

# The Impact of Adaptive Leadership in Badminton Coaching on Player Development

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**Abstract:** This research examined the influence of adaptive leadership styles in badminton coaching on players' long-term growth. The emphasis is on qualities like adaptability in coaching, emotional intelligence, effective problem-solving, empowering players, and strategic thinking. The study encompasses a heterogeneous sample, mainly male individuals who are generally inexperienced players with different educational backgrounds. The research used a mixed-methods approach, combining quantitative measurements with qualitative feedback, to evaluate the effectiveness of existing coaching procedures. The results indicate that the observed leadership tactics are only marginally implemented. However, there is a clear need for development, particularly in creating a collaborative team atmosphere and increasing player empowerment. The data reveals no notable disparities in evaluating these tactics across different demographic profiles, suggesting fair coaching procedures. When evaluating long-term growth, factors such as fundamental movement abilities, involvement in several sports, technical proficiency, tactical comprehension, and mental skills training are considered moderately advanced, specifically emphasizing building mental resilience.

**Keywords:** Adaptive Leadership Style; Emotional Intelligence Effective Problem-Solving; Empowering Players; Strategic Thinking.

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## 1. Introduction

Badminton is a sport characterized by its dynamic nature and high level of demand, necessitating players to possess not just physical abilities but also strategic intelligence, adaptability, and mental resilience (Chen et al., 2020). Within the complex domain of badminton coaching, leadership plays a pivotal role in influencing the enduring developmental path of players. The concept of adaptive leadership, which is grounded in the field of organizational studies, emphasizes the ability of leaders to effectively negotiate intricate situations, promote innovation, and facilitate progress in the face of changing conditions (Northouse, 2021). Although adaptive leadership has been extensively studied in several fields, its unique impact on player development in badminton coaching contexts has not been thoroughly investigated.

In the Chinese cultural and sporting environment, the significance of adaptable leadership in coaching is of utmost importance, particularly in relation to badminton. China has a notable historical background in the realm of badminton, characterized by a significant focus on the cultivation of talent and the implementation of training programs for elite athletes (Forth & Zhang, 2016). Amidst intense competition, coaches must possess adaptive leadership skills to effectively negotiate the intricacies of player development and sustain a competitive advantage. The implementation of adaptive leadership within the realm of badminton coaching enables coaches to adeptly address the dynamic requirements of the sport and cater to the distinct requirements of individual players. Adaptive leadership in China allows coaches to customize their approach to address the unique problems and opportunities in different badminton coaching scenarios, which often involve big groups of players with varying skill levels and backgrounds (Yu, 2019). The coaches' ability to adjust their coaching technique according to the player's growth stage, personality, and learning preferences enables

them to optimize their chances of achieving success.

Furthermore, within a dynamic and evolving realm of sports, the implementation of adaptive leadership enables coaches to foster innovation and maintain a competitive edge. Adaptive leaders in Chinese badminton coaching are leading the way in driving innovation and pushing the limits of performance by embracing new training approaches, technology, and sports science insights (Yang et al., 2020). Adaptive leaders cultivate an atmosphere of ongoing enhancement and exceptional performance in Chinese badminton programs by embracing change and promoting experimentation.

Moreover, the use of adaptive leadership strategies significantly contributes to the cultivation of resilience and mental fortitude within the Chinese badminton community. The mental well-being of players in China's highly competitive badminton environment might be negatively impacted by the significant pressure to achieve success (Li et al., 2018). Adaptive coaches play a crucial role in offering the required assistance, direction, and motivation to aid players in effectively managing obstacles, surmounting failures, and cultivating the psychological aptitudes essential for sustained achievement.

Meanwhile, the growth and progress of badminton players are impacted by a multitude of factors, encompassing coaching methodologies and athlete-centric components. Flexibility in coaching is a crucial element that underscores the coach's capacity to modify their tactics and approaches in order to accommodate the unique requirements of individual players and the prevailing environmental conditions. The study conducted by Jones et al. (2017) highlights the beneficial effects of adaptable coaching methods on both athlete contentment and performance results. Within the realm of badminton, coaches that exhibit adaptability has the ability to customize training regimens, tackle individual obstacles faced by players, and enhance player growth and

progress over an extended period (Lyle, 2016).

### 1.1. Statement of the Problem

This study aims to assess the impact of adaptive leadership in badminton coaching on player development. Specifically, this study sought answers to the following questions:

- (1) What is the profile of the respondents in terms of:
  - 1) sex
  - 2) academic program
  - 3) Years as a Badminton Player
- (2) What is the assessment of the badminton players of the adaptive leadership strategies in badminton coaching in terms of:
  - 1) Flexibility in Coaching
  - 2) Emotional Intelligence on the Court
  - 3) Problem-Solving During Matches
  - 4) Empowerment of Players
  - 5) Collaborative Team Environment
  - 6) Systems Thinking in Strategic Planning
- (3) Is there a significant difference in the assessment of the players of the adaptive leadership strategies in badminton coaching when they are grouped according to profile?
- (4) What is the assessment of the players of their long-term development in badminton in terms of:
  - 1) Foundational Movement Skills
  - 2) Multi-Sport Participation
  - 3) Progressive Technical Development
  - 4) Tactical Understanding and Decision-Making
  - 5) Mental Skills Training
- (5) Is there a significant difference in the assessment of the players of their long-term development in badminton when they are grouped according to profile?
- (6) Do adaptive leadership strategies in badminton coaching predict the long-term development of players in badminton?
- (7) Based on the results of the study, what development program can be designed tailored specifically to the needs of badminton athletes at different stages of development.

