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Challenges Faced by Institutes of Physical and Sports Education in Adopting Artificial Intelligence Technology

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Abstract:

The Article examines the challenges faced by the Institute of Physical and Sports Education in adopting Artificial Intelligence (AI) technology. It exposes a literature review and functioning as well as research problems, purpose and questions. Studies show that many teachers feel unprotected to integrate in their teaching practices due to lack of training, confidence and access to technology. Data complicates ethical concerns about privacy and complications of AI systems. Research emphasizes the need for comprehensive teacher training and institutional support to facilitate effective AI integration. Major findings indicate that while AI has the ability to increase personal learning and improve teaching efficiency, significant obstacles should be addressed to feel its benefits in sports education.

Keywords: Artificial Intelligence; Physical Education; Teacher Training; Technology Integration; Ethical Considerations.

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1. INTRODUCTION

Artificial Intelligence (AI), with significant implications for physical education (PE), is rapidly changing various fields including education. As educational methods develop, there is a growing expectation to include innovative technologies in their practices to improve the instructional effectiveness for teachers and increase the busyness of the student. AI provides a unique set of equipment and techniques designed to bring revolution in the PE instructions to provide personal educational experience, streamlined administrative tasks, and enhance the overall effectiveness of the learning environment. Integration of AI in physical education aligns with broad educational trends that emphasize individual learning, data-operated decision making and increased efficiency. Nevertheless, despite the promising progress brought by AI technologies, adequate challenges obstruct their adoption in sports education. Research suggests that many teachers feel unexpected and lack of confidence in using these advanced equipment within their teaching practices (as (Charret, 2023) and (Wang and Wang, 2024)). Concerns about the integration process, access to technology, and adequate training for trainers contribute to a hesitant to completely embrace AI. In addition, issues related to data protection and moral ideas should be addressed as educational institutions navigate the complex landscape of AI technology implementation.

AI intersection with various fields such as computer science, keysiology, and education opens the way for interdisciplinary cooperation, but also complicates the adoption process ((Jiang, 2014) and (Wang and Wang, 2024)). Teachers need to understand how to not only use these techniques, but to effectively integrate the basic principles behind them in their course. This requirement for comprehensive teacher training is important to equip teachers with the skills required to avail the benefits of AI while managing related challenges. Therefore, searching for these obstacles along with possible opportunities will give valuable insights on how sports education can use AI's abilities. A balanced understanding of both dimensions will increase our understanding of how artificial intelligence can be originally integrated into the PE course, addressing the concerns about its implementation.

1.1 Research Problem

Integration of Artificial Intelligence (AI) in sports education faces important obstacles. A primary issue is technological division among teachers, which lacks the skills required for effective AI applications with many physical education (PE)



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trainers. Jiang said that a conservative attitude towards change often inspires teachers to rely on traditional methods, remembering AI's ability. Teachers can be overwhelmed by AI technologies, which usually require special training that is not easily accessible.

Although there is increasing recognition of AI's ability to strengthen learning experiences - such as Wang et al. - The practical implementation in educational environments is still inconsistent. Current research suggests that AI has not yet realized its promise in sports education, and often focused on theoretical constructions instead of real applications, leaving a gap between theory and practice. Ethical concerns also challenge AI adoption, especially when it comes to privacy and dependence on automated assessment systems, as highlighted by Reis et al. Addressing these ethical dilemmas requires extensive guidelines for responsible AI use in education. Infrastructure limitations complicate further built -in AI in PE learning plans, as many schools lack the necessary technology. Despite the AIS transformative potential across different sectors, integration of it in sports education initiatives focuses on improving teacher education, establishing ethical standards, providing infrastructural resources and promoting an innovative educational environment. See references: (Reis et al., 2024) , (Jiang, 2014) and (Wang & Wang, 2024) .

