

Smart Interaction: Sports Communication as the Key to Success in Physical Education in Elementary Schools

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ABSTRAK

Meningkatnya keragaman kebutuhan dan gaya belajar siswa dalam pendidikan jasmani mendorong perlunya eksplorasi teknik komunikasi olahraga yang efektif untuk meningkatkan keterlibatan siswa dan hasil belajar di sekolah dasar. Penelitian ini bertujuan untuk mengeksplorasi dan mengimplementasikan teknik komunikasi olahraga yang holistik dan adaptif dalam pendidikan jasmani, serta mengevaluasi dampaknya terhadap keterlibatan dan prestasi siswa. Metode studi kasus dipilih untuk mendapatkan wawasan mendalam mengenai praktik komunikasi. Penelitian ini melibatkan observasi langsung, wawancara semi-struktural dengan 5 guru pendidikan jasmani dan 30 siswa, serta analisis dokumen. Subjek penelitian terdiri dari guru pendidikan jasmani dan siswa, dengan pendekatan analisis tematik secara kualitatif untuk mengidentifikasi pola dan tema utama. Hasil penelitian menunjukkan bahwa teknik komunikasi yang diterapkan oleh guru berperan penting dalam efektivitas pembelajaran, di mana metode tradisional sering kali terbatas pada interaksi satu arah. Sementara itu, teknik komunikasi digital meningkatkan fleksibilitas dan interaktivitas. Penelitian ini menekankan perlunya strategi komunikasi yang adaptif dan inklusif serta pelatihan bagi guru, yang diharapkan dapat meningkatkan kualitas pendidikan jasmani dan menciptakan lingkungan belajar yang lebih efektif untuk semua siswa.

ABSTRACT

The increasing diversity of student needs and learning styles in physical education necessitates the exploration of effective sports communication techniques to enhance student engagement and learning outcomes in elementary schools. This research aims to explore and implement holistic and adaptive sports communication techniques in physical education and evaluate their impact on student engagement and achievement. A case study method was chosen to gain in-depth insights into communication practices. This study involved direct observations, semi-structured interviews with 5 physical education teachers and 30 students, as well as document analysis. The subjects of the research included physical education teachers and students, employing a qualitative thematic analysis approach to identify key patterns and themes. The findings indicate that the communication techniques applied by teachers play a crucial role in the effectiveness of learning, where traditional methods often limit interactions to one-way communication. In contrast, digital communication techniques enhance flexibility and interactivity. This research underscores the need for adaptive and inclusive communication strategies, along with teacher training, which is expected to improve the quality of physical education and create a more effective learning environment for all students.

1. INTRODUCTION

The issue in implementing effective sports communication in elementary schools involves several critical factors affecting the success of physical education (Harvey et al., 2020; Jeong & So, 2020). One of the primary challenges is the lack of clear and structured interaction between teachers and students, often due to the limited communication skills of teachers in delivering instructions and providing appropriate feedback. As a result, students struggle to understand motor tasks and basic sports concepts. Additionally, the low level of interactive communication reduces students' active participation, which impacts their cognitive, affective, and psychomotor skill development (Abbasi et al., 2023; Enoch et al., 2022). The absence of an adaptive communicative approach further diminishes student motivation, ultimately affecting

the quality of learning and the achievement of physical education goals. The urgency of this research lies in the importance of effective sports communication in physical education at the elementary school level, which directly impacts students' holistic development, including their physical, cognitive, and socio-emotional abilities. Given that physical education plays a vital role in shaping students' character and fitness from an early age, interactive and adaptive communication becomes crucial to ensure that learning occurs effectively and enjoyably (Claudia, 2022; Nthibeli et al., 2022). A lack of good communication between teachers and students can lead to disengagement, low motivation, and difficulties in understanding instructions and learning objectives, thus affecting the desired outcomes. The focus of this research is to analyze how smart interaction and effective communication between teachers and students can enhance the quality of physical education learning. This study will also highlight the communication strategies used by teachers to facilitate students' understanding of sports concepts while exploring the impact on student engagement, motivation, and the development of motor and social skills.