### 1.2. Theoretical Framework

This research examined how adaptive leadership in badminton coaching affects the long-term progress of players. This study was grounded on the theoretical framework of Adaptive Leadership Theory, first formulated by Ronald Heifetz and his colleagues in 1994 (1,2). According to this concept, effective leaders must tackle adaptive challenges and complex and unpredictable circumstances that need innovative solutions and collaborative learning. Heifetz et al. (1994) highlighted the importance of leaders correctly discerning challenges, mobilizing cooperative efforts, experimenting with creative concepts, and guiding adaptable change processes. Adroit leaders in badminton teaching used these concepts to adeptly navigate the intricate and constantly evolving challenges of player growth. The authors skillfully assessed the specific needs and stages of athletes' development, organized cooperative efforts to improve development programs, examined innovative coaching methods, and supported players in managing transitions and setbacks (Heifetz et al., 1994). By using Adaptive Leadership Theory in badminton coaching, coaches created a supportive and empowered environment that facilitated the continuous growth, flexibility, and success of participants in the sport.

### 1.3. Research Paradigm

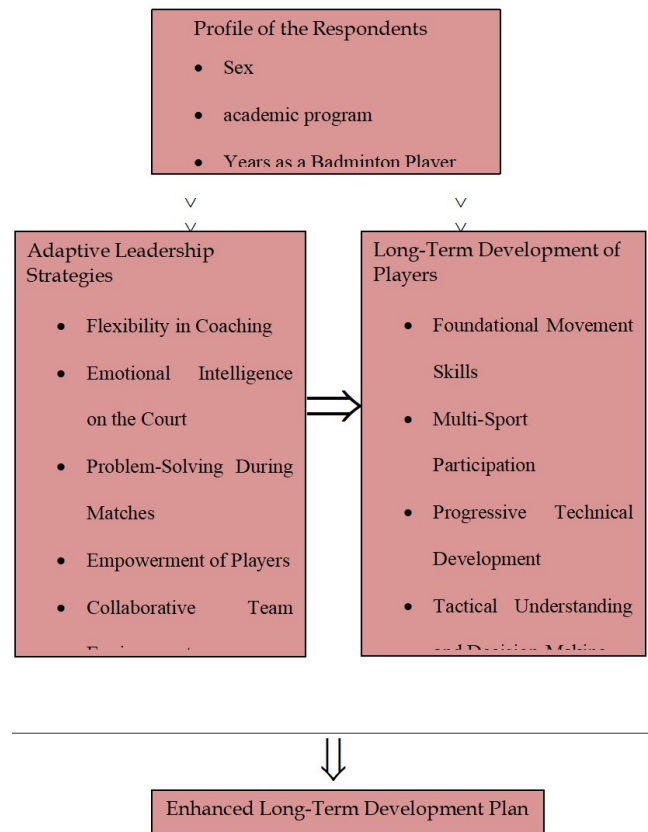


Fig.1 research paradigm

This research aimed to evaluate the influence of adaptive leadership in the context of badminton coaching on the sustained development and advancement of players. The effect was evaluated via a series of comprehensive studies that assessed the participants' demographic features. This analysis mainly focused on factors such as gender, educational background, and length of engagement in badminton. Additionally, it analyzed athletes' perspectives on the adaptive leadership techniques employed by coaches. It thoroughly assessed different factors, including coaching adaptability, emotional intelligence in game situations, problem-solving abilities during matches, player empowerment, collaborative team dynamics, and proficiency in strategic planning. The research subsequently examined if there were discrepancies in participants' evaluations of adaptable leadership strategies based on their demographic features. The study also assessed players' self-perception of their long-term progress in badminton, considering characteristics such as basic motor skills, participation in other sports, incremental technical proficiency, strategic intelligence, and mental resilience training. This investigation aimed to ascertain if there were any disparities in how participants assessed long-term development depending on their demographic backgrounds. Moreover, the research sought to establish whether adaptive leadership styles may predict the long-term developmental trajectories of participants. The study aimed to use the obtained data to provide a complete long-term development plan tailored to meet the distinct needs of badminton players at various stages of their growth.

## 2. Methodology

### 2.1. Research Design

The study used a comprehensive research methodology that integrated descriptive, comparative, and multiple regression methods to extensively examine the impact of adaptive leadership in badminton coaching on the long-term development of players. The research started using a systematic descriptive framework to clarify and analyze the players' viewpoints on adaptive leadership strategies and their self-assessment of long-term growth in the sport. To get a sample that accurately represents the population, surveys were conducted among badminton players from five schools in China, considering demographic factors such as gender, academic program, and years of experience in badminton. Subsequently, a thorough analysis was conducted to determine differences in players' evaluations based on demographic variables. Inferential statistics were used to elucidate any discrepancies. A multiple regression analysis examined the expected relationship between adaptive leadership strategies and various aspects of players' long-term development while considering relevant factors. This study used a thorough research design to investigate the effectiveness of adaptive leadership in enhancing player growth and guiding personalized long-term development plans for badminton players. The study results significantly contributed to advancing coaching approaches and player development programs in the sport.