1.2 Research Focus

The central goal of this study is to navigate the intricate landscape of AI adoption in sports education, with a special spotlight on infusion of technology for physical education (PE) practice. This research recognizes the rapid progress of AI technologies, including natural language treatment tools such as Chatgpt, and seeks to uncover both the outlook and hinder these innovations present in educational surroundings (as mentioned in (Genç, 2023)). Specifically, it tries to understand how AI can strengthen teaching efficiency, while cope with the obstacles that can prevent its effective implementation.

An important element of this exploration involves examining various social and technical factors that shape teachers' interaction with AI devices. The relationship between teachers' approaches, institutional support, and prevalent educational structure will be underlined as they significantly affect how AI can weave in PE programs (eg (Jha At Al., 2025) and (Wang and Wang, 2024)). The intention of study is to indicate important dimensions - such as technical barriers, conflicts in professional identity among teachers, and inadequate training about AI

resources - contributing to embrace these techniques. In addition, this research will turn into specific domains where AI PE can get considerable benefits for both teachers and students. These domains increase the engagement of students through state -of -the -art digital formats such as sequential training schemes, immediate performance evaluation, and virtual reality (as (Wang and Wang, 2024) have been deleted. To cultivate the intensive understanding of dynamics involved in development. Finally, this research is ready to throw light on the viable routes for successful AI integration, while offering insights that can guide future teacher training initiatives and policy-making efforts that are designed to nurture an adaptive educational landscape capable of using technological progress in sports education.

2. Literature Review

2.1 Overview of AI in Sports Education

Artificial intelligence (AI) is recognized as a transformative force in sports education, enhancing instructional methods and student engagement. Utilizing technologies like machine learning, AI analyzes vast datasets to improve physical education (PE) practices and personalize learning experiences. It plays a crucial role in curriculum development by tailoring content to fit each student's needs, fostering inclusivity ((Charrette, 2023)).

AI's integration into sports education is supported by technologies such as cloud computing, big data analytics, virtual reality (VR), and smart sensors. These tools facilitate the collection and analysis of performance metrics essential for improving teaching outcomes and athlete performance ((Wang & Wang, 2024)). AI's real-time data processing offers educators insights into student progress, enabling adjustments to teaching methods to accommodate diverse learning styles.

Current applications of AI in PE include injury prediction systems, performance analytics, and personalized coaching programs. These innovations enhance the educational experience and promote athlete safety by identifying potential risks ((Chmait & Westerbeek, 2021)). Furthermore, AI helps streamline administrative tasks, allowing educators more time for meaningful student interactions.

Despite the increasing interest in AI within PE, the research implementation indicates the existing intervals in strategies and teacher training ((Jiang, 2014)). These techniques are required to make efforts to develop framework to integrate responsibly in educational settings, teachers are equipped with skills to effectively

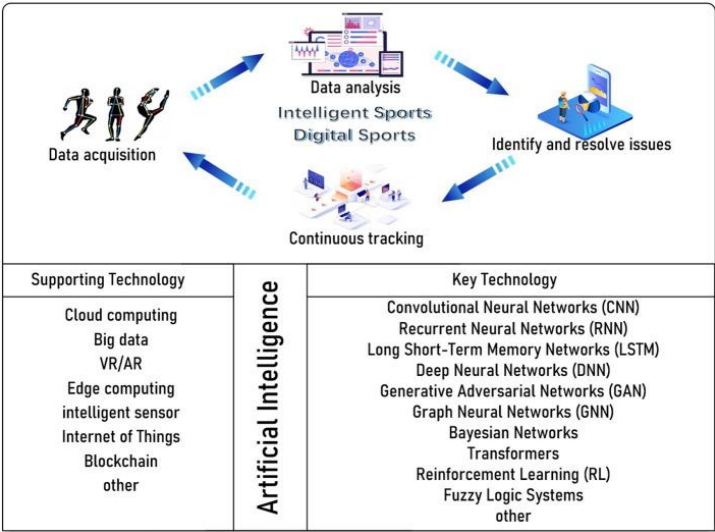


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use AI while maintaining moral standards.

