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The Language of AI in Sports: Athletes' Perspectives on AI-Driven Coaching Technologies

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Abstract
The research aims to explore athletes' (of various games) perceptions and opinions about AI-driven coaching. The objective is to know its benefits, challenges and suggestions. The researcher identified the significant themes in the discourse to find answers to the questions. The researcher administered the following two questions: *RQ1.* How do athletes perceive the impact of AI-driven coaching technologies on their training effectiveness, program personalization, and overall performance? *RQ2.* What are the experiences and challenges faced by athletes when using AI-powered coaching tools, and how do these tools influence their motivation, feedback, and training outcomes? The researcher selected a sample population of 200 athletes from various games. The researcher selected corpus data through semi-structured interviews. The study used a thematic analysis technique to explore the key themes and subthemes related to the experiences of selected athletes. The researcher identified five major themes during the process of conducting interviews and asking semi-structured, open-ended questions. Athletes employed mixed tones: they responded initially about its benefits and then about its drawbacks. Finally, they provided suggestions for its improvement and offered future recommendations. The study suggests that such AI-driven coaching should be customized, incorporating the opinions of both athletes and their respective coaches. This research added the perspective that athletes should not rely solely on technology or a human coach but rather on a combined approach of both for better results. The study also found that technology often lacks personal and emotional connection, as well as concerns about data privacy. The study suggests that technology developers should collaborate to create a more user-friendly interface, one that maintains privacy and allows technology and human coaches to work freely without stress. Future developments should have made in AI-driven coaching software based on coaches' and athletes' opinions. The research suggests that future researchers may conduct more organized research work, and they may expand the circle of athletes and the number of games to achieve more comprehensive, as well as generalized, results, preferably through longitudinal research.

Keywords: AI-driven coaching, Athletes, Coaches, Perception and Opinions of athlete, corpus, Technology.

Introduction

The advent of artificial intelligence (AI) has revolutionized various fields, and the institute of sports is no exception. AI is a source of online communication and is proving very helpful in coaching the new generations (Zhang, Chai & Li, 2024). Sports coaching is an emerging and burgeoning field that has revolutionized athletes' performance and proven highly beneficial in helping them achieve and realize their full potential. AI is an advanced form of artificial intelligence and has been introduced into the sports domain, offering personalized training programs. Another aspect commended is the provision of real-time feedback, along with its accompanying data-driven insights (Pashaie, Mohammadi, & Golmohammadi, 2024). Before the invention of AI, even with the latest technology, it was not possible because AI behaves like a real coach, and question-and-answer sessions are possible. This imaginary world is a spell world, and athletes living in far-flung areas benefit from it. Moreover, they receive coaching at the international level (Bylieva, 2024).

These innovations can enhance the athlete's performance. The performance of AI-generated systems is so high that they can even predict expected injuries and train athletes to avoid playing in a way that causes injuries. It can provide feedback, taking into account an individual's body features and intellectual capacity (as when asking questions, the AI machine responds in a manner commensurate with the level of the athlete asking the questions) (Nagorna, Mytko, Borysova, Potop, Petrenko, Zhyhailova, & Lorenzetti, 2024). AI machines or applications can assess a person's capabilities. Thus, AI has optimized the training schedules. However, the implementation of AI in sports coaching, whether on the grounds, in gyms, or at home, should not be approved solely; people's viewpoints are necessary to understand and consider, especially those involved in coaching and athletes themselves (Markauskaite, Marrone, Poquet, Knight, Martinez-Maldonado, Howard, & Siemens, 2022). The viewpoint is needed to determine its application, whether it is beneficial and a cause for improvement, or if they prefer to be coached by a human coach (Martens, & Vealey, 2023).