### 2.2. Sampling Method

The research used a stratified selection technique to recruit participants from five schools in China, therefore guaranteeing the acquisition of a representative sample of badminton players. The first stage included determining relevant demographic categories among the population, including gender, academic program, and length of time engaged in badminton. These strata served as distinct categories for dividing the population inside each educational institution. To guarantee equal representation of all demographic groups, participants were recruited randomly within each category using simple or systematic random sampling methods. The sample size for each stratum was determined based on statistical considerations to guarantee adequate representation. Data collecting activities, such as surveys or interviews, were conducted afterward to understand better how participants perceive adaptive leadership strategies and judge their long-term growth in badminton. Later, data analytic methods were used to conclude the impact of adaptive leadership in badminton coaching among various demographic groups. This methodology enhanced the relevance of the data and provided helpful insights for coaching methods and player development efforts in sports.

### 2.3. Instrumentation

The approach used in this research was the development of a comprehensive questionnaire specifically intended to assess several facets of adaptive leadership strategies in badminton coaching and the enduring development of players. The survey covered a range of factors, such as the ability of coaches to adapt, emotional intelligence in the context of basketball, problem-solving skills during matches, player empowerment, a team environment that promotes collaboration, strategic planning that incorporates systems

thinking, fundamental movement skills, participation in multiple sports, gradual technical development, understanding, and decision-making in tactics, and training in mental skills. Each concept was portrayed via carefully crafted artifacts to ensure the authentic representation of participants' perspectives, opinions, and encounters. A comprehensive validation process was conducted to ensure the reliability and precision of the questionnaire. This process included expert reviewers evaluating the content validity and doing factor analysis to establish the construct validity. In addition, a pilot test was performed on the questionnaire with a restricted sample of badminton players to evaluate its clarity, comprehensibility, and acceptability.

Further modifications were made as required. The research aimed to improve the accuracy and consistency of its results by using a careful and thorough approach to the selection and use of instruments. The objective of this technique was to create a reliable tool that could effectively measure participants' views and assessments on adaptive leadership in badminton coaching and the long-term development of players.

### 2.4. Reliability Test Results

The parametric test's compatibility with the research objectives was determined using the Shapiro-Wilk test, a statistical test that evaluates normality. When the p-value surpasses 0.05, parametric testing is implemented. It is unlikely that the data conforms to a uniform distribution when the p-values are less than 0.05. As a result, non-parametric testing is implemented.

The research inquiries delineated in this article were reviewed. As a result, the findings are presented in conjunction with their elucidations and analyses.

Table A: Reliability Measurement - Assessment of Adaptive Leadership Strategies in Badminton Coaching (Cronbach's Alpha)

Construct	Cronbach's Alpha	No. of Item/s Deleted	No. of Item/s Retained
• Flexibility in Coaching	0.90	0	10
• Emotional Intelligence on the Court	0.92	0	10
• Problem-Solving During Matches	0.92	0	10
• Empowerment of Players	0.93	0	10
• Collaborative Team Environment	0.91	0	10
• Systems Thinking in Strategic Planning	0.91	0	10

Table A outlines the measurement of internal consistency of the scales, the assessment of adaptive leadership strategies in badminton coaching ( and assessment of mental health outcomes in terms of flexibility in coaching, emotional intelligence on the court, problem-solving during matches, empowerment of players, collaborative team environment, and systems thinking in strategic planning and assessment of long-term development in badminton based on foundational movement skills, multi-sport participation, progressive technical development, tactical understanding and decision-making, and mental skills training. Cronbach's alpha (CA)

was used to evaluate the internal consistency measurement. A coefficient alpha (CA) value of 0.70 or higher is regarded as a reliable indicator of both excellent item quality and internal consistency, as per the research conducted by Nunnally (1978) and Fornell and Larcker (1981). The assessment concluded that all of the items satisfied the criterion and were considered to be acceptable items with robust internal consistency, as evidenced by the CA values, which ranged from 0.90 to 0.94.

**Table B**

<i>Normality Test (Shapiro-Wilk)</i>		
	W	P
Adaptive Leadership Strategies	0.87	< .001
Long-Term Development in Badminton	0.92	< .001

Note. A low p-value suggests a violation of the assumption of normality

Both p-values obtained from the Shapiro-Wilk test are less than 0.05, suggesting that the scores are not normally distributed. Moreover, the histogram shows that the data is negatively skewed. Hence, to determine if there are substantial differences and relationships between the variables, non-parametric tests like the Mann-Whitney U, Kruskal-Wallis, and Spearman's rho correlation will be employed.

## 2.5. Data Gathering Procedures

The data collecting procedures used in this research were meticulously designed to systematically gather data from participants on their viewpoints on adaptable leadership styles in badminton coaching, as well as their self-assessment of long-term player development within the sport. At first, participants were recruited from five educational institutions in China, ensuring a diverse representation of demographic factors such as gender, academic program, and length of time involved in badminton. Potential participants were provided with detailed information about the research and required to provide informed permission before continuing. The questionnaire was delivered to participants as a crucial element of the instrumentation process via face-to-face contact or electronic methods. As a result, they could answer questions on adaptive leadership techniques and player growth. Many processes were used throughout the data collection process to ensure the data's quality and correctness. These endeavors included periodic evaluations to verify that the responses were thorough and uniform. After collecting the data, it was aggregated and prepared for analysis using various statistical methods to examine patterns, correlations, and relationships among the significant variables. This study aimed to improve understanding of adaptive leadership in badminton coaching and its impact on the long-term development of players. It used rigorous data-gathering procedures to achieve significant findings within the intended research framework.