In summary, AI's comprehensive application in sports education provides an exciting opportunity to reopen PE delivery, making it more dynamic and responsible for the needs of both teachers and students.

Fig 1. Open in a new tab AI in intelligent and digital sports



Source: Wang & Wang, 2024

Fig 2. Harnessing the Power of AI in Physical Education: Enhancing Efficiency and Effectiveness



Source: Charrette, 2023

Table 1. Specific application of AI teaching assistant system in the education

industry.

AI teaching assistant	Applicable field	Specific function
Assessments (America)	English comprehension, reading, and speaking	Formation of an audio-scoring system to assess students' emotional engagement during reading
Interactive (America)	Physics, biology, computer, reading and writing	Language teaching, student understanding identification, and emotional feedback
Auto Tutor (America)	Physics, science, mathematics, reading and writing	Diagnosis of the learning process and provision of individualized guidance to students
Polaris (China)	All subjects	Assessment of students' mastery of knowledge points, resource sharing, and testing of learning situations
101 education PPT	All subjects	Cloud storage resource database, teaching data recording, and learning situation analysis
Juku correction network	Composition writing	Correction of composition errors and sentence-by-sentence feedback

Source: Song, 2024, 4

2.2 Previous Studies on AI Adoption in Education

The incorporation of artificial intelligence (AI) in the educational landscape, especially within physical education (PE), is collecting speed, resulting in checking its effects and efficiency to the heaps of research. Many studies throw light on the fact that AI can enrich educational experiences by sewing learning opportunities and fine-tuning methods. For example, Zha et al. emphasized AI's capability to revolutionize PE instruction by creating customized training regimens and boosting student participation through smart classroom management systems ((Zha et al., 2025)). Additional research points to the deployment of AI tools that assist educators with real-time assessment of performance, thereby enhancing instructional effectiveness ((Charrette, 2023)).

Furthermore, literature reviews illustrate a significant enthusiasm for how AI technologies can tackle specific challenges in PE environments. Lee and Lee discovered that while AI shows promise for advancing student learning, hurdles



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related to technology integration—like software usability and educators' attitudes—can hinder effective implementation ((Lee & Lee, 2021)). They stressed the necessity for adaptive feedback mechanisms within AI frameworks to continually refine teaching approaches.

In-depth investigations also indicate that AI could revolutionize evaluation methods through analytics-based systems. For instance, Li et al. created a fuzzy evaluation framework that facilitates objective assessment of various PE instructional techniques ((Zha et al., 2025)). Additionally, Song's study introduced an intelligent assistance system meant for sports coaching which employs intricate network theories to enhance motion tracking and feedback delivery ((Song, 2024)).

Despite these promising developments, challenges remain concerning the adoption of AI technologies in educational settings. Researchers such as Wang et al. identified technical issues surrounding software complexity as significant barriers, revealing that educators' perceptions greatly affect their readiness to embrace new technologies ((Charrette, 2023)). This especially underlines the need for special business development aimed at understanding teachers' understanding and confidence in using AI devices. Beyond the dynamics of the classroom, with the impact of emerging technologies such as wearable devices, the PE practices are expected to further change by providing data-operated insights into the student performance. Literature reflects increasing awareness among teachers about the possible benefits of using these technologies to promote a more attractive learning environment among teachers.

2.3. Challenges and Opportunities Identified in Literature

Research sheds light on various challenges and opportunities associated with integrating artificial intelligence (AI) in sports education. A primary barrier is the initial stage of AI exploration in Physical Education (PE), the current study mainly focus on students learning and improving teaching methods. This narrow focus leaves significant gaps in areas such as sports management and technology integration, as mentioned in (Wang and Wang, 2024) and (Wang and Wang, 2024). Such limitations obstruct the ability to wide AI applications that address diverse athletic performance metrics.