When applying or implementing AI coaching, an athlete's viewpoint is vital to know its effectiveness, efficiency and usefulness in the field (Huang, Wang, Jia, & Wang, 2024). Recent studies by Mazurova, and Standard, (2024) have consistently emphasized its value, significance, and range of aspects. They added that AI training or coaching may be a reason for autonomy and building good relationships, and AI coaching may suspect the possible fatigue. Since athletes are the A primary target of these communication technologies, their opinions are necessary to investigate. Another study revealed that the views of athletes are the best way to improve or better the field. Athletes may guide the design of AI coaching by suggesting better ways to improve and providing a source of data to inform it (Dellaserra, CGao, & Ransdell, 2014). It may be helpful for the support and psychological well-being of athletes (Gleaves & Lang, 2017; Jowett, 2009; MacLellan et al., 2017).

Furthermore, as support coaching is a relationship between athletes and coaches, understanding athletes' experiences and viewpoints is crucial in sports, especially in terms of retention, performance, and congenial relationships (Peake, Davies & Doran, 2025). Thus, before implementing AI coaching, it is imperative to understand the viewpoint of athletes on this newly formed partnership, whether they accept it or not, and if so, to gather their suggestions before implementation. A research established in recent years also laid emphasis on the importance of athlete's perceptions for the successful performance. AI has to act like a super companion, so what type of coaching do they expect from AI? They also have to interact with AI coaches. Thus, their opinion matters a lot (Strong, & Terblanche, 2020).

Statement of the Problem

The advent of technology and its penetration into all fields of life has sparked interest in understanding the perceptions and experiences of athletes with this newly invested AI-driven coaching. The researcher found that the literature review suggests that numerous technical aspects of AI-driven coaching have already been covered. Despite AI-driven coaching's popularity, there is a need to explore athletes' perceptions and need to know its impact on their new training trend, the way it changes their personalized approach and impacts their overall performances, as well as the challenges they face while using it during training through these technology oriented tool or communicative gadgets. This research, which involves asking different questions through semi-structured interviews, aims to contribute to the development of more effective athlete-centered coaching AI technologies.

Aims and Objectives

This research aims to understand the athletes' perceptions of AI-driven coaching and to explore the strengths of this newly formed relationship, specifically between athletes and AI-driven coaches. This qualitative research aims to bring improvements in technology-oriented Intelligence (AI), offering significant insights for coaches and sports organizations. This research aims to bridge the existing research gap in this field by exploring the intersection of AI-driven technology advancements and the human aspects of sports training. This research focuses on the premise that AI-driven coaching is a fundamental requirement for modern alignment with the new age of technology to keep pace with the world. This study focuses on the point that knowing the opinions of human coaches is necessary to develop and feed AI-driven AI.

Research Questions

RQ1. How do athletes perceive the impact of AI-driven coaching technologies on their training effectiveness, program personalization, and overall performance?

RQ2. What are the experiences and challenges faced by athletes when using AI-powered coaching tools, and how do these tools influence their motivation, feedback, and training outcomes?

Significance of the Study

A significant amount of research has emphasized the importance of understanding the viewpoints of coaches when implementing AI-based coaching in the field. Kanatas, Travlos, Gazoulis, Tataridas, Tsekoura, and Antonopoulos, (2020) emphasized that for the success and future benefits and drawbacks, it is essential to know the insights of athletes, they can assist in identifying the opportunities and challenges and they can help that what type of data be entered in AI-software so that it may be helpful, not damaging. Thus, this study is an addition in the existing body of research by adding athlete's perspective in using AI as coaches in different filed of playing.

Methods and Materials

Study Design

This innovative research employed a qualitative research method. The study aims to explore athletes' perspectives on coaching through technology, with a focus on AI-driven coaching. Qualitative research design is preferred over quantitative because it is the best way to analyse perceptions, opinions, and attitudes (Osunbor, & Ofobruku, 2023). The researcher examined the views, attitudes, and perceptions of athletes regarding AI-driven coaching and analyzed the selected data to facilitate an in-depth understanding of AI-driven coaching. Thus, to analyse the required data, a phonological approach is employed to understand the direct experiences of athletes, who are the direct living beings under observation in this research.

