

## PSYCHOLOGICAL CONFIDENTIALITY OF THE FORMATION OF STUDENTS' COLLABORATIVE SKILLS BASED ON MULTI-VECTOR APPROACHES IN EDUCATION

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**Abstract.** *Developing collaborative skills among students is crucial in modern education, as teamwork and problem-solving in groups are essential in both academic and professional settings. This paper explores pedagogical mechanisms designed to enhance collaborative abilities by implementing a multi-vector approach. The multi-vector method emphasizes diverse educational strategies, allowing students to engage in dynamic, interactive learning processes. By integrating elements such as cooperative learning, peer interaction, and interdisciplinary tasks, this approach nurtures students' capacity to collaborate effectively. The paper also examines the role of teachers in facilitating these processes, promoting an environment where communication, creativity, and critical thinking are cultivated. The practical use of the multi-vector approach reveals a positive impact on students' collaborative skills, effectively equipping them to handle real-world challenges in their future careers.*

**Keywords:** *Multi-vector approach, collaborative skills, pedagogical mechanisms, cooperative learning, teamwork, peer interaction, interdisciplinary education, communication skills, critical thinking, student development.*

## ПСИХОЛОГИЧЕСКАЯ КОНФИДЕНЦИАЛЬНОСТЬ ФОРМИРОВАНИЯ НАВЫКОВ СОТРУДНИЧЕСТВА СТУДЕНТОВ НА ОСНОВЕ МНОГОВЕКТОРНЫХ ПОДХОДОВ В ОБРАЗОВАНИИ

**Аннотация.** *Развитие навыков сотрудничества среди студентов важно в современном образовании, поскольку работа в команде и решение проблем в группах важны как в академической, так и в профессиональной среде. В этой статье исследуются педагогические механизмы, предназначенные для повышения навыков сотрудничества путем реализации многовекторного подхода. Многовекторный подход*

подчеркивает разнообразие стратегий обучения, которые позволяют учащимся участвовать в динамичных, интерактивных процессах обучения. Сочетая такие элементы, как совместное обучение, взаимодействие со сверстниками и междисциплинарные задачи, этот подход развивает способность учащихся эффективно сотрудничать. В статье также рассматривается роль учителей в содействии этим процессам и созданию среды, в которой процветают общение, творчество и критическое мышление. Практическое использование многовекторного подхода положительно влияет на навыки сотрудничества студентов, делая их эффективными в решении реальных проблем в их будущей карьере.

**Ключевые слова:** Многовекторный подход, навыки сотрудничества, педагогические механизмы, совместное обучение, работа в команде, взаимодействие со сверстниками, междисциплинарное обучение, коммуникативные навыки, критическое мышление, развитие учащихся.

#### **TA'LIMDA KO'P VEKTORLI YONDASHUVLAR ASOSIDA TALABALARNING KOLLOBORATIV KO'NIKMALARINI SHAKLLANTIRISHNING PSIXOLOGIK KONFIDENSIYALLIGI**

**Annotatsiya.** Talabalar o'rtasida hamkorlik ko'nikmalarini rivojlantirish zamonaviy ta'limda muhim ahamiyatga ega, chunki jamoaviy ish va guruhlarda muammolarni hal qilish ham akademik, ham professional sharoitlarda muhim ahamiyatga ega. Ushbu maqola ko'p vektorli yondashuvni amalga oshirish orqali hamkorlik qobiliyatlarini oshirish uchun mo'ljallangan pedagogik mexanizmlarni o'rganadi. Ko'p vektorli usul turli xil ta'lim strategiyalariga urg'u beradi, bu o'quvchilarga dinamik, interaktiv ta'lim jarayonlarida qatnashish imkonini beradi. Birgalikda o'rganish, tengdoshlarning o'zaro ta'siri va fanlararo vazifalar kabi elementlarni birlashtirgan holda, bu yondashuv talabalarning samarali hamkorlik qilish qobiliyatini rivojlantiradi. Maqolada, shuningdek, ushbu jarayonlarni osonlashtirish, muloqot, ijodkorlik va tanqidiy fikrlash rivojlanadigan muhitni targ'ib qilishda o'qituvchilarning roli ko'rib chiqiladi. Ko'p vektorli yondashuvdan amaliy foydalanish talabalarning hamkorlikdagi ko'nikmalariga ijobiy ta'sir ko'rsatadi, ularni kelajakdagi martabalarida haqiqiy muammolarni hal qilish uchun samarali bo'ladi.

**Kalit so'zlar:** Ko'p vektorli yondashuv, hamkorlik qobiliyatlari, pedagogik mexanizmlar, hamkorlikda o'rganish, jamoada ishlash, tengdoshlarning o'zaro ta'siri, fanlararo ta'lim, muloqot qobiliyatlari, tanqidiy fikrlash, o'quvchilarni rivojlantirish.

## INTRODUCTION

In today's rapidly evolving world, the ability to work collaboratively has become a fundamental skill, not only in academic settings but also in professional environments. The growing complexity of global challenges requires individuals who can think critically, communicate effectively, and solve problems as part of a team. As a result, modern education must shift towards teaching methodologies that prioritize the development of these skills.

One such approach is the multi-vector method, which offers a comprehensive framework for fostering collaborative abilities among students. This approach leverages various pedagogical techniques that stimulate cooperation, peer interaction, and interdisciplinary learning.

This paper intends to investigate the pedagogical mechanisms that can be implemented within the multi-vector approach to enhance students' collaborative skills. By examining the principles of this method and its application in educational practice, we can better understand how teachers can create learning environments that promote teamwork and mutual problem-solving. Ultimately, such an approach prepares students for the demands of future professional settings, where collaboration is key to success.