Technical barriers also complicate the inclusion of AI in sports education. Many teachers lack the technical skills required to effectively use AI devices, causing obstacles in adoption. The complexity of the AI system often exceeds the

basic knowledge of PE teachers, which may seem challenging to integrate these innovations without adequate training according to (Jiang, 2014) . Additionally, moral ideas are required to pay attention to data usage and privacy; Ensuring fairness and transparency in AI applications is important for equitable access within sports contexts.

Conversely, by personalizing training in AI, the prediction of injury has the ability to improve the accuracy and streamline administrative functions and bring revolution in PE. Resource students such as Chatgpt can generate adapted exercise plans to increase engagement, as emphasized in (Genç, 2023) . Successful implementation depends on cooperation between technology experts and teachers, in collaboration with data analysis and technology associated with innovative teacher training programs focused on teaching functioning.

3. Materials and Methods (Instruments and Procedures)

This investigation used a comprehensive event approach to understand the experiences of teachers with AI in sports education. Data was mainly collected through focus group discussions designed to provide qualitative insight into teachers facing teachers when applying AI technologies. This method promoted lively interaction and collective understanding among the participants.

Participants were selected through purposive sampling, targeting primary school physical education instructors with at least three years of experience in technology-enhanced teaching. An initial open-ended questionnaire assessed their views on AI tools in education. Those skeptical about AI's effectiveness were invited to later focus groups, while snowball sampling expanded recruitment through recommendations from current members, ensuring diverse perspectives.

An expert panel reviewed the focus group protocol and open-ended questions to enhance clarity, relevance, and theoretical consistency. Sessions held in Nanjing and Chongqing included secondary moderators who noted non-verbal cues indicating engagement or discomfort, enriching the verbal feedback.

Focus groups addressed challenges related to technology, educators' attitudes toward AI, and organizational support for these technologies, lasting approximately 50 minutes each. Qualitative content analysis was conducted on audio-transcripts to identify themes reflecting teachers' experiences with AI implementation.

To ensure validity and reliability, member checking sessions allowed select participants to review findings, confirming that outcomes accurately represented



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their perspectives while maintaining a thorough audit trail of methodological choices.

Table 2. Semi-structured interview outline and questions.

Dimension	Key Questions / Main Focus Areas
Technology Dimension	- Technical difficulties (e.g., complex interfaces, unintuitive settings) - Missing or unsuitable features - Compatibility issues with existing equipment - Difficulty in learning and using tools - Mismatch between AI development and teachers' real needs
Teacher Dimension	- Teachers' attitudes (supportive, skeptical, or opposed) - Team discussion and interaction atmosphere - Evaluation of colleagues using AI - Impact on team collaboration - Internal disagreements over AI use
Tasks Dimension	- Changes in teaching tasks - Increased difficulty in certain tasks - Poor AI support in specific teaching activities - Disruption or lack of coordination in teaching processes - Mismatch between AI feedback and teaching goals
Organizational Structure	- Administrative pressure to use AI - Lack of resources and technical support - Unclear or frequently changing policies - Negative or unsupportive institutional culture - Lack of teacher involvement in decision-making
Additional Questions	- Reasons AI hasn't significantly improved teaching efficiency - Situations or factors hindering AI performance - Future expectations and suggestions for improvement

Source: Zha et al., 2025

4. Data Analysis

4.1 Techniques Used for Analysis

The data analysis for this study was carried out using qualitative content analysis, providing a flexible framework to interpret the complex and diverse experiences reported by participants regarding the integration of AI in sports education. A structured discussion format was utilized to guide the focus groups, allowing for a thorough investigation of both challenges and opportunities. The prompts designed aimed to elicit detailed responses, thereby ensuring a rich dataset from which themes could emerge.

To enhance the credibility of the findings, several strategies were implemented. Initially, a coding framework was developed and reviewed by three independent specialists from the fields of physical education and educational technology. Their feedback led to refinements in the categories used in the thematic analysis. Additional validation took place through member checking sessions with selected participants, enabling them to confirm the accuracy of the interpretations made by the research team.