Selected Population

For this purpose, the researcher selected participants through a proposed sampling strategy. They were athletes who received direct coaching through AI. The researcher chose athletes across various sports disciplines, including hockey, cricket, volleyball, and swimming. The researcher developed the selection criteria based on time duration; only those who had been using AI-driven coaching for at least a year. The researcher ensured that they have the communicative capacity to respond well to this newly invented and employed technique of AI coaching in the field of sports. The population consisted of individuals from diverse backgrounds, including both genders and various age groups, and represented a wide range of sports. The purpose was to research a vast level of population to collect broader views, experiences, and opinions. It made the study more generalized rather than subjective to any specific field.

Research Instrument

The researcher provided all participants with an informative document outlining the goals, methods, confidentiality, and voluntary participation. The researcher prepared a consent section to obtain signatures, ensuring compliance with research ethics requirements. That informative document also contains several questions regarding AI-driven coaching. NVivo software (1.7.2) is employed to classify corpus into categories under themes. This software is designed for qualitative analysis when there is corpus in bulk, it made work easier and gives a scientific and authentic look to the research work (Shah, 2024).

Data Collection

Among various data collection methods, semi-structured interviews are considered highly flexible for gathering in-depth information (Karatsareas, 2022). Semi-structured interviews are well-suited for in-depth investigation. Semi-structured interviews are renowned for their ability to explore topics in depth in observational research (Ruslin, Mashuri, Rasak, Alhabsyi, & Syam, 2022).

Semi-structured Interviews Process

In the semi-structured interviews document, the researcher included all possible benefits, drawbacks, side effects, positive effects, performance effects, training style differences, training regimen differences, suggestions, and recommendations. For each participant, the researcher spends approximately 60 minutes. For the ease of the research, due to time constraints and physical availability, the researcher conducted interviews through video calls on available social media platforms and some in-person meetings. The researcher videotaped all interviews and transcribed them with the participants' permission. The researcher did this to maintain accuracy. Video recording the researcher used in the transcription and analysis process.

The researcher, under the section of primary inquiries, sub-inquiries, wrote in a semi-structured interview section to give freedom to participants so that they may express themselves freely, their experience, and points of view:

i. Would you explain your first experience when you received AI-driven coaching?
ii. What was the primary instinct that triggered you to use AI-driven technology?
iii. What principal effectiveness does AI coaching put on your training?
iv. What information do you have about injury prevention and personal feedback about AI-driven coaching?
v. What is a possible, solid example where AI-driven technology left an impact on your training?
vi. What sort of difficulties do you face in using AI-driven coaching technology?
vii. What sort of limitations do you face while using AI-driven coaching technologies?
viii. What sort of interpersonal affiliations do you have with AI-driven coaching?

ix. What are the new situations where AI-driven coaching did not match your objectives?
x. Would you explain how your motivation changed as a result of new coaching technology?
xi. What specific success or failure have you had as a result you faced during training through Driven coaching?
xii. What sort of features would you like to add to the existing AI-driven coaching technology system?

Data Analysis

The researcher collected data through semi-structured interviews and categorized them into different themes based on commonalities and explored various themes. The process of allocation of themes continued until the researcher reached saturation. For the allocation of themes, the researcher transcribed the interview scripts and underwent several steps. The researcher analyzed the data using a thematic analysis process, where primary codes were first identified and assigned. Then, the researcher assigned specific themes to the gathered data, and finally, these themes were defined and explained. To ensure the research is authentic and objective, the researcher utilized NVivo (version 1.7.2) software to categorize the data into themes. The NVivo software package made it easy to manage the large dataset of the athletes' answers. NVivo is used to handle large amounts of qualitative data in the form of a corpus and is known as a qualitative data analysis program (Beekhuyzen & Bazeley, 2024). To ensure the ethical integrity and authenticity of the observations, the researcher instructed the athletes to double-check the thematic categories to prevent incorrect data entry and achieve more accurate results.