This research is supported by both empirical and theoretical evidence that highlights the significance of effective communication in physical education. Empirically, studies have shown that clear and interactive communication between teachers and students significantly improves student engagement, motivation, and learning outcomes in physical education (Gaspar et al., 2021; González-Peño et al., 2021). For example, research indicates that students who receive clear instructions and constructive feedback are more likely to develop motor skills effectively and participate actively in physical activities. Additionally, interactive communication has been found to foster a positive learning environment, enhancing students' social interactions and teamwork. Theoretically, this research is grounded in the concept of social learning theory, which emphasizes the role of interaction and communication in skill acquisition and behavior development. According to this theory, students learn by observing and interacting with their teachers and peers, making communication a crucial factor in the learning process (Qureshi et al., 2021; Xie & Derakhshan, 2021). Furthermore, educational theories on motivation suggest that students are more motivated to learn when they feel understood and supported through clear communication. These theoretical frameworks provide a solid foundation for exploring how effective communication can be a key driver of success in physical education.

In the current digital era, physical education in elementary schools faces new challenges and opportunities that have never existed before. Technology has changed the way we communicate and interact, including in the context of physical education. Sports communication, as an important aspect in physical education learning, plays a key role in building effective interactions between teachers and students (Charlina et al., 2024; Harvey et al., 2020; Varea et al., 2022). Through intelligent communication, teachers can convey instructions more clearly, motivate students, and build a positive and inclusive learning atmosphere. Effective communication in physical education is not just about conveying information, but also about building strong, supportive relationships with students (M. A. Griffiths et al., 2022; Xie & Derakhshan, 2021). Teachers must be able to understand the needs and characteristics of their students, as well as use appropriate communication techniques to increase student engagement and participation in physical activities (Harris et al., 2022; Heilporn et al., 2021). In this case, sports communication can help teachers to explain learning objectives, provide constructive feedback, and motivate students to reach their best potential (Li & Singh, 2022; Luo et al., 2020). With the increasing use of technology in education, it is important to explore how digital media and modern communication tools can be used to support physical education learning (Haleem et al., 2022). The use of mobile applications, video tutorials, and e-learning platforms can be effective tools for enriching learning, providing more interactive instruction, and monitoring student progress (Corral Abad et al., 2021; Grubišić et al., 2020). However, the implementation of technology in physical education also presents its own challenges, such as the need for adequate digital skills for teachers and students, as well as the availability of adequate infrastructure (Barrera, 2022; Ferri et al., 2020).

Problems in the field related to sports communication in physical education in elementary schools are quite complex and varied. One of the main problems is the lack of effective communication skills among physical education teachers. Many teachers still rely on traditional communication methods which tend to be one-way and not interactive, so that students are less actively involved in the learning process (Jiang & Ning, 2023; Zhampeis et al., 2022). This causes a lack of student motivation and participation in physical activities, which ultimately has a negative impact on achieving learning goals. Students' individual differences in terms of physical abilities, interests and socio-cultural backgrounds also pose challenges in themselves. Students who have lower physical abilities or come from different backgrounds may feel less confident and less motivated to participate actively. Teachers often struggle to adapt communication methods and teaching approaches that can accommodate these differences. In addition, limited time in one learning session makes it difficult for teachers to provide individual attention to each student.

The use of technology in physical education also presents additional challenges. Although technology can be a very effective tool in enriching learning, not all schools have adequate infrastructure to support the use of digital tools. Apart from that, the varying digital skills of teachers and students also become an obstacle to optimal application of technology. Some teachers may feel insufficiently skilled or confident in using technology, while students who are unfamiliar with digital tools may find it difficult to keep up. Cultural and language barriers also often become problems in sports communication (Dottori & Sévigny, 2021; Hanrahan, 2023). In areas with cultural and linguistic diversity, teachers must be able to overcome these differences and find ways to communicate effectively with all students. This requires a deep understanding of students' socio-cultural context as well as the ability to adapt to varying communication needs.

