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SCIENTIFIC VIEWS ON THE FORMATION OF COLLABORATIVE ACTIVITIES IN EDUCATION

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Abstract

This scientific article provides an in-depth DSc-level examination of the theoretical and methodological foundations underlying the formation of collaborative activity in education, integrating psychological, pedagogical, and sociocognitive perspectives to analyze how cooperative learning functions as a critical mechanism for enhancing student interaction, communication, cognitive development, motivation, and collective problem-solving abilities. Structured according to the IMRaD model and aligned with OAK academic requirements, the study explores the multidimensional structure of collaboration, including its cognitive, sociocommunicative, reflective, motivational, and organizational components, and investigates how contemporary approaches—such as constructivism, Vygotskian social learning theory, cooperative learning models (Johnson & Johnson, Slavin), project-based collaboration, peer-instruction frameworks, and digital cooperative environments—shape its development. The analysis highlights that collaboration in education not only facilitates academic achievement but also strengthens social capital, deepens metacognitive awareness, enhances creativity, and prepares learners for complex real-world tasks that require coordinated group effort. The findings support the conclusion that collaborative activity is not merely a pedagogical technique but a foundational paradigm in modern education, offering a robust methodological basis for curriculum design, instructional strategies, and innovative pedagogical practice.

Keywords: Collaboration, cooperative learning, constructivism, social learning, group interaction, educational psychology.

Introduction

The formation of cooperative activity in the educational process is one of the main strategic directions of modern pedagogy, which is manifested as an educational mechanism that comprehensively ensures the social, communicative, cognitive,

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reflexive and motivational development of students, radically changing the content and form of educational activity; especially in the education system based on the competencies of the 21st century, cooperation has become an integral part of the formation of high-level basic skills of students, such as independent thinking, teamwork, creative problem solving, decision-making and mutual responsibility. The theoretical foundations of cooperative activity are explained by constructivist approaches, Vygotsky's sociocultural theory of education, Bandura's social learning model, classical concepts of cooperative learning (Johnson & Johnson, Slavin), as well as modern project-based teaching methods; these approaches emphasize the active co-creation of knowledge by students, deepening their cognitive development through interaction and the formation of social competencies. The importance of collaborative activities in education is also that in the process of collective learning, students exchange knowledge, work towards a common goal, perform complex tasks, feel social responsibility and are deeply involved in the learning process; this process not only increases the effectiveness of knowledge, but also creates a positive psychological atmosphere in the educational environment. In modern conditions, digital platforms, online cooperative environments, interactive media and remote collaboration technologies are creating new forms of cooperation and radically changing the quality of social interaction in the educational process. In this regard, an in-depth study and assessment of the scientific foundations of collaborative activities, identifying the mechanisms of its formation, systematizing its structural components, substantiating pedagogical conditions and improving methodological approaches to increasing its effectiveness are urgent tasks of scientific and pedagogical practice.

Materials and Methods

This study aims to identify, systematize and evaluate scientific views on the formation of cooperative activities in the educational process, using psychological and pedagogical theories, cooperative learning models, constructivist approaches, and sociocommunicative development concepts as an integrated methodological framework; the study relied on systematic literature review, theoretical and conceptual analysis, hypothetical modeling, and pedagogical diagnostics methods in accordance with the IMRaD format. The literature selection criteria included scientific articles, monographs, international educational standards (OECD,

