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Team Building Technologies in the Teacher Training Paradigm

Summary
The article examines the specific features and effective approaches of developing team building skills in future teachers during their professional training, to enhance their competence and ability to work effectively in a team. The design and implementation of effective models and methods for cultivating team building skills in the process of teacher education will contribute to improving the quality of professional training, strengthening graduates' competitiveness, and fostering the advancement and renewal of contemporary pedagogical practices. The research is grounded in a systems approach, the didactic principles of contemporary pedagogy, and the ideas of a competence-based approach to the professional training of future teachers.

Keywords: team building skills, future teachers, team building technology

1. Introduction

Accordingly, the psychological and pedagogical training of future teachers should be directed toward the development of universal competences, with particular emphasis on acquiring team building skills. Future teachers are expected to demonstrate a high level of team building proficiency, including the ability to cooperate, communicate effectively, engage in collective decision-making, and manage conflicts within the educational process. However, the current system of professional preparation in higher education institutions is insufficiently oriented toward the systematic development of these competences, resulting in limited student readiness to work productively in teams within real professional and pedagogical contexts.

The limited theoretical elaboration, coupled with the absence of well-defined methodologies and models for implementing educational programs aimed at developing team building skills in prospective teachers, poses significant challenges to the preparation of highly qualified professionals. The practical significance of this research lies in the development of innovative educational programs focused on the enhancement of soft skills through training sessions and game-based methodologies, the integration of real-life cases provided by employer partners, as well as the assessment of teacher training effectiveness by means of simulation-based learning. The design and implementation of effective models and methods for cultivating team building skills in the process of teacher education will contribute to improving the quality of professional training, strengthening graduates' competitiveness in the labor market, and fostering the advancement and renewal of contemporary pedagogical practices.

The purpose of this article is to examine the specific features and effective approaches of developing team building skills in future teachers during their professional training, to enhance their competence and ability to work effectively in a team. The objective of the study is to elaborate on theoretical foundations and provide practical recommendations for the formation of team building skills in future teachers throughout the process of professional training. Such an approach is intended to ensure a high level of student

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readiness for team-based collaboration and for addressing the complex challenges of contemporary pedagogical practice.

2. Research methodology

To achieve the objectives of the study, a comprehensive methodological framework was adopted, combining theoretical analysis, empirical research, and pedagogical experimentation. This approach enables a thorough investigation of the process of developing teamwork skills in future teachers and facilitates the design of effective strategies for their enhancement. The methodological foundation of the research is grounded in a systems approach, the didactic principles of contemporary pedagogy, and the ideas of a competence-based approach to the professional training of future teachers.

Instruments and procedures

The main research methods employed in the study include theoretical analysis and the synthesis of literature sources, which allowed for the examination of contemporary approaches to the development of team building skills, the identification of key concepts, the analysis of pedagogical technologies, and the formulation of the conceptual framework of the research. To assess the level of team building skills among students and their needs for the development of relevant competences, surveys and questionnaires were administered. Additionally, interviews were conducted to gain an in-depth understanding of teachers' perspectives and experiences regarding the technologies and methods used to cultivate team building skills.

A significant role in the research was played by the pedagogical experiment, during which the developed program for the development of team building skills was implemented. The experiment employed pedagogical technologies such as project-based learning, the case method, role-playing, and group assignments, all of which contributed to the formation of students' team building competencies. To monitor the process of developing team building skills during practical classes and project work, the method of pedagogical observation was used. Additionally, the results of students' assignments, presentations, and projects were analyzed to assess the level of acquired team building competencies.

3. Results

One of the key stages of the study was the analysis of contemporary scientific literature and regulatory documents, which confirmed the high relevance of developing team building skills in the context of teacher training. It was found that modern pedagogical models and technologies, including project-based learning, case studies, team training, and interactive methods, have significant potential for the effective formation of relevant competencies. This allowed the formulation of criteria and indicators for assessing the level of team building skills, which became the basis for further empirical research.

According to the survey results, the average score for the level of team building skills was 3.2 out of 5. This indicates a medium level of competence in this area but also points to significant potential for improvement. Analysis of response distribution showed that students who actively engaged in practical and project-based tasks demonstrated better results (average score – 4.2), which supports the hypothesis of a positive effect of active pedagogical technologies.

The study data indicate that the use of pedagogical approaches such as project-based learning, case studies, and team training significantly enhances the development of team building skills. Specifically, students who regularly worked in small groups achieved an average score of 4.0–4.2, whereas those who primarily attended lecture-based sessions without active practice scored 2.3–2.8. This confirms that active methods are more effective for developing team building competencies. The level of application of skills in real or simulated situations was assessed through case studies and project work. On average, this indicator scored 3.8 out of 5. At the same time, analysis of responses showed that students who participated in leadership and team communication training demonstrated better results (up to 4.2) compared to those without such experience (around 3.0). This confirms the importance of purposeful development of practical skills through specialized training.