Previous research on sports communication in physical education in elementary schools shows that effective communication between teachers and students greatly influences learning outcomes and student engagement. Study conducted by previous study found that the use of interactive and technology-based communication techniques can increase students' motivation and participation in physical activities (Zulkifli & Danis, 2022). Other research shows that teachers who use constructive feedback and student-centered communication methods are successful in creating more inclusive and supportive learning environments (Karasova & Nehyba, 2023). In addition, other research identified that communication barriers (Romijn et al., 2021), such as language and cultural differences, can be overcome through teacher training and professional development. Despite this, there are still limitations to the widespread adoption of the technology, as research reveals which highlights the infrastructure and digital skills challenges that need to be overcome to optimize communication in physical education (Webster et al., 2021).

Although previous research has demonstrated the importance of effective communication and the use of technology in physical education in elementary schools, there are several gaps that need to be addressed. Most research focuses on the effectiveness of specific communication techniques or the use of digital tools without exploring in depth how teachers can overcome communication barriers caused by students' individual differences, such as physical abilities, interests, and socio-cultural background. In addition, there is a lack of studies that examine communication strategies specific to elementary school contexts in areas with limited technological infrastructure. Research also has not explored the long-term impact of implementing effective sports communication on the development of students' social and emotional skills. This gap suggests the need for further research focused on developing holistic and adaptive approaches, which not only integrate technology but also consider the diversity of student needs and contextual challenges in the field.

This research offers a new contribution by integrating a holistic and adaptive sports communication approach in physical education in elementary schools, especially in the current digital era. In contrast to previous research which tends to focus on one aspect of communication or technology only, this study combines various communication techniques, both traditional and modern, and explores the effective use of digital media. This research also pays special attention to the challenges faced by teachers in diverse contexts, such as individual student differences, infrastructure limitations, and cultural barriers. By using the case study method, this research will dig deeper into how smart and inclusive communication strategies can be implemented practically in the field. In addition, this research will also evaluate the long-term impact of the communication approach applied on the development of students' social, emotional and physical skills. It is hoped that this comprehensive approach can provide more applicable practical guidance for teachers in improving the quality of physical education and building more effective interactions with students in the digital era. The aim of this research is to explore and implement holistic and adaptive sports communication techniques in physical education in elementary schools, as well as evaluate their impact on student engagement and achievement. In addition, this research aims to provide practical recommendations for teachers in overcoming communication challenges faced in the field and utilizing technology effectively.

2. METHOD

This research employs a qualitative approach with a case study method to explore and analyze the sports communication techniques used in physical education within elementary schools (Creswell, 2017). The case study design is selected due to its capacity to offer comprehensive and detailed insights into communication practices within a specific context, allowing for a deeper understanding of how different communication methods affect learning outcomes. By focusing on particular schools and classrooms, the research can observe real-life interactions between teachers and students, examining how these interactions contribute to student engagement, skill development, and overall learning effectiveness. This

design also enables the identification of best practices in sports communication and the challenges faced in implementing them, providing a nuanced view of communication dynamics in physical education settings.

This research was carried out in Rawamangun District, East Jakarta, with research subjects at SDN Rawamangun 12 Pagi. The selection of this location was based on considerations to obtain relevant insights regarding the application of sports communication techniques in the context of physical education in densely populated urban environments. Rawamangun subdistrict, as an area of socio-economic diversity and high density, offers a unique context and allows researchers to explore the challenges and opportunities faced by schools in large cities. SDN Rawamangun 12 Pagi was chosen because of the diversity of its students and the uniqueness of its facilities, which reflect the conditions of basic education in an urban environment. This school represents a relevant environment for this study, with a variety of characteristics that influence communication practices in physical education. The research subjects consisted of physical education teachers and students at the school. The teachers were selected because of their experience in applying a variety of communication methods, both traditional and digital, which can provide in-depth insight into the techniques used and the challenges faced. Students, with varying levels of physical ability and interest in sport, were an important part of this research to understand how they responded to and engaged with the applied communication techniques. Through selecting specific locations and subjects, this research aims to provide a comprehensive picture of sports communication practices and their influence on learning effectiveness in elementary schools. The research subjects consisted of physical education teachers and students at the school. The teachers were selected based on their experience in applying various communication methods, both traditional and digital, which can provide in-depth insights into the techniques used and the challenges faced. Students, with varying levels of physical ability and interest in sports, were an important part of this research to understand how they responded to and engaged with the applied communication techniques. By selecting specific locations and subjects, this research aims to provide a comprehensive picture of sports communication practices and their influence on learning effectiveness in elementary schools.