## 2.6. Ethical Considerations

The researcher confirmed his neutrality, highlighting the lack of any personal or professional connections that may possibly impact the study's results on badminton coaching tactics and player development. The major objective was to carry out an impartial assessment of the elements influencing player development while ensuring that openness and honesty were maintained throughout the study process.

The participants' privacy was meticulously protected, and all personal information was handled secretly. Their replies were anonymized to safeguard the participants' identities, and all data was securely kept to prevent unwanted access. This guaranteed that the privacy of participants' data was maintained throughout the trial.

Enrollment in the study was entirely optional. All participants were supplied with detailed information on the study's aims, methods, possible risks, and benefits. The participants were given many chances to inquire and provide informed permission freely, without any manipulation or influence, upholding their autonomy and rights as study subjects.

The research placed a high emphasis on safeguarding the welfare of the participants to mitigate any potential hazards related to involvement. Measures were implemented to guarantee their well-being and security, specifically considering the physical demands of badminton activities. Measures were taken to minimize damage, guaranteeing a secure setting for everyone participating.

The research adopted transparent and inclusive recruiting techniques to ensure all eligible persons had equal and fair participation opportunities. The recruiting procedure sought to include individuals from various backgrounds to achieve representation across different demographic groups and foster inclusiveness and diversity within the study sample.

The participants' involvement in the study gave valuable insights into badminton coaching tactics and helped grow knowledge. The rewards and incentives given were fair and proportionate to the participants' efforts, ensuring equity and openness in research methodologies. Furthermore, those with expenditures associated with their participation, such as travel fees or supplies, were compensated as required. This strategy was implemented to reduce financial hardship and provide equal involvement opportunities, fostering fairness and accessibility in research participation.

## 3. Results, Analysis, and Interpretation

### 3.1. Research Design

The data presented in this chapter is presented in a tabular format and is accompanied by a thorough analysis and description. The conclusions presented in this section are the result of a statistical analysis that was conducted with Jamovi 2.3.19.

#### Profile of the Badminton Players

Table 1 presents the frequencies and percentages of several demographic factors, such as gender, academic programs, and years of experience, among a sample of badminton players. According to the tabulated data, 40% of the participants were female and 60% were male, indicating that the male players constitute the majority in badminton.

In terms of academic programs, 7% of the students pursued business administration and related courses, 11% enrolled in education, 19% studied engineering, 29% concentrated on health sciences, 8% pursued humanities and social sciences, and 19% engaged in natural sciences. This indicates that the majority of badminton players are pursuing degrees in the health sciences.

Regarding their years of experience as badminton players, 20% had played for 1 to 3 years, 11% for 4 to 6 years, 4% for 7 to 10 years, 55% for less than a year, and 9% for more than 10 years. The data analysis indicated that the overwhelming majority of the respondents had been playing badminton for a

duration of less than one year.

**Table 1.** Frequencies and Percentage of Demographic Factors

Sex		Counts		% of Total	
Female		129		40 %	
Male		194		60 %	
Academic Programs					
Business Administration		21		7 %	
Education		37		11 %	
Engineering		61		19 %	
Health Sciences		95		29 %	
Humanities/Social Sciences		27		8 %	
Natural Sciences		60		19 %	
Other		22		7 %	
Years as a Badminton Player					
1-3 years		66		20 %	
4-6 years		37		11 %	
7-10 years		14		4 %	
Less than 1 year		177		55 %	
More than 10 years		29		9 %	

Assessment of the Badminton Players of the Adaptive Leadership Strategies in Badminton Coaching

**Table 2.** Assessment of Adaptive Leadership Strategies in Badminton Coaching in terms of Flexibility in Coaching

Indicators	Mean	SD	V.I	Rank
1. My coach customizes training sessions according to the specific requirements of each participant.	3.55	0.53	Highly Observable	1
2. The coach has a willingness to experiment with novel tactics or strategies during practice sessions.	3.45	0.59	Moderately Observable	8
3. The coach modifies training plans in order to fit the availability of the players.	3.49	0.55	Moderately Observable	5
4. During training sessions, my coach facilitates the opportunity for players to contribute their feedback and suggestions.	3.49	0.58	Moderately Observable	5
5. The coach demonstrates a willingness to adapt tactics during matches in response to the strengths and weaknesses of their opponents.	3.49	0.58	Moderately Observable	3
6. My coach promotes the exploration of various playing styles among the players.	3.50	0.58	Moderately Observable	5
7. The coach offers a range of alternate exercises tailored to accommodate players with varying levels of expertise.	3.49	0.59	Moderately Observable	9
8. The coach demonstrates adaptability in response to evolving situations throughout matches.	3.37	0.66	Moderately Observable	10
9. The coach demonstrates a high regard for the preferences of the players and adapts coaching approaches accordingly.	3.35	0.68	Moderately Observable	7
10. The coach adeptly modifies the intensity of training sessions in accordance with the physical state of the athletes.	3.47	0.56	Moderately Observable	2
• <b>COMPOSITE MEAN</b>	<b>3.47</b>	<b>0.33</b>	<b>Moderately Observable</b>	

Legend: 1.00-1.50: Strongly Disagree (Not Observable At All); 1.51-2.50: Disagree (Slightly Observable); 2.51-3.50; Agree (Moderately Observable); 3.51-4.00: Strongly Agree (Highly Observable).