Observations conducted during classes revealed that groups employing interactive methods were characterized by a high level of interaction, active participation of each member, and the presence of leadership initiatives. On average, the level of engagement was rated at 4.1 out of 5. In contrast, groups

using traditional methods demonstrated engagement levels of 2.5–3.0. Correlation analysis showed that the level of engagement in team activities has a significant positive correlation with the level of skill development ($r = 0.73$, $p < 0.01$). This confirms the hypothesis of a direct relationship between practical activity and the development of team building competencies.

Based on the obtained data, several key conclusions were formulated. First, active use of pedagogical technologies aimed at developing team building significantly increases the level of corresponding skills among students. Second, there is a direct relationship between the level of student engagement in team activities and their level of competence. Third, the application of interactive and practice-oriented methods is an effective tool for developing team building skills, which is supported by statistical data and expert evaluations.

The justification for these results is based on their alignment with contemporary pedagogical concepts and theoretical models of team competency development. The findings of the study highlight the necessity of actively applying interactive technologies in the process of teacher training to enhance their team building and leadership skills, which are key factors for their professional success.

4. Discussion

Modern society is characterized by the rapid advancement of technology, extensive digitalization, and the intensification of interdisciplinary interaction. The effectiveness of a teacher is increasingly determined not only by professional knowledge and personal qualities but also by the ability to collaborate within a team. Team building skills belong to the broader concept of soft skills, which has recently gained significant popularity both in education and in other fields. Soft skills involve a set of abilities, that is, various personal qualities and social competencies. Moss and Tilly interpret soft skills as a combination of personal traits, attitudes, and behavioral patterns that determine the effectiveness of interaction with others and the ability to adapt to different situations (Moss & Tilly, 1996). According to a large number of scientific experiments, there are stable personality traits that tend to dominate at a particular point in time or in a specific situation (Heckman & Kautz, 2012). Although stable personality traits have a tendency to persist under certain circumstances, they may change over the course of life. It is noted that certain personality traits can be strengthened by education, upbringing, and the environment, as well as depend on the combination of other traits and skills (Heckman & Kautz, 2012).

Despite the fact that soft skills are closely related to personality traits, they are not static because they can be adjusted and improved throughout life. Their development depends on educational progress and self-education; therefore, to cultivate such skills as leadership, teamwork, and emotional intelligence, an effective practice is to participate in non-formal education and informal learning activities, such as professional development courses, various trainings, and workshops.

Bruce Tuckman's model is one of the first and most well-known frameworks describing the stages of team development. The author proposed four stages of team collaboration to ensure its most effective functioning: 1) *forming* – appointment of a leader, assessment of team members, evaluation of capabilities; 2) *storming* – natural competition for leadership, search for compromises, uncertainty, emotions; 3) *norming* – establishment of rules and norms, emotional outbursts and conflicts subside, the team develops its working style to accomplish tasks; 4) *performing* – maximum productivity and coordination within the team, well-established relationships.

Later, the author complemented the model with a fifth decisive stage called *adjourning*, emphasizing the importance of self-assessment and reflection on achieved results. This stage is characterized by a sense of accomplishment that the task has been completed, but may also involve anxiety related to the dissolution and separation of the team.

A significant number of researches have focused on examining how the professional atmosphere within a team influences its achievements and collective outcomes. Jehn, Rispens, and Thatcher interpret group atmosphere as the favorable disposition and state of team members in the course of joint activity, reflecting the level of trust, mutual respect, and commitment among its participants (Jehn et al., 2010). Key factors in defining professional atmosphere include active empathy, tolerance toward judgments,

courage, mutual trust, and mutual support among team members. Among the first scholars to investigate the concept of group atmosphere and internal conflict were Jehn, Rispens and Thatcher.

They identified the following factors: trust, respect, cohesion, norms of open conflict discussion, and sympathy toward other group members. Research shows that the team's social environment, such as atmosphere and leadership, are two complementary factors that are interrelated and directly influence knowledge sharing (He et al., 2018). A sense of belonging to a common cause and unity contributes to more effective team building. Once a team member feels this sense of belonging, the motivation to perform tasks more productively increases. Yajiong Xue, John Bradley, and Huigang Liang emphasize the importance of normative pressure, which arises from cohesion and mutual trust among team members (Xue et al., 2011).

According to the study by Zárraga and Bonache, initiatives for knowledge transfer and creation, such as active involvement of a leader or coordinator within the work team, reward systems linked to knowledge sharing, training in teamwork, and corporate social activities – contribute to fostering an appropriate team atmosphere. Teamwork training primarily influences individuals' courage, as well as active empathy and tolerance in judgments within the workplace, but it does not affect mutual trust or mutual support (Zárraga & Bonache, 2005). The development of a pleasant professional atmosphere is not only a factor of emotional comfort but also an important determinant of team effectiveness. Under conditions of constant change and the transition to remote forms of work, building a trustworthy atmosphere becomes an increasingly challenging task for managers. Therefore, this issue requires new approaches to managing team dynamics. On the one hand, the use of digital tools facilitates coordination and knowledge sharing; on the other hand, it reduces the level of direct communication, which affects the team atmosphere. In this context, interpersonal relationships tend to play a lesser role compared to traditional teams. Digital teamwork relies more on task execution; hence, to maintain team cohesion, it becomes essential to work on creating an online space for informal communication.