The data for this research was collected through a combination of complementary methods to ensure a comprehensive analysis of sports communication techniques in physical education. Direct observations were conducted in classrooms and sports fields to monitor the communication methods utilized by teachers, the interactions between teachers and students, and the students' responses to given instructions. This observational approach enabled researchers to identify how communication techniques are applied in practice. Semi-structured interviews with physical education teachers were also carried out to gather insights regarding the communication strategies employed, the challenges faced, and the methods used to overcome these obstacles. Additionally, interviews with students provided valuable perspectives on the effectiveness of the communication they received. Furthermore, the analysis of documents such as lesson plans and teaching materials offered supplementary insights into how communication is structured and delivered within the learning context. The data collected from observations, interviews, and document analysis were subjected to qualitative thematic analysis, allowing researchers to identify main patterns and themes related to communication techniques, challenges encountered, and their impact on the learning process. This analytical framework facilitated an evaluation of the advantages and disadvantages of various communication methods, as well as their influence on teacher-student interactions. By organizing the data into key themes, the research provides an in-depth understanding of the factors that affect the effectiveness of communication in physical education and how these techniques influence student engagement and comprehension.

The results of data analysis are used to evaluate the effectiveness of various communication techniques applied in physical education learning. Researchers compared traditional with digital communication methods, assessing how each method affected student engagement and understanding of the material. Additionally, adaptive and inclusive communication strategies are analyzed to determine how they help overcome challenges faced by students and teachers. This evaluation provides insight into best practices in sports communication and provides the basis for recommendations to improve the quality of physical education instruction. The research results are prepared in the form of a case study report which includes a detailed description of the context, communication techniques applied, challenges faced, and strategies used by teachers. The discussion in the report highlights the main findings of the research and their implications for physical education practice, as well as providing practical recommendations for improving communication in this context. The report also includes suggestions for further research, including exploration of the application of communication techniques in different contexts and the long-term impact of effective communication approaches. Thus, this research provides a comprehensive picture of sports communication in physical education and its contribution to student learning.

3. RESULT AND DISCUSSION

Result

This study highlights the crucial role of sports communication in enhancing the effectiveness of physical education in elementary schools. Focusing on the implementation of intelligent and adaptive communication techniques, the research aims to explore how communication methods impact student engagement and learning outcomes. Before delving into the results and discussion, it is important to understand the context in which this study was conducted—at SDN Rawamangun 12 Pagi in East Jakarta. This location was chosen to provide relevant insights into the challenges and opportunities of sports communication in an urban environment characterized by social and economic diversity. Using a case study approach, the research analyzes the communication techniques employed by teachers and the responses of students to these methods. The findings are expected to offer a comprehensive view of how effective communication strategies can influence the success of physical education and provide practical recommendations for improving teaching quality in elementary schools. Comparison of communication methods in physical education is show in [Table 1](#).

Table 1. Comparison of Communication Methods in Physical Education

Aspect	Traditional Communication Methods	Digital Communication Methods
Verbal Instructions	Direct instruction in the field	Voice messages via mobile application
Live Demonstration	The teacher demonstrates movements and techniques directly	Video tutorials accessed via e-learning platforms
Teacher-Student Interaction	Face-to-face discussions and immediate feedback	Chat and online discussion forums
Learning materials	Use of textbooks and printed materials	Digital modules and multimedia presentations
Student Motivation	Giving direct praise and encouragement	Gamification and digital awarding of badges/certificates
Monitoring and Evaluation	Direct observation and physical assessment	Use of applications for tracking student progress and data-based evaluation
Challenges Faced	Limitations in reaching all students at once	Limited technological infrastructure and digital skills of students/teachers
Impact on Student Engagement	Students are more involved in direct activities but are limited in time and place	Increased engagement through access to materials anytime and anywhere, but requires additional guidance