The analysis progressed iteratively; each researcher independently examined the focus group transcripts before collaboratively aligning their codes during team meetings. This collective effort helped resolve discrepancies in coding and ensured consistency with the research objectives. The iterative nature of this approach not only deepened the analysis but also created a meticulous audit trail documenting all decisions made throughout the analytical process.

Furthermore, codes identified during initial reviews were organized into broader themes that reflected significant issues influencing perceptions related to AI's integration within physical education settings. This categorization process was guided by socio-technical systems theory, ensuring that both technological and pedagogical elements were thoughtfully considered in understanding teachers' encounters with AI technologies. Ultimately, these methodologies enabled a nuanced comprehension of how AI is perceived within sports education frameworks while addressing both technological challenges and pedagogical implications.

4.2 Summary of Key Findings from Analysis

The examination of the data uncovered numerous significant challenges and insights regarding the integration of artificial intelligence (AI) in sports education. Initially, participants during the focus group discussions voiced apprehensions that AI might impede teaching efficiency instead of fostering it. This contradiction spotlights a prevalent concern among educators who often feel inundated by emerging technologies, leading to hesitation or subpar implementation.



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Additionally, the qualitative content analysis highlighted the imperative for training and support systems to aid teachers in adapting to AI innovations.

Another noteworthy discovery from the study indicated that, despite AI tools like ChatGPT presenting vast opportunities for personalized training regimens and performance assessments in physical education environments, educators frequently lack the necessary knowledge and resources for effective application. The research points to a disconnect between the available AI resources and teachers' familiarity with these technologies, which can hinder their efficacy.

The diverse viewpoints garnered from expert interviews further underscored the necessity of synchronizing AI technology with educational objectives. These discussions revealed that successful incorporation of AI hinges not only on technical expertise but also on insights into human resource management and educational innovation within sports education settings.

Emerging frameworks like the Multi-feature Fuzzy Evaluation Model (MFEM-AI) offer intriguing methodologies for dynamically assessing teaching practices. However, concern was expressed about how to apply such systems that they could complicate the existing course without overwhelming teachers.

In summary, while AI technologies offer a lot of opportunities within sports education - such as increase in training technology and increase in students' engagement - comprehensive training programs and teachers have a significant need for ongoing support to navigate these infections.

5. Data Analysis Materials and Methods (Instruments and Procedures)

The research results reveal critical information about the challenges of AI integration in sports education. An important discovery is that many educators do not have a profound understanding of AI technologies and their applications for sports training, reflecting a broader question emphasized in previous studies on the need for directed professional development.

Table 3. Educators' Level of Understanding of AI Technologies

Level of Understanding	Number of Respondents	Percentage
Very Good	8	8%
Moderate	30	30%
Weak	45	45%

None	17	17%
Total	100	100%

In addition, some educators exhibit resistance due to fears that AI can replace traditional teaching methods or reduce personal interactions with students. This aligns with past literature, highlighting the fears of job displacement as barriers to technological adoption in education. To address these concerns, educational initiatives must focus on AI support role, not its potential to replace human instruction.

Table 4. Reasons for Resistance to AI Integration

Reason for Resistance	Number of Respondents	Percentage
Fear of Job Replacement	25	25%
Reduced Personal Interaction with Students	23	23%
Lack of Trust in Technology	18	18%
Lack of Training/Skills	34	34%
Total (Multiple responses allowed)	–	–

Another important discovery is the disparity in access to technology among institutions, particularly in economically disadvantaged areas, which makes it difficult to implement the AI program. This inequality represents a challenge to widespread adoption, similar to variations observed in previous studies (Glebova et al., 2024)). Institutions should prioritize equitable access to promote an inclusive environment for the integration of successful AI.

Table 5. Availability of Technological Resources by Institution Type

Institution Type	Adequate Resources	Inadequate Resources	Total Institutions
Urban	28	7	35
Suburban	20	10	30
Rural /	10	25	35



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Disadvantaged			
Total	58	42	100

The interviews revealed a gap between theoretical knowledge and practical application; Although many educators are aware of AI's advances, translating this into actionable strategies remains difficult. Collaborative partnerships between technology developers and educators are essential for creating friendly tools for sports education.