Variables in Data Collection

This research contains a broader perspective. It contains varied degrees of information, as well as a practical approach, which is widely applicable to many fields of sports and similar areas and can be simply called generalized research. For this research, the researcher interviewed a sample of 200 participants. No age range was assumed or fixed, and the researcher marked no gender discrimination. All men and women, as well as athletes, were accustomed to receiving coaching from an AI-driven coaching system. The researcher selected only those individuals who possessed good communication skills, were familiar with this technology, and could effectively answer questions during interviews, demonstrating a strong command of communication skills. The researcher selected hockey, cricket, volleyball and swimming as the available sports in the area. Among all athletes, some were professional athletes, and some were semi-professionals.

Emerged Themes and Description

The researcher administered semi-structured interviews, and Five major themes and several sub-themes emerged. Major themes, sub-themes and their concepts:

1. **Adaption and Adoption**
    i. **Initial Reaction**
        a. **Inquisitiveness**
        b. **Cynicism**
        c. **Curiosity**
    ii. **Incorporation Stratagem**
        a. **Language Curve**
        b. **Adaptation Over-time**
        c. **Incorporation into Routine**
        d. **Seeking Assistance**
        e. **Suppleness**

Interpretation

The process of adoption refers to the acceptance of a new technology, while adaptation refers to something adjusting to an existing context (Nemoto, Vasconcellos, & Nelson, 2010). The initial response of athletes to the use of AI-driven coaching was complex, as they exhibited varied interests; some showed curiosity, while others did not. Some of them said that, over time, they have learnt to adjust to this new technology-oriented coaching. They have learnt how to adapt and adopt it. They also added that to maximize their performance. They also seek training and suggestions from human coaches and staff. They said that they are not rigid and stick to technology only. At the same time, athletes are flexible and move between AI-driven coaching and human coaching to maintain a balance between the two coaching approaches. However, overall, they have accepted this new coaching style in their lives.

2. **Perceived Assistances**
    - i. **Training Efficacy**
        - a. **Time-Saving**
        - b. **Efficiency Improvement**
    - ii. **Personalization**
        - a. **Customized Workout**
        - b. **Custom-made Training Plans**
    - iii. **Injury Prevention**
        - a. **Early discovery of potential injuries**
        - b. **Risk extenuation**
    - iv. **Feed back**
        - a. **Assembled Feed-back**
        - b. **Real time Modification**
        - c. **Goal Setting Support**
        - d. **Varied Work Outs**
        - e. **Unceasing Commitment**

Interpretation

On asking about perceived benefits, athletes recorded several benefits and advantages. Many of them said AI-driven coaching enhances productivity. They added that AI-driven coaching has increased their athletic efficiency. They also reported that AI-driven coaching is time-saving and provides high-quality coaching at any time and place in any location. The athletes said that they do not wait for the physical presence of a coach and ask for any training instantly when they wish to learn any idea or concept regarding coaching.

Additionally, a plus point goes to AI coaching, as it provides customized training to meet the demands and objectives of each athlete. The significant advantage of AI-driven coaching is that it allows for solutions to address injuries and offers alternative solutions to prevent them. Another benefit of AI-driven coaching is that it provides real-time adjustments, and the criticism is also very positive and constructive. One additional benefit of AI-driven coaching is that it enables athletes to receive regular updates on their progress and improvement. AI-driven coaching keeps athletes updated about new investors and records their concerns in the field of play, motivating them for various workouts and ongoing engagements. These benefits of AI-driven coaching bring several substantial improvements in their performance and in their well-being.

3. **Challenges and Limitations**
    - i. **Technical Disputes**
        - a. **Malfunctions**

- **b. Blunders**
- **c. Dependability concerns**

ii. Lack of professional touch

- **a. Objective Guidance**
- **b. Lack of Expressive Support**

iii. Data Privacy

- **a. Security Concerns**
- **b. Privacy Assurance**

iv. Misalignment with Goals

- **a. Inaccurate Recommendations**
- **b. Over-reliance on Technology**
- **c. Disregarding body Signals**
- **d. Difficulty in Arrangements**
- **e. Alteration Trials**