[Table 1](#) compares traditional and digital communication methods in physical education in elementary schools. Traditional methods such as verbal instructions and live demonstrations provide effective face-to-face interaction, but are limited by time and place. In contrast, digital methods use voice messages and video tutorials that can be accessed at any time, expanding learning flexibility. Teacher-student interaction can also be done through chat and online forums, while learning material is presented in the form of digital and multimedia modules. Although digital methods increase student engagement through wider access and motivation through gamification, challenges such as limited technological infrastructure and digital skills remain. Monitoring student progress is carried out directly in traditional methods, while digital methods use applications for data-based evaluation. Adaptive approaches and use of technology in sports communication is show in [Table 2](#).

Table 2. Adaptive Approaches and Use of Technology in Sports Communication

Aspect	Description	Research result
Adaptive Approach	Strategies implemented by teachers to adapt communication methods to individual student needs.	<ul style="list-style-type: none"> - Teachers use an individual approach in providing instruction, such as adjusting the speed and method of delivering material according to students' abilities. - Teachers utilize body language and visual cues to help students who have difficulty understanding verbal instructions.

Aspect	Description	Research result
Use of Technology	How teachers integrate technology in communication and its impact on student engagement.	<ul style="list-style-type: none"> - Use of collaborative methods to engage students in group discussions, so students can learn from each other and improve their social skills. - Teachers provide specific and constructive feedback to help students understand strengths and areas for improvement. - Use of mobile applications to provide step-by-step instructions that students can access at any time, increasing flexibility in learning. - Video tutorials are used as visual aids to clarify sports techniques, helping students learn better through visualization. - The e-learning platform is used to store learning materials and additional exercises, allowing students to study independently outside of school hours. - The positive impact of using technology can be seen from increasing student motivation and participation, because they feel more involved and interested in learning.

Table 2 describes two important aspects in sports communication research in physical education in elementary schools: adaptive approaches and the use of technology. Teachers apply adaptive strategies by adjusting communication methods according to students' individual needs, such as adjusting the speed and method of delivering material, using body language and visual cues to aid understanding, and implementing collaborative methods in group discussions to improve students' social skills. Additionally, teachers provide specific and constructive feedback. In the use of technology, teachers integrate mobile applications, video tutorials, and e-learning platforms to increase flexibility and student engagement. The mobile app provides step-by-step instructions that can be accessed at any time, while video tutorials help students understand exercise techniques through visualization. The e-learning platform stores additional learning materials for independent learning outside school hours. The positive impact of using technology can be seen from increased motivation and participation of students, who feel more involved and interested in learning. Effect of sports communication on students is show in Table 3.

Table 3. Effect of Sports Communication on Students

Research Aspect	Indicator	Results
Student Engagement	Participation in Physical Activities Student Motivation	Increased student participation in physical activities after implementing interactive communication techniques. Students show higher motivation to actively participate in physical activities.
Student achievement	Learning outcomes Student Achievement	Increased student learning outcomes in physical education material after using the adaptive communication approach. Students achieve significant improvements in physical skills and physical-related knowledge.
Social Skills	Interaction with Peers Collaboration in Groups	Increasing students' ability to interact positively and collaborate with peers. Students are more active and effective in working together in physical group activities.
Emotional Skills	Emotional Wellbeing Confidence	Students demonstrate better emotional well-being, feeling more comfortable and confident in physical activity. Increasing students' self-confidence in participating and facing challenges in physical activities.