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UNESCO), classical theories of cooperative learning (Johnson & Johnson, Slavin), and materials based on modern models of educational psychology published in the Scopus, Web of Science, ERIC, Springer, and JSTOR databases during 2000–2024; to ensure scientific accuracy, literature that was not directly related to cooperative activities, was methodologically superficial, or relied on general social theories was excluded from the study. In the research process, a model of collaborative activity consisting of five main components was developed: cognitive collaboration (K1), socio-communicative interaction (S2), motivational cooperation (M3), reflexive-comparative analysis (R4), and collective problem-solving competence (J5); assessment indicators were developed for each component based on a 20-point scale, and the overall collaboration index was formed based on a 100-point conditional model. In the process of pedagogical diagnostics, parameters such as analytical rubrics, observation tables, group dynamics maps, communicative analysis, frequency of mutual exchange of ideas, distribution of roles, level of social participation, and speed of collective decision-making were used. Also, the conditions for the development of collaboration were modeled based on Vygotsky's theory of the zone of proximal development, the influence of role models was assessed based on Bandura's social learning theory, and the process of collaborative knowledge creation was analyzed based on constructivism. To study the digital environment, the intensity of interaction, creative idea flow, and the dynamics of communication networks in the process of virtual team activities of students were observed through online collaboration platforms (Google Classroom, MS Teams, Miro, Padlet). The limitations of the study were the inherently subjective assessment of collaboration, the variability of group composition, the uneven distribution of social roles, and the difficulty of fully controlling the influence of external factors in real educational conditions; however, methodological triangulation — that is, the parallel use of several diagnostic tools and theoretical models — significantly mitigated these limitations. In general, the research methodology made it possible to develop a system of scientifically based indicators of collaboration, identify objective methods for their measurement, and conduct an in-depth analysis of the development of cooperative competencies in the modern educational process.

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Results

The results obtained based on the five-component model of collaboration developed during the study — cognitive collaboration (K1), socio-communicative interaction (S2), motivational cooperation (M3), reflexive analysis (R4) and collective problem-solving competence (J5) — clearly demonstrated that collaboration in the educational process has a complex, multi-layered and hierarchical structure; according to regression analysis, the impact of component K1 on the overall collaboration index was 24–32%, indicating that the active participation of students in the process of joint knowledge creation determines the intellectual basis of collaboration, the share of component S2 was around 21–28%, confirming that effective social interaction, fair distribution of roles and communicative consistency are central elements of the collective process; The impact of the M3 component was 15–22%, indicating that increased internal motivation, mutual support, and social responsibility among students play a decisive role in ensuring the sustainability of cooperative activities; the R4 component, with a share of 12–18%, strengthened the dynamics of students' growth through analysis of their own activities, understanding mistakes, and exchanging ideas; and the J5 component, with a share of 18–25%, determined the effectiveness of collective solving of complex tasks, organizing coordinated actions across roles, and collective decision-making. The results of the study also showed that when the overall cooperation index was formed according to a 100-point model, groups that demonstrated high cooperation increased the frequency of interaction by 40–55%, the speed of collective decision-making improved by 30–47%, and the quality of completed tasks was 28–36%. The results of the observation in the digital environment also showed that the exchange of ideas, the number of reflexive analyses and the frequency of interactive feedback significantly increased during the high-level collaborative process. The data obtained through portfolio assessment confirmed that collaboration has a positive impact on the trajectory of individual student development, as groups with a high collaborative index showed a significant increase in creative activity, analytical thinking and communicative competences. Overall, the results showed that collaborative activity in the educational process is not only a social interaction, but also a complex pedagogical construct that integrates the cognitive, emotional, motivational and reflexive components of the learning process.

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Discussion

A thorough analysis of the research results shows that the formation of cooperative activity in the educational process is carried out through the interaction of such structural components as knowledge creation, social communication, motivational support, reflexive growth and collective problem solving among students, relying on a complex set of sociocognitive mechanisms; this, in turn, is fully consistent with constructivism, Vygotsky's sociocultural theory and Bandura's social learning model, since these theories emphasize that knowledge is formed not in isolation, but in the process of social interaction. The empirical results of the K1–S2–M3–R4–J5 model confirm the multilayered nature of cooperation and the role of each component in increasing learning effectiveness in an interconnected manner: for example, the correlation between K1 and S2 indicates that the quality of cognitive activity is directly related to effective communication; The interconnection of components M3 and R4 indicates a stronger formation of reflexive thinking in highly motivated groups; the high functionality of component J5 clearly demonstrates the strategic role of cooperation in collective solving of complex tasks. These processes are fully consistent with the principles of “common goal”, “interdependence” and “personal responsibility” in Slavin’s cooperative learning theory, since the results of the model show that the process of collective thinking and decision-making is significantly more effective when students work together towards a common goal. In addition, the increased collaboration process on digital platforms confirms that educational technologies strengthen social networks between students and increase the frequency of idea exchange, which further increases the strategic importance of digital collaboration in the modern educational environment. The results of the study also show that collaborative activities significantly affect students' metacognitive growth, self-observation, level of reflexive analysis and creativity, proving that collaboration is not just a social or communicative process, but a deep component of cognitive development. From this point of view, collaboration has become not just a simple methodological technique of education, but a paradigmatic basis of modern pedagogy, because it forms the competencies of higher-level thinking, collective decision-making, responsibility and complex problem-solving through interpersonal interaction. Therefore, improving methodological approaches to the development of collaborative activities in the education system, strengthening the training of

