Carroll, J.B. (1993). Human Cognitive Abilities: A Survey of Factor-Analytic Studies. Cambridge: Cambridge University Press.

Case, R. (1996). Reconceptualizing the Nature of Children's Conceptual Structures and their Development in Middle Childhood. In R. Case & Y. Okamoto (Eds.), The Role of Central Conceptual Structures in the Development of Children's Thought (pp. 1-26). Chicago: University of Chicago Press.

Connor, C.M., Morrison, F.J., Fishman, B., et al. (2011). Testing the impact of child characteristics × instruction interactions on third graders' reading comprehension by differentiating literacy instruction. Reading Research Quarterly, 46(3), 189-221.

Diamond, A. (2013). Executive functions. Annual Review

of Psychology, 64, 135-168.

Fischer, K.W. (2009). Mind, Brain, and Education: Building a Scientific Groundwork for Learning and Teaching. Mind, Brain, and Education, 3(1), 3-16.

Galton, F. (1869). Hereditary Genius: An Inquiry into Its Laws and Consequences. London: Macmillan.

Gardner, H. (2011). Frames of Mind: The Theory of Multiple Intelligences (3rd ed.). New York: Basic Books.

Hattie, J. (2017). Visible Learning for Teachers: Maximizing Impact on Learning. London: Routledge.

Jalolov, J.J. (2021). Boshlang'ich ta'lim metodikasi. Toshkent: TDPU nashriyoti.

Kolb, B., & Whishaw, I.Q. (2015). Fundamentals of Human Neuropsychology (7th ed.). New York: Worth Publishers.

Komensky, J.A. (1657). Didactica Magna. Amsterdam: Elzevier.

Kuzmina, N.V. (1970). Metody sistemnogo pedagogicheskogo issledovaniya. Leningrad: Izdatel'stvo LGU.

Maslow, A.H. (1943). A theory of human motivation. Psychological Review, 50(4), 370-396.

Miyake, A., & Friedman, N.P. (2012). The nature and organization of individual differences in executive functions: Four general conclusions. Current Directions in Psychological Science, 21(1), 8-14.

Pestalozzi, J.H. (1801). Wie Gertrude ihre Kinder lehrt. Bern: Gessner.

Piaget, J. (2000). The Psychology of the Child. New York: Basic Books.

Posner, M.I., & Petersen, S.E. (1990). The attention system of the human brain. Annual Review of Neuroscience, 13, 25-42.

Rogers, C.R. (1951). Client-centered therapy. Boston: Houghton Mifflin.

Rousseau, J.J. (1762). Émile, ou De l'éducation. Paris: Duchesne.

Slastenin, V.A. (1997). Pedagogika. Moskva: Shkola-Press.

Stern, W. (1900). Über Psychologie der individuellen Differenzen. Leipzig: Barth.

Sternberg, R.J. (2019). The Triarchic Theory of Successful Intelligence. In D.P. Flanagan & E.M. McDonough (Eds.), Contemporary Intellectual Assessment (4th ed., pp. 174-194). New York: Guilford Press.

Tomlinson, C.A. (2017). How to Differentiate Instruction in Mixed-Ability Classrooms (3rd ed.). Alexandria, VA: ASCD.

UNESCO (2020). Personalized Learning: A Guide for Engaging Students with Technology. Paris: UNESCO Publishing.

Vygotsky, L.S. (1978). Mind in Society: Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press.