Table 6. Gap Between AI Awareness and Practical Implementation

Category	N0Respondents	Percentage
Aware of AI Advances	70	70%
Successfully Applied AI in Practice	35	35%
Gap (Awareness without Implementation)	35	35%

Strong leadership commitment is vital for effective AI implementation, as institutions with robust support report more success than those without clear guidance. Participants recognized opportunities from AI adoption, such as enhanced personalized learning and improved data-driven coaching decisions, underscoring the potential for real-time feedback to elevate athlete performance and educational experiences.

Table 5: Perceived Benefits of AI Integration in Sports Education

Perceived Benefit	Number of Respondents	Percentage
Enhanced Personalized Learning	66	66%
Improved Data-Driven Coaching	59	59%
Real-Time Feedback for Performance	51	51%
Improved Decision-Making	43	43%
Better Monitoring of Student Progress	48	48%
Total (Multiple responses allowed)	–	–

6. Discussion

6.1 Implications of Findings on Sports Education Practices

The research highlights crucial implications for sports education, particularly in integrating AI technologies into physical education (PE). AI's ability to provide personalized training programs and immediate feedback can significantly enhance student engagement and athletic performance. Y. Wang and X. Wang note that AI can analyze student data to create customized training regimens that cater to individual learning styles. Such tailored approaches not only improve physical skills but also increase interest in physical activities among students.

However, challenges remain in effectively implementing these AI technologies within PE curricula. Many educators lack the expertise to use AI tools. Teacher training programs must include modules on technological advancements to equip educators with the confidence to utilize AI effectively, mitigating resistance and enhancing implementation efforts.

AI integration could unintentionally create barriers if not approached holistically. Issues like complex interfaces and inadequate support can detract from teaching effectiveness. Therefore, PE programs need to consider technological infrastructure alongside teacher readiness to fully leverage AI benefits.

Finally, advanced AI functioning, such as fuzzy evaluation models, shows the promise to improve the evaluation practices in PE. Successful AI integration requires strong technical outlines and ongoing business development for teachers, promoting a favorable environment for excellence in teaching and overall student development.

6.2 Comparison to Existing Literature on AI in Sports Education

Including AI in sports education has led to significant debate in academic circles, especially about its impact on academic approaches and an increase of athlete performance. Research indicates a noticeable change in educational practices, AI is used to design individual training that meets the specific requirements of individual athletes. For example, Glebova et al. Emphasize how AI technologies provide immediate response to performance and analyze data, allow coaches to base their decisions on solid evidence instead of intuition only ((Glabova et al., 2024)). The discovery echoes with the earlier comments by the glowing and the earlier comments by the Westerback, who indicated the



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revolutionary capacity of AI to decide within the coaching environment ((Chammita and Westerback, 2021))).

However, literature also highlights sufficient obstacles that disrupt the adoption widely. Resistance among educators and entrenched institutional frameworks consistently emerges as a prominent issue. As Glebova et al. assert, cultural inertia within organizations frequently hinders the integration of new technologies, even when their advantages are well demonstrated ((Glebova et al., 2024)). Additionally, Charrette draws attention to the importance of effective communication strategies that can clarify the benefits of incorporating AI into physical education contexts ((Charrette, 2023)).

Furthermore, while documented advantages such as improved athlete tracking and injury prevention are evident, worries regarding an overdependence on AI systems linger. Genk warns against AI tools such as chat making in sports training and education ((Gen, 2023)) to make major decisions. This perspective traditionally aligns with widespread discussions about the moral implications of using AI in areas centered around human decisions.

The current body of literature presents a dual story: It shows AI's promising ability to change sports education, as well as highlights the challenges going on which must be addressed for successful implementation. These complications reveal a dynamic landscape where technology provides important opportunities, but the educational structure requires thoughtful ideas about its integration.