Interpretation

As athletes have enlisted many benefits of AI coaching, they have also mentioned many deficiencies and obstacles they encounter during AI-driven coaching. Firstly, they recorded that many of them face issues with technology use, as many are not well-trained in its use. Athletes interface issues like network errors, malfunctioning of technology, and reliability problems. Secondly, they report that they feel it is challenging to use it without the presence of a human coach or a professional coach. Moreover, it does not provide any emotional support, and they feel a lack of professionalism. Thirdly, they noted that using AI coaching raises privacy issues, with security concerns remaining a top priority. Fourthly, AI advice may fail to be effective if someone suddenly feels unwell, as it disregards the body's signals. AI coaches do not recognize the body's signals, which may lead to misalignment. The sum of all issues leads to the idea that both AI-driven and human coaching should be combined, allowing for the integration of technology, human judgment, retention, and intuition.

4. Impact on Motivation and Performance

i. Motivation Enhancement

- **a. Augmented Appointment**
- **b. Goal Attainment**
- **c. Motivational Improvement**

ii. Performance Outcome

- **a. Better Fitness Levels**
- **b. Individual Bests**
- **c. Constancy in Training**
- **d. Recovery Optimization**
- **e. Presentation Heightening**

Interpretation

The impacts of AI-driven coaching on athletes' performance are undoubtedly long-lasting and significant. One of the best effects is that players stay updated on world records; this information enhances their motivation level, although direct AI-driven motivation may not achieve the same effect. Nevertheless, this motivation improves their level of performance. This enthusiasm-boosting and engaging mechanism helps athletes stay very motivated and focused. Each person can record their performance on the software, save that record, and maintain consistency. AI-driven coaching's updated versions keep them informed and provide feedback on their records and fitness levels, resulting in a significant improvement in their game, ultimately enhancing their

performance. Thus, athletes realize that their full potential may emerge, and they can achieve greater success by relying on data-driven insights and by applying personalized coaching.

5. **Suggestions for Enactment**
    i. **Technology Enhancement**
        a. **Accessible Interfaces**
        b. **More accurate Personalization**
        c. **Initiative Enterprise**
    ii. **Desired features.**
        a. **Enhanced Data Security**
        b. **Combination with Human Training**
        c. **Civic Features**
        d. **Customizable Feedback**
        e. **Expanded Workout Libraries**
        f. **Adaptive Algorithm**

Interpretation

Other than recording advantages and disadvantages, athletes also recorded many suggestions. They suggested several improvements to utilize AI coaching more effectively. Some of them feature intuitive designs, personalized and friendly cases, user-friendly interfaces, integration with human coaching, leveraging human experience, customized coaching, tailored feedback, individualized needs, expanded libraries of knowledge, adaptive algorithms, and highly desirable features. They added that the addition of AI-driven coaching and the integration of human coaching may enhance athletes' progress as never before.

Data Analysis

When asked questions from athletes, a mixture of curiosity and scepticism was their response to the use of AI technology in coaching games. One of the athletes wrote, *"Initially, I was skeptical about the app's ability to tailor workouts to my fitness level, but the customized coaching really made a huge difference."* another athlete reported that the integration strategy curve is more reliable, being more flexible; he said, *"At first, it was a learning curve, but incorporating data analytics into my workout has made my sessions more targeted and responsive to my progress."* Most participants vividly acknowledge that coaching through AI technology is highly advantageous for them. They recorded that it is a time-saving application, and its features are user-friendly, helping to boost efficiency. One of the participants said, *"The AI-powered coaching has optimized my schedule, giving me more time to focus on execution and less on figuring out what to do next."* Many of them said that individual training programs work for them more than any other feature, and they like it very much; for example, an athlete said, *"The customized workout plans are perfectly tailored, challenging me exactly where I need it without feeling overwhelmed."* They also liked its feature of injury prevention techniques and used it to identify any upcoming risks and reduce the risk of injury. Meanwhile, they also liked its feedback mechanism, which provides real-time feedback and helpful support to achieve goals; one replied, *"The real-time corrections on my form and movement have been incredibly helpful."* Thus, AI was considered a useful application in achieving their desired goals of national and international and national level.