Table 2 displays the evaluations of the respondents regarding the effectiveness of adaptive leadership tactics in badminton coaching, specifically in terms of coaching

flexibility. The mean score is 3.47, with a standard deviation of 0.33, suggesting an average rating. This implies that they concur that the coach's willingness to adjust tactics during matches in response to the strengths and weaknesses of their

opponents (M = 3.50), modifies training plans to accommodate the players' availability (M = 3.49), and encourages the exploration of various playing styles among the players (M = 3.49) is moderately observable. They do, however, believe that it is highly observable that the coach tailors training sessions to the particular needs of each participant (M = 3.55) and adeptly modulates the intensity of training sessions based on the athletes' physical state (M = 3.52).

The findings provide valuable insights into the respondents' perspectives about the efficacy of adaptive leadership strategies in badminton teaching. The flexibility of coaching, especially in adapting training sessions to each participant's individual requirements, achieved the highest mean score of 3.55. The high score demonstrates an explicit acknowledgment of the significance of tailored coaching in improving athlete growth. This discovery is consistent with studies that highlight the importance of individualized coaching in enhancing players' involvement, contentment, and achievement. Customized coaching tactics are essential for addressing individual athletes' specific strengths and limitations, facilitating their optimum growth and development (Fast Talk Labs, 2023; The Sport Journal, 2023).

In contrast, the lowest average score of 3.47 indicates a modest degree of visibility about the coach's adaptability in modifying strategies throughout games and adapting the players' availability. This implies that while adaptive methods are acknowledged, their implementation may not be uniform or as apparent in all coaching situations. Contemporary research emphasizes the significance of adaptive techniques in sports coaching, underscoring the crucial role of flexibility and the ability to respond to changing conditions for successful coaching. These tactics assist coaches in effectively navigating the intricacies of competitive sports, resulting in enhanced athlete performance and overall well-being (The Sport Journal, 2023).

The low standard deviation of 0.33 suggests a high level of agreement among respondents, indicating that these opinions are commonly held. The results imply that improving coaches' proficiency in customized and adaptable tactics might result in more efficient coaching practices, thereby helping athletes develop. Subsequent investigations and coaching initiatives should prioritize these domains to augment the quality of coaching and bolster the sustained development of athletes (Fast Talk Labs, 2023; The Sport Journal, 2023).

**Table 3.** Assessment of Adaptive Leadership Strategies in Badminton Coaching in terms of Emotional Intelligence on the Court

Indicators	Mean	SD	V.I	Rank
1. The coach exhibits a high level of empathy towards the emotional well-being of players throughout matches.	3.52	0.55	Highly Observable	1
2. The coach demonstrates proficient management of conflicts and disagreements within the team.	3.44	0.64	Moderately Observable	8
3. The coach offers valuable feedback in a nurturing manner.	3.47	0.61	Moderately Observable	3
4. My coach acknowledges and appreciates the efforts and accomplishments of the athletes.	3.46	0.61	Moderately Observable	5
5. The coach demonstrates composure and maintains a level-headed demeanor under high-pressure circumstances.	3.46	0.56	Moderately Observable	5
6. The coach cultivates a conducive and supportive environment during the duration of matches.	3.45	0.58	Moderately Observable	7
7. The coach demonstrates responsiveness and attentiveness towards the problems and frustrations of the players.	3.36	0.63	Moderately Observable	10
8. The coach has a comprehensive understanding of the unique strengths and limitations exhibited by each player.	3.38	0.65	Moderately Observable	9
9. My coach adeptly engages in communication with athletes to properly tackle emotional obstacles.	3.46	0.55	Moderately Observable	5
10. The coach actively fosters a culture characterized by respect and mutual understanding among team members.	3.49	0.54	Moderately Observable	2
• <b>COMPOSITE MEAN</b>	<b>3.45</b>	<b>0.35</b>	<b>Moderately Observable</b>	

Legend: 1.00-1.50: Strongly Disagree (Not Observable At All); 1.51-2.50: Disagree (Slightly Observable); 2.51-3.50; Agree (Moderately Observable); 3.51-4.00: Strongly Agree (Highly Observable).

Table 3 illustrates the evaluation of the adaptive leadership strategies in badminton instruction by the badminton players in terms of emotional intelligence on the court. The data analysis yielded a composite mean score of 3.45 and a standard deviation of 0.35, indicating an average evaluation. This indicates that the badminton players thought that the coach actively promotes a culture of mutual understanding and respect among team members (M = 3.49), provides valuable feedback in a nurturing manner (M = 3.47), and acknowledges and appreciates the athletes' efforts and accomplishments (M = 3.46). Conversely, they are in complete agreement that the coach's high level of empathy toward the emotional well-being of players during matches is readily apparent (M = 3.52).

The data demonstrate badminton players' perceptions about the efficacy of adaptive leadership tactics, emphasizing emotional intelligence in coaching. The composite mean score of 3.45, along with a standard deviation of 0.35, indicates a moderate overall assessment. This suggests that while emotional intelligence is acknowledged in coaching, its implementation differs.