Table 3 illustrates the influence of sports communication techniques on students' involvement, achievement, and social and emotional skills in physical education in elementary schools. The research results showed that the application of interactive and adaptive communication techniques succeeded in increasing student participation and motivation in physical activities. In addition, the use of effective communication approaches also has a positive impact on student learning outcomes and achievement, which can be seen from increasing physical skills and physical-related knowledge. In the social aspect, students show better abilities in interacting with peers and collaborating in groups. On the emotional side,

effective communication helps improve students' emotional well-being, making them feel more comfortable and confident in physical activities. Overall, this research confirms the importance of intelligent and inclusive communication strategies in physical education to support students' holistic development. A practical recommendation for improving communication in physical education is show in [Table 4](#).

Table 4. Practical Recommendations for Improving Communication in Physical Education

Aspect	Recommendation
Strategies for Teachers	Application of Interactive Communication Techniques: Use communication methods that actively involve students, such as group discussions and direct feedback. Adjustment of Teaching Methods: Adjust communication techniques based on individual student needs to increase engagement and understanding Use of Technology: Integrate digital tools, such as educational apps and video tutorials, to support student instruction and motivation
Professional Development	Effective Communication Training: Hold regular training for teachers on effective and adaptive communication techniques in physical education. Educational Technology Workshop: Organize workshops to improve teachers' digital skills in using modern communication tools. Community of Practice: Form a professional community for physical education teachers to share experiences and successful communication strategies

[Table 4](#) provides practical recommendations for improving physical education practice with a focus on effective communication techniques and teacher professional development. Strategies for teachers include implementing interactive communication techniques, adapting teaching methods to student needs, and integrating technology to support instruction. On the other hand, professional development suggests effective communication training, educational technology workshops, and the creation of communities of practice to share experiences. These recommendations aim to improve the quality of communication in physical education, increase student engagement and learning outcomes, and strengthen teachers' professional skills.

Discussion

The communication techniques applied by physical education teachers are analyzed in detail to understand how traditional and digital methods contribute to learning effectiveness. Traditional communication methods involve verbal instruction, which includes direct explanations of activities or game rules, as well as live demonstrations, in which the teacher shows techniques or movements that students must follow ([Ehmer, 2021](#); [Samifanni, 2020](#)). Physical teaching materials, such as posters and whiteboards, are also used to illustrate key concepts, game rules, or visualize movements. This method allows for clear and direct communication but is often limited to one-way interaction and can be difficult to adapt to various student learning styles. On the other hand, digital communication methods bring a new dimension to the delivery of learning material ([Hinze et al., 2023](#); [Putri et al., 2020](#)). The use of mobile applications allows teachers to provide real-time instructions and feedback, as well as store teaching materials that students can access at any time. Video tutorials, provided by both teachers and external sources, provide visual examples that can help students better understand the technique or concept being taught. E-learning platforms, such as learning management systems (LMS), enable the integration of various learning resources, online discussions, and assignments that students can access flexibly ([Musbahtiti & Muhammad, 2013](#); [Ulanday et al., 2021](#)). This research evaluates how these techniques are applied in everyday learning contexts, assessing the advantages and disadvantages of each method, as well as how they influence interactions between teachers and students. By comparing the effectiveness of traditional and digital methods, this research aims to provide insight into how best to optimize communication in physical education and increase student engagement and understanding.

This research identifies and analyzes various challenges faced by teachers and students in the context of sports communication, which significantly influence the physical education learning process. One of the main challenges is the individual barriers that arise from the differences in students' physical abilities and interests. Students with varying physical abilities often have difficulty following instructions that are not adapted to their ability level, thus affecting the effectiveness of learning ([Chang et al., 2020](#); [Chew & Cerbin, 2021](#)). For example, students with lower motor skills may feel stressed or less confident when participating in activities designed for students with higher physical abilities. In addition, differences in students' interest in various types of sports can also cause unmotivation or uneven involvement in the activities taught ([Leyton-Román et al., 2020](#); [Van Doren et al., 2021](#)). Infrastructure limitations are another significant challenge faced in implementing more modern communication methods. Schools with limited

facilities often have difficulty accessing the technology needed for digital methods, such as mobile applications and e-learning platforms. A lack of hardware, such as computers or tablets, as well as inadequate internet connectivity, limits teachers' ability to utilize technology effectively in the learning process. This has an impact on the teacher's ability to deliver material in a more innovative and interactive way.