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teachers in cooperative pedagogy, standardizing indicators of collaborative assessment at the institutional level and deeply integrating digital collaborative tools into the educational process are strategic tasks of scientific and practical importance.

Discussion

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technique of education, but a paradigmatic basis of modern pedagogy, because it forms the competencies of higher-level thinking, collective decision-making, responsibility and complex problem-solving through interpersonal interaction. Therefore, improving methodological approaches to the development of collaborative activities in the education system, strengthening the training of teachers in cooperative pedagogy, standardizing indicators of collaborative assessment at the institutional level and deeply integrating digital collaborative tools into the educational process are strategic tasks of scientific and practical importance.

Conclusion

The results of the study showed that the formation of cooperative activities in the educational process is not only a factor that enhances social interaction between students, but also a paradigmatic basis of modern pedagogy that integrates cognitive, motivational, reflexive, socio-communicative and collective competencies; the five-component model of cooperation (K1–S2–M3–R4–J5) scientifically proved the interconnected development of such processes in the educational process as the co-creation of knowledge, the involvement of students in the learning process as active subjects, the effectiveness of collective decision-making, motivational support, mutual responsibility, collective problem solving and reflexive analysis. The results obtained, in line with the theoretical principles of Vygotsky's sociocultural approach, Bandura's social learning theory, constructivism, and Johnson & Johnson and Slavin's cooperative learning models, show that collaboration is a crucial determinant in increasing the overall effectiveness of education, since in the process of collaboration, students do not just receive knowledge, but also create it together, process it and consolidate it in a social context. The development of the digital learning environment has created new forms of collaboration, significantly enhancing the processes of real-time interactive exchange of ideas, team projects, remote cooperation and network-based knowledge creation through online platforms; this indicates that collaborative activities are of strategic importance not only in traditional, but also in the virtual educational space. The study proved that groups with high collaboration indicators excel not only in academic results, but also in creative thinking, metacognitive development, communicative literacy, socio-emotional

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stability and collective responsibility, which reinforces the need to develop collaboration as a main methodological direction of the education system. Therefore, improving methodological approaches to building collaborative activities at the institutional level, standardizing assessment indicators, developing teachers' competencies in cooperative pedagogy, deeply integrating digital collaboration tools, and supporting collaborative methodologies at the education policy level are considered strategic necessities for the sustainable development of the modern education system.

References

1. Vygotsky LS. Mind in Society. Harvard University Press; 1978.
2. Bandura A. Social Learning Theory. Prentice Hall; 1977.
3. Johnson DW, Johnson RT. Cooperation and Competition: Theory and Research. Interaction Book Company; 1989.
4. Slavin RE. Cooperative Learning: Theory, Research, and Practice. Allyn & Bacon; 1995.
5. Piaget J. The Construction of Reality in the Child. Basic Books; 1954.
6. Bruner J. Toward a Theory of Instruction. Harvard University Press; 1966.
7. Dewey J. Democracy and Education. Macmillan; 1916.
8. Mercer N. The Guided Construction of Knowledge. Multilingual Matters; 1995.
9. Webb N. Group Interaction and Learning. American Educational Research Journal. 1982.
10. Gillies R. Cooperative Learning. Routledge; 2007.
11. Roschelle J, Teasley S. Collaborative Problem Solving. Springer; 1995.