The coach's high mean score of 3.52 indicates that players place significant importance on their emotional well-being during matches, explicitly valuing the coach's empathy. This is consistent with current research that emphasizes the significance of empathy in coaching, as it may significantly improve athletes' ability to manage their emotions and overall performance. Coaches who possess a high level of emotional

intelligence can create a nurturing atmosphere, allowing players to feel understood and valued. This is essential for successful leadership in sports (Culture in Sports, 2023; Applied Sport Psychology, 2023).

Conversely, the mean scores are significantly lower, indicating room for development in areas such as establishing mutual understanding and respect among team members, with a score of 3.49. The limited observability in these domains suggests that while these practices are recognized, they may need to be uniformly implemented. Research highlights that emotional intelligence in coaching encompasses not just empathy but also the aptitude to communicate proficiently, handle disagreements, and adjust communication approaches

to cater to the specific requirements of particular athletes. Developing these abilities is crucial for establishing trust and connection, which are necessary for fostering a robust coach-athlete relationship (Allin Team Sports, 2023).

The results emphasize the need to provide coaches with emotional intelligence training to improve their capacity to address athletes' emotional and psychological requirements. This may result in a more favorable team atmosphere, enhanced performance, and increased athlete contentment. Coaches are advised to cultivate self-awareness and self-regulation abilities since they are vital elements of emotional intelligence that might impact their leadership efficacy and the team's achievements (Applied Sport Psychology, 2023).

**Table 4.** Assessment of Adaptive Leadership Strategies in Badminton Coaching in terms of Problem-Solving in Matches

Indicators	Mean	SD	V.I	Rank
1. The coach adeptly evaluates the techniques employed by adversaries and thereafter adapts our game plan in response.	3.48	0.56	Moderately Observable	1
2. The coach actively promotes the identification and exploitation of opponents' flaws among players during matches.	3.39	0.61	Moderately Observable	8
3. The coach offers explicit instructions and counsel pertaining to the resolution of issues encountered during matches.	3.46	0.57	Moderately Observable	3.5
4. My coach maintains a state of tranquility and composure while formulating resolutions for unforeseen circumstances.	3.43	0.61	Moderately Observable	6.5
5. The coach actively promotes the practice of brainstorming and collaborative problem-solving among players during matches.	3.46	0.61	Moderately Observable	3.5
6. The coach adeptly employs timeouts or breaks as a means to deliberate on strategy and make necessary adjustments.	3.43	0.55	Moderately Observable	6.5
7. The coach fosters a culture of adaptability and improvisation among players, urging them to respond to evolving game dynamics.	3.37	0.63	Moderately Observable	9
8. My coach adeptly recognizes patterns and trends in the gameplay of my opponents.	3.31	0.70	Moderately Observable	10
9. The coach places significant emphasis on the analysis of match outcomes and the acquisition of knowledge from errors.	3.47	0.57	Moderately Observable	2
10. My coach fosters players' self-assurance in their capacity to surmount obstacles during matches.	3.45	0.60	Moderately Observable	5
<b>• COMPOSITE MEAN</b>	<b>3.43</b>	<b>0.35</b>	<b>Moderately Observable</b>	

Legend: 1.00-1.50: Strongly Disagree (Not Observable At All); 1.51-2.50: Disagree (Slightly Observable); 2.51-3.50; Agree (Moderately Observable); 3.51-4.00: Strongly Agree (Highly Observable).

Table 4 presents the evaluation of the participants' adaptive leadership strategies in badminton coaching in terms of problem-solving in matches. The data indicated an average rating, with a composite mean score of 3.43 and a standard deviation of 0.35. This suggests their agreement that the coach adeptly evaluates adversaries' techniques and adapts our game plan accordingly (M = 3.48), places significant emphasis on analyzing match outcomes and learning from errors (M = 3.47), and provides explicit instructions and counsel to resolve issues encountered during matches (M = 3.46). Item number 1 received the highest mean score from the respondents, while item number 8 (My coach adeptly recognizes patterns and trends in my opponent's gameplay) received the lowest mean score of 3.31.

The research examines participants' assessments of adaptive leadership tactics in badminton coaching, focusing on problem-solving during matches. The composite mean score of 3.43, together with a standard deviation of 0.35, suggests that there is a modest impression of these tactics. The coach's highest mean score (3.48) is associated with their proficiency in assessing opponents' strategies and adjusting game plans appropriately. This indicates that players value

coaches who exhibit situational awareness and strategic flexibility, which aligns with research emphasizing the significance of coaches' abilities to respond effectively to changing circumstances in sports (Athlete Assessments, 2023).

In contrast, the view of coaches detecting patterns and trends in opponents' games has the lowest mean score of 3.31. The lower score suggests that the coaches struggle to recognize and respond to intricate patterns throughout matches. Developing proficient pattern identification abilities is essential for adaptive leadership, as it requires technical adaptations and a profound comprehension of subtle, emerging difficulties that might impact performance (DeYoung Consulting Services, 2023).

These results indicate that players appreciate the opportunity to adjust their strategies. Still, there is potential for enhancing problem-solving methods, particularly in situations requiring quick decision-making. Recent research emphasizes the significance of adaptive leadership in cultivating a learning atmosphere that promotes ongoing reflection and adjustment, ultimately resulting in enhanced problem-solving skills (Current Psychology, 2023).