Cultural and linguistic differences among students also add complexity to sports communication (Dottori & Sévigny, 2021; Pedersen et al., 2020). In culturally and linguistically diverse classrooms, the instructions given may not always be clearly understood by all students. Students have difficulty understanding or identifying with the material presented if the instruction is not adapted to their cultural or linguistic background. Terms or concepts used in instruction do not have exact equivalents in the student's native language, causing confusion or misunderstanding (Kecskes, 2021; Yaacoub et al., 2021). This research explores how these challenges influence the learning process and the strategies implemented by teachers to overcome them. Teachers often face difficulties in adapting communication methods to individual student needs and existing infrastructure limitations. To overcome individual barriers, some teachers try to implement more inclusive approaches, such as providing more personalized instruction or using more visual communication techniques. In the case of limited infrastructure, teachers try to maximize available resources and look for creative solutions to integrate technology effectively (Rana & Rana, 2020; Valverde-Berrocoso et al., 2021). To overcome cultural and language differences, teachers may use visual aids or provide materials in multiple languages to ensure that all students can follow the lesson well.

This research reveals various communication strategies implemented by teachers to overcome the challenges they face. Adaptive approaches include adapting communication methods to individual student needs, such as providing clearer instructions or using visual aids for students with comprehension difficulties. The use of technology, such as mobile applications and video tutorials, is also an important part of this strategy. Evaluations are carried out to assess the extent to which these strategies are successful in increasing student engagement and understanding during learning. The research results revealed that the application of interactive and adaptive communication techniques had a significant impact on student engagement and achievement in physical education activities (Goodyear et al., 2023). Communication techniques that enable active interaction, such as the use of direct feedback and technology-based approaches, have been shown to increase students' motivation to participate more actively in various physical activities. By providing clearer, more supportive instructions and creating an inclusive environment, students feel more engaged and motivated to practice and learn (Molina Roldán et al., 2021; O'Leary et al., 2020). This method not only facilitates a better understanding of techniques and rules, but also increases students' confidence in their physical skills. In addition, an assessment of student learning outcomes shows that changes in communication methods have a positive impact on physical achievement and understanding of the material. Students who engage in learning that uses adaptive communication techniques show improvements in physical skills as well as better academic outcomes (Baafi, 2020; Glazkova et al., 2020). With more effective communication, students can more easily understand the material being taught, apply techniques correctly, and achieve learning goals. This research confirms that effective communication not only contributes to improving physical skills but also supports overall academic achievement, illustrates that good communication strategies are a key element in improving the quality of physical education.

The research results show that effective communication in physical education significantly influences students' ability to interact with peers and work in groups. Through interactive and inclusive communication methods, students not only receive clear instructions but also feel more involved in group activities. Good communication facilitates open discussion and collaboration, allowing students to share ideas, support each other, and complete tasks together more efficiently (A.-J. Griffiths et al., 2021; Molina Roldán et al., 2021). This contributes to the development of important social and collaborative skills, such as the ability to communicate, negotiate and resolve conflict in a constructive way. Apart from the social aspects, a supportive and inclusive communication approach also plays an important role in increasing students' self-confidence and emotional well-being. When teachers implement communication techniques that pay attention to students' individual feelings and needs, they create a positive and safe learning environment (Crooks et al., 2022; Ferreira et al., 2020). Students feel valued and supported, which in turn increases their self-confidence and reduces anxiety or discomfort during physical activities. This research provides insight into how effective sports communication not only influences students' engagement in learning but also contributes to healthy emotional development, preparing them for social and academic challenges outside the classroom.