4. CONCLUSION

The inclusion of Artificial Intelligence (AI) in sports education provides a notable opportunity to increase teaching practices and promote athlete performance. Nevertheless, the way to adopt AI is filled with obstacles. Research indicates that while AI can provide data-powered insights and streamline certain procedures, it also introduces complications that demand a complete examination. For example, the underlying bias in the AI algorithm can slant decision-making processes, outlining the need for a strong governance structure that guarantees fairness and equity in educational consequences.

Additionally, the socio-technical dynamics discovered in various studies suggest that successful deployment of AI equipment is largely concluded at the will of teachers to embrace these innovations. Teachers may face challenges such

as insufficient training or lack of institutional support, which may disrupt effective integration. It is necessary to accept that technology should not determine educational approaches; Rather, it should basically be aligned with educational purposes and strategies that attach students. In addition, there is an immediate need for cross-disciplinary cooperation that involve teachers, technologists and policy makers to deal with the moral effects and social effects of AI's role in sports education. Research underlines that as new professional roles - such as data analysts or AI moralists - emit within the task force, the existing academic structure must be suited to these changes. This adaptation will necessitate continuous conversations regarding the ethical issues tied to technology-driven practices.

Suggestions for Future Research Directions

In the integration of AI within sports education, the creation of broad outlines in future investigation should be preferred that basically weaves AI technologies in courses and additional dimensions. These frameworks should take into account various technical readiness levels between various educational institutions and offer implementation guidelines that promote equity and access. Researchers should consider the creation of interdisciplinary programs that are united to unite sports science, data analytics and educational technology that increase learning results.

In addition, a pressure is required for empirical research aimed at evaluating the effectiveness of special AI applications in sports education, which focuses on major matrix such as student engagement, performance growth and retention rates. Analysis of various AI-operated educational strategies can achieve valuable insight into the best practices to integrate technology within the environment of physical education. As H. Lee and J. The further study, also to check user experiences from the perspective of students and teachers of students and teachers to indicate obstacles for acceptance and effective use..

In addition, future research sports education may be engrossed in moral ideas around the deployment of AI, including the Undercore by Glebova et al as an eggs related to prejudice and data privacy. Investigating how these moral dilemmas affect the students' perceptions and engagement can provide significant guidance to policy makers working with inclusive AI policies.

To deepen our understanding of the impact of AI on sports education, longitudinal studies tracking changes over time will be unavoidable. Such analysis



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can highlight how AI technologies affect student results in teaching practices, courses development and eventually physical education contexts. Additionally, cooperative research participation with industry players can provide access to the existing dataset for authentic analysis.

Finally, it is necessary to cultivate the culture of ongoing professional development; Thus, checking the training initiatives designed to equip AI equipment effectively in their teaching methods effectively will also prove to be beneficial.

Strategies for Implementing AI in Physical Education Programs

The integration of AI in physical education programs requires a comprehensive strategy that incorporates both technical and educational aspects. To begin, it is important to equip physical education instructors with necessary training and resources to deepen their understanding of AI technologies. In this, the teacher's preparation weaving AI literacy in courses, teachers in their instructional practices have to empower (as referred to and confidently empowering AI equipment. Teachers should actively pursue the opportunities focused on using AI in the educational environment.

Subsequently, schools can embrace specific AI-operated equipment favorable for physical education. For example, platforms such as connected PEs provide invaluable resources that assist in course design, text plan, and assess the progress of the student. By analyzing student performance data, these tools provide individual reactions that enrich the learning experience by allowing teachers to adapt their teaching based on individual student requirements. In addition, it is important to promote an auxiliary environment that encourages innovation. Schools should prepare effective communication strategies to promote the benefits of AI in physical education This could encompass organizing workshops or seminars aimed at parents and stakeholders to demonstrate how these advanced technologies can augment traditional teaching methods rather than supplant them.

Forming alliances with technology providers can further facilitate the implementation process. Collaborating with specialists in educational technology may yield tailored solutions that cater to the unique demands of physical education environments. Additionally, starting pilot projects allows these devices to test small scale before adopting the full scale.