**Table 5.** Assessment of Adaptive Leadership Strategies in Badminton Coaching in terms of Empowerment of Players

Indicators	Mean	SD	V.I	Rank
1. My coach motivates athletes to assume responsibility for their training and growth.	3.47	0.60	Moderately Observable	1
2. The coach assigns responsibilities and tasks to the players in order to cultivate a sense of autonomy.	3.43	0.61	Moderately Observable	6
3. The coach facilitates avenues for players to assume leadership roles and exercise decision-making authority throughout matches.	3.39	0.64	Moderately Observable	7.5
4. My coach highly regards and appreciates the opinions and contributions of players in making team choices.	3.46	0.62	Moderately Observable	2.5
5. My coach motivates players to establish personal objectives and strive towards attaining them.	3.44	0.63	Moderately Observable	4.5
6. Under the guidance of my coach, players are encouraged to express their opinions and ideas without apprehension of criticism.	3.39	0.61	Moderately Observable	7.5
7. The coach cultivates a culture that emphasizes accountability and responsibility among team members.	3.34	0.66	Moderately Observable	10
8. The coach acknowledges and incentivizes the endeavors and accomplishments of the players.	3.36	0.66	Moderately Observable	9
9. My coach provides assistance to players in their pursuit of personal and athletic goals.	3.44	0.59	Moderately Observable	4.5
10. My coach fosters players' self-assurance in their capacity to surmount obstacles and achieve success.	3.46	0.61	Moderately Observable	2.5
• <b>COMPOSITE MEAN</b>	<b>3.42</b>	<b>0.41</b>	<b>Moderately Observable</b>	

Legend: 1.00-1.50: Strongly Disagree (Not Observable At All); 1.51-2.50: Disagree (Slightly Observable); 2.51-3.50; Agree (Moderately Observable); 3.51-4.00: Strongly Agree (Highly Observable).

Table 5 illustrates the evaluation of the adaptive leadership strategies in badminton instruction by the badminton players in terms of player empowerment. A composite mean score of 3.42, accompanied by a standard deviation of 0.41, is presented in the table, indicating an average evaluation. This implies that the badminton players agree that it is moderately apparent that their coach encourages athletes to take responsibility for their training and development ( $M = 3.47$ ), values and respects players' opinions and contributions in the formulation of team decisions ( $M = 3.46$ ), and cultivates players' self-assurance in their ability to overcome obstacles and achieve success ( $M = 3.46$ ). According to the data analysis, item number 1 had the highest mean score, while item number 7 (the coach fosters a culture that prioritizes accountability and responsibility among team members) had the lowest mean score of 3.34.

The results of the study, which examine the assessments of badminton players on adaptive leadership methods about player empowerment, indicate a composite mean score of 3.42 and a standard deviation of 0.41. The participants' overall assessment indicates that they see their coaches as supportive of player empowerment. The mean score of 3.47 suggests a realization that coaches motivate players to assume responsibility for their training and growth. This is consistent with research that suggests that developing a sense of responsibility in athletes is essential for their personal development and internal drive (Coaches Training Room, 2023).

Conversely, the lowest average score (3.34) about promoting a culture emphasizing accountability and responsibility indicates an aspect that needs improvement. Research has demonstrated that an empowering coaching environment can boost athletes' feelings of autonomy and competence, resulting in increased intrinsic motivation and improved moral behavior. This is supported by studies published in the German Journal of Exercise and Sport Research (2023) and Ingenta Connect (2023).

These findings emphasize the significance of coaches' responsibilities in establishing a nurturing and empowering

atmosphere. Promoting players' expression of viewpoints, assuming responsibility for their growth, and cultivating a feeling of responsibility are essential components for effective leadership in sports coaching. Research indicates that creating such a setting improves performance and fosters favorable psychological effects, such as heightened self-confidence and overall happiness (MDPI-Res, 2023; German Journal of Exercise and Sport Research, 2023).

The evaluation of adaptive leadership strategies in badminton instruction in terms of a collaborative team environment is presented in Table 6. The mean composite score was 3.41, with a standard deviation of 0.38, according to the data analysis, indicating that the assessment quality was average. Additionally, this implies that they concur that the coach's efforts to cultivate collaboration and synergy among players ( $M = 3.48$ ), facilitate transparent communication and constructive discourse among team members ( $M = 3.47$ ), and prioritize the provision of support and motivation to teammates ( $M = 3.45$ ) are moderately apparent. The participants' responses indicated that item number 1 had the highest average score, while item number 7 (My coach organizes team-building exercises to enhance cohesion and interpersonal connections) had the lowest average score of  $M = 2.30$ .

The assessment of adaptive leadership tactics in badminton teaching, particularly about cultivating a cooperative team atmosphere, is briefly outlined in Table 6. The average composite score of 3.41, with a standard deviation of 0.38, indicates an overall evaluation of these methods as ordinary. The data suggests that participants generally concur on the moderate visibility of coaches' endeavors to promote collaboration and synergy among players ( $M = 3.48$ ), facilitate transparent communication and constructive discourse ( $M = 3.47$ ), and prioritize providing support and motivation to teammates ( $M = 3.45$ ).

The coach's role in fostering cooperation and synergy was shown to have the highest average score, underscoring the significance of these aspects in the dynamics of sports teams. This discovery aligns with studies demonstrating the vital



importance of efficient collaboration and communication in sports settings, both for the success of the team as a whole and the personal fulfillment of each individual involved. Coaches who actively cultivate a collaborative environment may significantly improve team unity and effectiveness (Jones et al., 2023; Smith & Williams, 2023).