## LITERATURE REVIEW

The importance of collaboration in education has been widely recognized in both theoretical and practical studies. Researchers have explored various methods of fostering students' collaborative skills, highlighting the significance of teamwork in modern educational systems. According to Johnson and Johnson (2014), cooperative learning methods significantly improve students' communication, problem-solving, and critical-thinking abilities. They highlight that organized group activities not only enhance academic productivity but further foster social and emotional development.

The multi-vector approach, which integrates various pedagogical strategies, has emerged as a promising framework for nurturing collaborative skills in students. Vygotsky's (1978) social development theory underlines the importance of social interaction in learning processes. His concept of the "zone of proximal development" (ZPD) suggests that students learn more effectively when working with peers, as they can scaffold each other's understanding of complex concepts. This is consistent with the multi-vector approach, in which peer collaboration is central to the enhancement of skills.

Additionally, research by Slavin (1995) on cooperative learning techniques points to the value of structured group work.

His findings indicate that students who engage in group tasks outperform those who work individually, especially in terms of problem-solving and critical thinking. Slavin's research supports the notion that collaboration not only enhances academic success but also equips students for effective teamwork in real-world scenarios.

In terms of interdisciplinary learning, Bransford et al. (2000) argue that exposure to various subjects encourages students to make connections between different areas of knowledge, which in turn enhances their collaborative and analytical capabilities. The multi-vector approach integrates this interdisciplinary framework, allowing students to engage with diverse perspectives and ideas, thus fostering a more holistic approach to problem-solving.

Moreover, the role of teachers in facilitating collaborative learning has been a key focus of educational research. According to Darling-Hammond et al. (2019), educators must create an environment that encourages open communication, mutual respect, and shared responsibility among students. Teachers act as facilitators, guiding students through complex tasks and helping them develop the skills necessary for effective collaboration.

Despite the abundance of research supporting collaborative learning, there are still gaps in understanding how the multi-vector approach can be systematically applied across different educational contexts. This paper seeks to address these gaps by exploring the pedagogical mechanisms within the multi-vector approach that promote the development of collaborative skills among students.

## **METHODOLOGY**

This study utilizes a mixed-methods approach to explore the pedagogical mechanisms for developing students' collaborative skills through the multi-vector approach. By combining both qualitative and quantitative research methods, the study seeks to gain a comprehensive understanding of the effectiveness of this educational framework in real-world classroom settings.

### **1. Participants**

The research was conducted in three secondary schools across Uzbekistan, involving 120 students from grades 9 to 11. These students were divided into two groups: a control group, which followed traditional teaching methods, and an experimental group, which implemented the multi-vector approach. In addition, 10 educators with over five years of teaching experience were involved in the study to apply and monitor the new pedagogical strategies.

### **2. Research Design**

The study was carried out over one academic year, from September 2023 to June 2024.

The multi-vector approach was introduced in the experimental group's classrooms, where the focus was on promoting collaborative learning through various pedagogical methods such as group projects, peer reviews, and interdisciplinary tasks. The control group, on the other hand, followed standard lecture-based instruction.

### **3. Data Collection Methods**

Data was collected using a combination of the following methods:

- **Pre- and post-tests:** To measure the impact of the multi-vector approach on students' collaborative skills, both the control and experimental groups were given pre-tests at the beginning of the academic year and post-tests at the end. The tests assessed students' ability to work in teams, communicate effectively, and solve problems collaboratively.

- **Observation:** Classroom observations were conducted to evaluate how students in the experimental group interacted during collaborative tasks. This qualitative data provided insights into the dynamics of teamwork, communication, and peer-to-peer learning.

- **Teacher interviews:** Semi-structured interviews with the teachers involved in the experimental group were held at the end of the study. These interviews focused on their experiences with the multi-vector approach, its challenges, and their perceptions of its effectiveness in fostering collaboration among students.

- **Student surveys:** Both groups were given surveys to gauge their perceptions of the learning environment and their confidence in working with others. The surveys focused on aspects such as teamwork, communication, and the value of collaborative tasks.

### **4. Data Analysis**

The data from the pre-and post-tests were analyzed using statistical methods to determine the significance of any differences in the development of collaborative skills between the control and experimental groups. A t-test was conducted to compare the means of the two groups and assess the effectiveness of the multi-vector approach.

The qualitative data from observations, teacher interviews, and student surveys were analyzed using thematic analysis. This method allowed the researchers to identify key themes, such as communication patterns, problem-solving strategies, and the overall engagement of students in collaborative tasks. The qualitative findings provided a deeper context and understanding of the quantitative results.

### **5. Ethical Considerations**

Ethical approval for the study was obtained from the Ministry of Education of Uzbekistan. Informed consent was secured from all participants, including students, parents, and teachers. All personal data were anonymized to protect the privacy of the participants.

### **Conclusion**

In conclusion, this article is devoted to improving students' cooperation skills through modern psychological training and pedagogical methods in education. We believe that it is appropriate to use cooperative learning methods in creating a new system based on multi-vector approaches in education. We will further increase the effectiveness of education by forming students' worldviews, improving their cooperation skills, and consolidating their knowledge through psychological training. Through this study, we examined the most effective method of group and collective learning. We put forward the idea that this increases students' ability to remember the acquired knowledge, helps them think freely, reason, and make decisions. During this study, we conducted interviews with students through psychological training and listened to their opinions.

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