The absence of trust emerges as a fundamental problem that makes openness, acknowledgment of personal mistakes, and constructive feedback impossible. The first deficiency becomes the foundation for the second. In conditions of distrust, team members tend to avoid discussions, fearing judgment or misunderstanding, which generates a fear of conflicts. The lack of trust among team members does not foster open debate, the exchange of arguments and counterarguments, but rather entrenches the fear of conflict. Such fear prevents the free exchange of opinions and lowers the level of engagement in the collective decision-making process. Consequently, participants do not feel personally involved in achieving the goal, which leads to their distancing from shared responsibility.

According to Fajaryati and Akhyar (2020) and Sokhanvar (2021), team building skills are essential for the professional activity of future specialists. These include the ability to solve problems, communicate effectively, and find compromises, all of which are necessary in the learning process. The work of a teacher is not limited to the one-way passive transfer of knowledge and information from teacher to student; it also involves interaction with colleagues, administrators, students, and parents in order to create a supportive learning environment. Collaboration skills include the following sub-skills: 1) team teaching with other teachers to create integrated and interdisciplinary lessons; 2) professional learning communities, through which teachers can share effective practices and solve educational challenges; 3) parent and teacher collaboration to build partnerships and ensure effective communication between schools and parents; 4) professional development, achieved through active participation in professional development activities, seminars, and conferences to improve and update teaching practices; 5) adaptability, which has become increasingly important with the advancement of new technologies, teaching methods, and pedagogical approaches (Perumal et al., 2024).

Analyzing the issues of developing team competencies in the process of professional training, Melnyk emphasizes the modern methods and technologies for developing teamwork skills, in particular interactive, game-based, and project technologies, as well as their role in professional training (Melnyk, 2020). A lot of scientists demonstrate the potential of web technologies for developing critical thinking, but their application for developing team building

skills remains unexplored (Shekhavtsova et. al., 2021). The scientific works (Salas et al., 2015) analyze the role of team building in the development of leadership qualities and managerial effectiveness in the corporate environment. Kruse's study (2013) demonstrates that active learning through team activities contributes to enhancing students' motivation and developing communication skills. Moreover, some scientific works (Johnson et al., 2018) emphasize the importance of using digital platforms and simulations in teaching team building, which is particularly relevant in the context of distance education.

The educational process largely depends on the effectiveness of teachers as a team, who are considered key building blocks of local school governance. If teachers lack collaboration skills, this may result in communication breakdowns, a decline in the quality of the learning process, and difficulties in achieving shared educational goals. The absence of team building limits experience exchange, peer support, and the implementation of innovative methods and technologies, which negatively affects the overall effectiveness of the school environment.

Team building skills help teachers avoid stagnation in their professional development, enabling them to quickly adapt to new educational trends, effectively integrate innovative technologies into the teaching process, and solve academic problems. Moreover, teamwork not only improves interpersonal relationships within the school community but also fosters the development of integrated teaching methods, which positively influence the overall effectiveness of the educational process.

5. Conclusions

Based on the conducted study, it can be concluded that the level of team building skills among students currently remains at an average level. However, the use of modern pedagogical technologies, such as project-based learning, case studies, team training, and small group work, significantly enhances the development of these skills. Analysis of the results showed that active student participation in team activities contributes not only to the formation of theoretical knowledge but also to the practical ability to apply it in real situations, which is crucial for successful professional performance. The relationship between the level of student engagement in teamwork and the quality of developed skills is statistically significant, confirming the effectiveness of active pedagogical approaches. This indicates the need for a systematic implementation of innovative methods into the educational process to improve its quality.

Based on the study, it is recommended to improve curricula and teaching methods, considering modern requirements for preparing future teachers, focusing on the development of team building skills. First, more practical cases, project assignments, and simulation games should be integrated into the educational process, allowing students to apply theoretical knowledge in real situations and develop collaboration and team building skills. Second, the use of modern digital platforms, online collaboration tools, and innovative pedagogical technologies should be intensified to promote team interaction in remote or blended formats.

Furthermore, it is advisable to introduce dedicated modules aimed at developing emotional intelligence, communication skills, conflict resolution, and team motivation. This will help students better understand themselves and their colleagues, which is essential for effective teamwork. Additionally, organizing training sessions, workshops, and seminars on leadership, project, and team dynamics will further strengthen students' practical skills. Implementing a system of feedback and reflection after completing team tasks will enable analysis of personal and collective outcomes and the setting of goals for improvement.

It is also recommended to encourage interdisciplinary projects and collaborations with the pedagogical community, which will allow students to gain real team-working experience and better understand the current teacher demands. Overall, the improvement of curricula and teaching methods should aim at creating a flexible, interactive, and practice-oriented system that effectively develops key team building skills in future teachers.

Future research prospects include the development of new methods and technologies for more effective team building skills formation, as well as studying their long-term impact. Another important direction is investigating the role of digital technologies, including online platforms and virtual training, in fostering team building. Additionally, it is advisable to create more objective diagnostic tools for assessing

the level of team building skills, allowing for broader practical application and more accurate evaluation of student competencies.

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