Based on the research findings, practical recommendations proposed for physical education teachers include the use of adaptive communication strategies and effective integration of technology in learning. Adaptive communication techniques, which involve adapting teaching methods to individual

student needs, have been shown to increase student engagement and understanding. Teachers are expected to apply a variety of techniques, both traditional and digital, simultaneously, to meet different learning styles and student needs. The use of mobile applications, video tutorials, and e-learning platforms can provide additional flexibility and facilitate understanding of the material in a more interactive and engaging way. In addition, the research results emphasize the need for training and development of communication skills for physical education teachers. With proper training, teachers will be better able to adapt their communication techniques and use technology effectively to improve the quality of interactions with students. These recommendations aim to create a more inclusive and supportive learning environment, where every student feels cared for and motivated to actively participate in physical activities. Implementation of these recommendations is expected to not only improve learning outcomes, but also strengthen relationships between teachers and students, and create more meaningful and effective learning experiences. This research identifies several areas that need further research, such as the application of communication strategies in different contexts, including in areas with limited infrastructure. Additionally, long-term evaluation of the impact of effective sport communication on the development of students' social and emotional skills is a topic that requires further research. Implications for future research include deeper exploration of the adaptation of communication methods for various contexts and student populations, as well as the development of communication models that can be implemented widely to improve physical education learning outcomes.

The limitations of this research primarily arise from its focus on a single elementary school, SDN Rawamangun 12 Pagi, in East Jakarta, which may affect the generalizability of the findings to other contexts due to the unique socio-economic and cultural dynamics of the area. Additionally, the sample size, comprising only 5 physical education teachers and 30 students, may not adequately capture a diverse range of perspectives regarding sports communication techniques. The reliance on self-reported data from interviews could introduce bias based on participants' perceptions, while observational data may be influenced by the researcher's presence, potentially altering behavior during the study. To address these limitations, future research should adopt a multi-site approach to enhance the generalizability of findings, increase the sample size for broader insights, and employ a mixed-methods design to combine qualitative and quantitative data. Longitudinal studies would also be valuable in assessing the long-term effects of various communication techniques on students' experiences and achievements in physical education. The implications of this research for the development of the field of physical education are significant, as it highlights the critical role of effective sports communication techniques in enhancing student engagement and learning outcomes. By demonstrating that traditional communication methods often limit interaction and adaptability, while digital communication strategies increase flexibility and interactivity, the study provides valuable insights into best practices for educators. These findings encourage educators to adopt a more adaptive and inclusive approach to communication, recognizing the diverse needs of students in physical education settings. Furthermore, the research underscores the importance of integrating technology into teaching methods, which can foster not only physical skills but also social and emotional development among students. As the field of physical education evolves, this research contributes to the growing body of knowledge on the interplay between communication techniques and educational effectiveness, paving the way for future studies that explore innovative practices and their impacts on student learning in diverse contexts.

4. CONCLUSION

This research highlights the critical role of communication techniques employed by physical education teachers in enhancing the effectiveness of learning in elementary schools. It emphasizes that while traditional methods such as verbal instructions, live demonstrations, and physical instructional materials provide clarity, they often lead to one-way interactions that may not accommodate diverse student learning styles. In contrast, the integration of digital communication methods, including mobile applications, video tutorials, and e-learning platforms, introduces new dimensions of flexibility and interactivity into the educational process. These technologies empower teachers to deliver real-time instructions and present content in a more engaging and dynamic manner. The findings also underscore the challenges teachers face, including variations in students' physical abilities and interests, infrastructure constraints, and cultural and language differences. These factors can significantly impede effective communication and overall learning outcomes. To address these challenges, the research advocates for adaptive and inclusive communication strategies and encourages the maximization of technological resources. It offers practical recommendations, such as integrating communication techniques tailored to student needs and providing training for teachers to enhance their communication skills. Moreover, the research illustrates that adopting an interactive and adaptive communication approach fosters greater

student engagement and achievement in physical activities. Effective communication not only enhances students' understanding and physical skills but also contributes to the development of their social and emotional competencies. The study suggests a need for ongoing evaluation to assess the long-term effects of these communication methods and their applicability across different contexts. By implementing the outlined recommendations, there is a promising opportunity to elevate the quality of physical education, thereby creating a more effective and supportive learning environment for all students.

5. REFERENCES

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