It is equally important to include moral ideas related to data privacy and

application of AI technologies. Teachers should prioritize the safety of students' personal information using these state-of-the-art equipment. Clear policies should also be established regarding the use of AI-derived data within classroom settings.

Finally, promoting an interdisciplinary approach by merging sports science with technology research may yield more effective teaching methodologies and enhance student outcomes. By collectively embracing these strategies, educational institutions can effectively weave AI technologies into their physical education programs.

5. Bibliography List :

1. Glebova, E., Madsen, D. Ø., Mihaľová, P., Jorgič, B., Géczi, G., & Mittelman, A. (2024). Artificial intelligence development and dissemination impact on the sports industry labor market. *Frontiers in Sports and Active Living*, 6, Article 1363892. <https://doi.org/10.3389/fspor.2024.1363892>
2. Lee, H. S., & Lee, J. (2021). Applying artificial intelligence in physical education and future perspectives. *Sustainability*, 13(1), Article 351. <https://doi.org/10.3390/su13010351mdpi.com>
3. Charrette, P. (2023). Exploring the role of AI in physical education: Enhancing efficiency and effectiveness in teaching PE. *Cap'n Pete's Power PE*. <https://www.capnpetespowerspe.com/single-post/harnessing-the-power-of-ai-in-physical-education-enhancing-efficiency-and-effectiveness>
4. Jiang, Y. (2014). Analysis on the application of artificial intelligence technology in modern physical education. *Information Technology Journal*, 13(3), 477–484. <https://scialert.net/fulltext/?doi=itj.2014.477.484>
5. Wang, Y., & Wang, X. (2024). Artificial intelligence in physical education: Comprehensive review and future teacher training strategies. *Frontiers in Public Health*, 12, Article 1484848. <https://doi.org/10.3389/fpubh.2024.1484848>
6. Reis, F. J. J., Alaiti, R. K., Vallio, C. S., & Hespanhol, L. (2024). Artificial intelligence and machine learning approaches in sports: Concepts, applications, challenges, and future perspectives. *Sports Medicine and Health Science*. <https://pubmed.ncbi.nlm.nih.gov/38838418/>

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Education in Adopting Artificial Intelligence Technology***

7. Genç, N. (2023). Artificial intelligence in physical education and sports: New horizons with ChatGPT. *ResearchGate*.
https://www.researchgate.net/publication/374748977_Artificial_Intelligence_in_Physical_Education_and_Sports_New_Horizons_with_ChatGPT
8. Chmait, N., & Westerbeek, H. (2021). Artificial intelligence and machine learning in sport research: An introduction for non-data scientists. *Frontiers in Sports and Active Living*, 3, Article 682287.
<https://doi.org/10.3389/fspor.2021.682287>
9. Zha, H., Li, W., Wang, W., & Xiao, J. (2025). The paradox of AI empowerment in primary school physical education: Why technology may hinder, not help, teaching efficiency. *Behavioral Sciences*, 15(2), Article 240.
<https://doi.org/10.3390/bs15020240>
10. Song, X. (2024). Physical education teaching mode assisted by artificial intelligence assistant under the guidance of high-order complex network. *Scientific Reports*, 14, Article 53964. <https://doi.org/10.1038/s41598-024-53964-7>
11. hemimi, djamel, khelfaoui, lazhar, & Dif, A. (2025). Comparative Study of Speed Replicability (RSA) and Fatigue Index in Footballers by Positions of Play under Modern Tactical Orientation(Playing with a block). *مجلة المنظومة الرياضية*, 24-06, (1)12. <https://asjp.cerist.dz/en/article/264591>
12. fendouchi, hamza, & aissa, elhadi. (2025). Mapping Sports Communication Research in the Context of the Digital Communication Environment: An Analytical Study to Identify the Scope and Challenges. *مجلة المنظومة الرياضية*, 63-43, (1)12. <https://asjp.cerist.dz/en/article/264593>