Along with many benefits, athletes also recorded several challenges. They said that if there are benefits, this technology is also very challenging to use; various bugs and internet connections may cause failure to utilize its benefits fully. Keeping updated about world-level league chess boosts energy and emotional support, but other forms of emotional support are often missing, such as when someone is suddenly injured. Data privacy and breach concerns are prevalent, and

athletes are seeking assurances regarding the protection of their personal information. The interview responses also indicated that AI-generated responses are not aligned with athletes' individual goals and physiological signals and do not align with their desired objectives. For example, they said, *"Occasionally, the AI's recommendations didn't sync with my physical state, prompting me to tweak the plan and listen to my body."* Thus, athletes also recorded both benefits and challenges, focusing on the combination of the two to improve their results.

Although AI coaching is not human and cannot provide instant emotional feedback at the individual level, it boosts emotions and enhances performance at a broader level. AI includes information about international players, keeping them updated about international matches, and motivates and pushes them to perform better. For example, one of the players says, *"Watching the AI monitor my improvement and provide insights fuels my drive to keep improving."* AI-driven coaching, due to its high motivation, helps in achieving consistency and reaching a personal fitness level. Finally, athletes suggested that AI coaching should have a friendly interface. Moreover, they indicated that data security features should integrated, and the algorithm should be made adaptable. For example, one of the athletes said, *"I'd like to see AI-driven training paired with expert human feedback, combining the best of technology and personalized guidance."* Thus, the coexistence of both may bring harmony and more fruitful results.

Discussion and Conclusion

Five major themes emerged from this qualitative research: adaptation and adoption, perceived benefits, challenges and limitations, impacts on motivational performances, and suggestions for improvements. Athletes' opinions about AI coaching technology are complex and varied. Several secondary or sub-themes also emerged when open-ended questions were analyzed using NVivo software (version 1.7.2).

The main purpose and aim of this study were to investigate the opinions of athletes about AI-driven coaching tools. Semi-structured interviews contain two main questions: *RQ1.* How do athletes perceive the impact of AI-driven coaching technologies on their training effectiveness, program personalization, and overall performance? *RQ2.* What are the experiences and challenges faced by athletes when using AI-powered coaching tools, and how do these tools influence their motivation, feedback, and training outcomes? Twelve interview questions were designed based on two research questions. Sub sample questions were on experience, the instinct for AI-driven coaching, principal effectiveness, injury prevention information, effect on training, limitations, interpersonal affiliations, match with objectives or not, motivation, cause of success and failure, future suggestions, customized training, lack of personal touch, technical issues, data privacy issues.

The athletes recorded a range of responses, from excitement to disappointment. This data appears to indicate a tendency towards a balanced learning curve between AI and human coaching. The results show that athletes would get maximum benefits from this technology if it is integrated with human coaches as well. We should not solely rely on technology, and we should not only rely on human coaches in this era of modernity. Thus, by integrating both, athletes can achieve the best results. The emerging themes are obtained by asking questions until saturation and showing the best results through this qualitative data.

Athletes like AI-driven coaching tools due to its feature of customization. They like AI coaching tools because they provide training and help improve more than a human coach, and they said that they love taking coaching from an AI-driven coach due to its advanced features. It lets them know in advance to avoid upcoming injuries. Real-time feedback makes it user-friendly. The instant feedback feature provides athletes with helpful recommendations. Athletes face various

limitations and challenges, including data privacy concerns, technology glitches, misalignment with individual goals, and difficulties in interpreting body signals. Athletes have added several reasons and examples where they found AI-driven technology to be the best, citing its personalized fitness suggestions as a key benefit.

Findings

The findings of this study are highly significant and provide a new perspective on the existing research in the corpus of sports science literature. A lot of research works and studies have already given much literature on sports sciences corpus, like injury risk assessment, predictions about risks, ethical issues, coaching on different aspects of various games (Musat, Mereuta, Nechita, Tutunaru, Voipan, Voipan & Nechita, 2024). The current research aligns with the findings of previous studies, highlighting the potential of AI-driven coaching to enhance injury prevention technology and its technique of providing individualized coaching, thereby improving training outcomes (Bodemer, 2023). This research introduces a new concept that integrates technology and human interaction to create a curve that produces better results.