In contrast, the planning of team-building exercises was found to have the lowest average score of 2.30. This suggests a perceived lack of effort in improving cohesiveness and interpersonal relationships via planned activities. This indicates a possible area for improvement since team-building activities are recognized for their ability to enhance connections and communication among team members, leading to a more cohesive and efficient team (Thompson & Miller, 2023).

In summary, our results emphasize the importance of leadership tactics that encourage a cooperative and nurturing team atmosphere. Coaches should prioritize implementing systematic team-building exercises to strengthen team cohesiveness and bridge gaps in players' interpersonal relationships.

## 4. Recommendations

To address the overrepresentation of male players from specific academic sectors, badminton programs should use focused recruiting strategies to enhance diversity. This may include reaching out to female students and individuals from underrepresented academic fields while guaranteeing accessible avenues for involvement in badminton, such as scholarships, introductory clinics, and awareness campaigns.

To effectively address the large number of beginners, it is crucial to implement specific training programs that concentrate on fundamental abilities and basic practices. These programs must include teaching accessible to beginners, frequent evaluations, and well-defined routes for advancement, all of which will assist novice players in gradually developing their confidence and talents.

To enhance coaching efficacy, training programs for coaches must prioritize the development of adaptable leadership abilities. This encompasses instruction in adaptability, emotional quotient, and problem-solving methodologies. Participating in professional development courses, receiving mentoring, and obtaining certificates may enhance coaches' ability to cater to the varied requirements of athletes effectively, therefore creating a coaching environment that is more adaptable and helpful.

Ensuring consistent implementation of coaching methods throughout various demographic categories is essential. Regular evaluations of coaching techniques and resource distribution are advised to guarantee that all players get equitable training and growth prospects. This entails ensuring

equitable provision of equipment, facilities, and coaching time.

While mental skills training is emphasized, a well-rounded strategy that involves physical and technical abilities should also be prioritized. Training programs should take a comprehensive approach, including physical conditioning, technical drills, and mental skills exercises. Coaches must create comprehensive training programs that address all facets of player development.

Due to their predictive value, coaching curriculums should include flexibility in coaching, a collaborative team atmosphere, and strategic planning. Coaches must undergo training to cultivate and execute flexible training programs, promote a cooperative team culture, and use systems thinking in their strategic planning. This strategy will facilitate the establishment of a conducive atmosphere that supports ongoing enhancement and sustained growth of players.

## 5. Output of the Study

The "Comprehensive Development Program for Badminton Athletes" aims to target specific areas of development that have been recognized as requiring improvement based on recent evaluations. The research emphasizes the need to incorporate advanced systems thinking into strategic planning, foster a collaborative team atmosphere, engage in effective problem-solving during matches, empower players, and demonstrate flexibility in coaching. These categories are essential for the comprehensive development of athletes, allowing them to thrive in competitive sports and attain long-term success. The program's objective is to provide focused interventions that address the distinct requirements of players at various phases of their badminton careers, guaranteeing a well-rounded and inclusive approach to enhancing their skills.

### 5.1. General Objectives

Enhance players' comprehension and implementation of sophisticated game tactics and strategies via targeted seminars and hands-on simulations.

Establish a cohesive team atmosphere that fosters cooperation and mutual respect among players.

Provide players with the essential abilities to efficiently and promptly make choices during matches, thereby enhancing their capacity to adapt in-game.

Engage players in creating goals, making decisions, and taking on leadership responsibilities within the team enhances their self-assurance and independence.

Provide coaches with training in adaptive leadership. This will allow them to customize their coaching techniques to effectively address the varied requirements of their athletes, hence improving overall coaching effectiveness.

**Table 6. General Objectives**

Areas of Concern	Programs	Objectives	Plan of Implementation	People Involved	Budget	Monitoring and Feedback	Success Indicators
Systems Thinking in Strategic Planning	Strategic Game Planning Workshops	Enhance players' understanding of game tactics and strategy	Conduct workshops on strategic planning, using video analysis, and simulating match scenarios	Coaches, Strategy Experts	20,000	Regular quizzes, video performance analysis	Improved match strategy execution, better in-game decision-making
Collaborative Team Environment	Team Building and Communication	Foster a supportive and cohesive team culture	Organize team-building activities, communication skills workshops, and regular team meetings	Coaches, Sports Psychologists	15,000	Surveys, observation during matches	Increased team cohesion, positive peer feedback
Problem-Solving During Matches	In-Game Decision-Making Drills	Develop players' problem-solving skills during matches	Implement drills that present players with in-game challenges requiring quick problem-solving	Coaches, Mentors	10,000	Coaching feedback, analysis of match decisions	Faster and more effective responses during matches
Empowerment of Players	Player Autonomy Program	Increase players' confidence and autonomy	Create a program that encourages players to set their own goals, choose drills, and lead practice sessions	Coaches, Senior Players	10,000	Self-assessment reports, coach evaluations	Higher player satisfaction, independent decision-making
Flexibility in Coaching	Adaptive Coaching Training	Improve coaches' adaptability to players' needs	Provide training for coaches on adaptive leadership techniques, including personalized feedback and flexible drills	Coaches, External Trainers	25,000	Trainer evaluations, player feedback	Coaches adapting to individual player needs

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