The results of the research highlight that AI-driven coaching relationships with human coaching are the best technique to achieve maximum benefits, and athletes would be able to fully fulfil their goals, which would align with their desired aims. The integration and combination would tailor the training regimens. An early study on the corpus of sports coaching emphasizes the need to understand the athlete's perspectives (Cassidy, T., Potrac, & Rynne, 2023; Martindale, & Nash, 2013). This study differs from the previous one in that it introduces technology-based coaching rather than being technology-oriented. In this regard, Ghanbari, (2017) claimed that for customizing any software, its users should have interviewed to obtain solid information so that program developers can produce the best possible customization. In our case, athletes were our subjects, from whom the researcher gathered opinions to inform AI-driven software developers in tailoring specific coaching requirements.

This research also focuses on best communication. The machine provides the best communication and offers knowledge of what a game should have. Technology is usually prepared by experts, so maximum knowledge is installed in the applications, while a single coach can provide minimal knowledge. This finding aligns with the research of Zhigalova, Kopus, Zhigalova, and Kopus, (2018); O'Brien, Hamburg, and Southern, (2019), and Adebiyi, (2024) who emphasized the coaching of utilizing technology-oriented coaching. This study concludes the integration curve of both human coaching and non-human coaching.

AI interference in sports coaching is versatile across various sports disciplines (Huang, Wang, Jia, & Wang, 2024; Liu, Wang & Zhou, 2021). The tailoring technique may vary according to the field, game, and demands. This addition may improve and yield better results.

This research focuses on the significance of individualized and customized athlete-centre techniques for better results. The study highlights that the opinions of the athletes should inform coaching; it should have remodeled, tailored, and restructured according to their needs. This study also highlights the need for a combined approach in making any such training application, including expert human coaches, athletes, and technology developers. Thus, this research is a significant addition to the existing literature in the field of coaching games.

Limitations and Suggestions

Although the study has presented a deep insight and highlighted many significant aspects, including the necessity of integrating both types of coaches, neither one should be preferred over the other; both are integral to each other. Despite the significance of AI-driven coaching, the study also has some limitations. Furthermore, one qualitative data analysis approach is employed, while the researcher overlooks the quantitative approach, which may limit the study's

broader viewpoint. Future studies may explore athletes' views across a wider range of games to gain a deeper understanding of their viewpoints through semi-structured interviews. Longitudinal research may produce more authentic results than cross-sectional research, particularly as technology continues to evolve. Moreover, a study may be conducted on the viewpoints of coaches to understand whether organizers are aware that they should incorporate AI to support coaching. A point of view that coaches need to record, highlighting areas where they agree and where they disagree.

This study's application is practical, as discourse collected from athletes is analyzed to gather their opinions on whether AI-driven training is beneficial or not and to solicit their suggestions and recommendations.

This study suggests that technology developers should design customized solutions to cater to the individual needs of athletes and should keep this as a top priority. For coaches, it is essential to understand this new technology and, with minimal effort, utilize it for their athletes, thereby achieving a combined approach of human and technical coaching. Technology developers and coaches should provide pricey assurance. The privacy concerns would create an atmosphere where athletes can ask questions freely and express their opinions as well.

References

Adebiyi, N. F. (2024). *Exploring Elementary Teachers' Experiences with Technology Coaches* (Doctoral dissertation, Kennesaw State University).

Beekhuyzen, J., & Bazeley, P. (2024). *Qualitative Data Analysis with NVivo.* Sage Publications Limited.

Bodemer, O. (2023). Enhancing individual sports training through artificial intelligence: A comprehensive review. *Authorea Preprints*.

Bylieva, D. (2024). Artificial Intelligence as an Old Technology. *Technology and language. (Технологии в инфосфере)*, *5*(3), 68-84.

Cassidy, T., Potrac, P., & Rynne, S. (2023). *Understanding sports coaching: The pedagogical, social and cultural foundations of coaching practice*. Routledge.

Dellaserra, C. L., Gao, Y., & Ransdell, L. (2014). Use of integrated technology in team sports: a review of opportunities, challenges, and future directions for athletes. *The Journal of Strength & Conditioning Research*, *28*(2), 556-573.

Ghanbari, H. (2017). Investigating the causal mechanisms underlying the customization of software development methods. *Jyväskylä studies in computing*, (258).

Huang, Z., Wang, W., Jia, Z., & Wang, Z. (2024). Exploring the Integration of Artificial Intelligence in Sports Coaching: Enhancing Training Efficiency, Injury Prevention, and Overcoming Implementation Barriers. *Journal of Computer and Communications*, *12*(12), 201-217.

Karatsareas, P. (2022). Semi-structured interviews. *Research methods in language attitudes*, 99-113.

Liu, J., Wang, L., & Zhou, H. (2021). The application of human–computer interaction technology fused with artificial intelligence in sports moving target detection education for college athlete. *Frontiers in Psychology*, *12*, 677590.

O'Brien, E., Hamburg, I., & Southern, M. (2019). Using technology-oriented, problem-based learning to support global workplace learning. *The Wiley handbook of global workplace learning*, 591-609.

Martindale, R., & Nash, C. (2013). Sport science relevance and application: Perceptions of UK coaches. *Journal of sports sciences*, *31*(8), 807-819.

Mazurova, E., & Standaert, W. (2024). Implementing artificial intelligence across task types: constraints of automation and affordances of augmentation. *Information Technology & People*, *37*(7), 2411-2440.

Musat, C. L., Mereuta, C., Nechita, A., Tutunaru, D., Voipan, A. E., Voipan, D., ... & Nechita, L. C. (2024). Diagnostic Applications of AI in Sports: A Comprehensive Review of Injury Risk Prediction Methods. *Diagnostics*, *14*(22), 2516.

Nagorna, V., Mytko, A., Borysova, O., Potop, V., Petrenko, H., Zhyhailova, L., ... & Lorenzetti, S. (2024). Innovative technologies in sports games: A comprehensive investigation of theory and practice. *Journal of Physical Education and Sport*, *24*(3), 585-596.

Nemoto, M. C. M. O., Vasconcellos, E. P. G. D., & Nelson, R. (2010). The adoption of new technology: conceptual model and application. *Journal of technology management & innovation*, *5*(4), 95-107.

Osunbor, I., & Ofobruku, S. A. (2023). Perceptions of research design for qualitative and quantitative studies. *The Journal Social & Mgt. Science*, 74-84.

Peake, R., Davies, L. E., & Doran, A. (2025). Athletic Career Pathways in Para Sport: An Exploration of Para Track and Field. *Adapted Physical Activity Quarterly*, *1*(aop), 1-24.

Pashaie, S., Mohammadi, S., & Golmohammadi, H. (2024). Unlocking athlete potential: The evolution of coaching strategies through artificial intelligence. *Proceedings of the Institution of Mechanical Engineers, Part P: Journal of Sports Engineering and Technology*, 17543371241300889.

Strong, N., & Terblanche, N. (2020). Chatbots as an instance of an artificial intelligence coach. *Coaching im digitalen Wandel*, 51-62.

Ruslin, R., Mashuri, S., Rasak, M. S. A., Alhabsyi, F., & Syam, H. (2022). Semi-structured Interview: A methodological reflection on the development of a qualitative research instrument in educational studies. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, *12*(1), 22-29.

Shah, M. I. (2024). Exploring the Effectiveness of Corpus-driven Learning in teaching Lexical collocation to Pakistani Undergraduates.

Zhang, H., Chai, J., & Li, C. (2024). On innovative strategies of youth sports teaching and training based on the internet of things and artificial intelligence technology from the perspective of humanism. *Learning and Motivation*, *86*, 101969.

Zhigalova, O. P., Kopus, T. L., P Zhigalova, O., & L Kopus, T. (2018). Training Teachers Of The Future In A High-Technology Infomation-Oriented Society. *European Proceedings of Social and Behavioral Sciences*, *51*.