

A Study on the Difference of Evaluation of Adaptive Leadership Strategies of Badminton Players to Coaches

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Abstract:

This study aims to explore the differences in the evaluation of adaptive leadership strategies between badminton players and coaches. A questionnaire survey was conducted to collect players' evaluations of coaches' qualities such as adaptability, emotional intelligence, effective problem solving, player empowerment and strategic thinking. In this paper, a stratified sampling method was used to recruit 323 subjects from five universities in China. The individual characteristics of badminton players are significant, including their gender, major, and time engaged in badminton. A qualitative analysis was then conducted to evaluate the effectiveness of existing guidance procedures. The results show that there is no significant difference between individuals with different characteristics in evaluating the adaptive leadership ability of coaches, which indicates that there is unity in coaching methods. Standardised coaching methods play an important role in promoting a uniform team dynamic, which ensures that all athletes receive equal support and guidance.

Keywords:

Adaptive Leadership Style, Evaluation, Difference, Unity

1. Introduction

In recent years, Chinese athletes have faced increasingly fierce competition in various international badminton events, prompting the badminton community in China to adopt more effective strategic methods to maintain and enhance its competitive advantage [1]. In this process, the role of coaches becomes particularly important; they are not only responsible for nurturing and guiding emerging talent but also need to respond flexibly in a rapidly changing environment. According to Northouse's research [2], the implementation of adaptive leadership is of significant importance. This leadership style is characterized by its emphasis on flexibility, innovation, and resilience, qualities that enable coaches to respond more effectively to the dynamic changes in player development and to quickly address urgent challenges that arise during training and competitions. Therefore, an in-depth study of the impact of adaptive leadership on badminton coaches will not only help improve coaching

methods but also ensure the continued success and excellence of Chinese badminton on the international stage. In this way, the Chinese badminton community will be able to maintain a leading position in intense international competition, laying a solid foundation for future development.

China has placed a high priority on the development of sports such as badminton in terms of resource allocation, highlighting the necessity and urgency of optimizing coaching methods. With substantial national investments in talent identification, training programs, and infrastructure, the improvement of coaching methods becomes particularly crucial [3]. This not only helps to increase the return on investment but also ensures more significant success in long-term development. Therefore, there is an urgent need to conduct a thorough analysis and improvement of existing coaching methods to adapt to the ever-changing sports environment and the needs of athletes [4]. The primary aim of this research is to analyze the impact of adaptive leadership on player development, intending to provide useful insights for customizing coaching programs. These insights will assist in better nurturing the potential of young players and provide scientific guidance for the development of specialized talent, thereby promoting the overall progress and development of the sport of badminton.

The results of this study can provide valuable insights for policy-making and educational programs designed to encourage the adoption of optimal methods in badminton coaching throughout China. Policymakers should prioritize funding in coach training and development programs by highlighting the significance of adaptive leadership and its influence on player development [5]. Consequently, this can aid in the development of a proficient and tenacious cohort of badminton athletes who possess the necessary abilities to maintain China's athletic heritage and excel in global competitions.

2. Methodology

2.1. Study Participants

To ensure that the sample of badminton players recruited for this study is representative, this paper employs a stratified sampling method to recruit 323 research subjects from five higher education institutions in China. The individual characteristics of the recruited badminton players are distinguished, including the gender of the athletes, their academic major, and years as a badminton player. This distinction is made to ensure that the survey subjects have equal representation in terms of gender, specialization, and sports experience. The sample size for each category is determined based on statistical considerations, and participants are recruited through a simple random sampling method. The specific numbers are shown in Table 1.

Table 1. Frequencies and Percentage of Demographic Factors.

College/University	Counts
Hunan University of Technology	65
Hunan University of Technology	68
Hunan University	65
Xiangtan University	66
Hunan University of Science and Technology	59
Sex	Counts
Female	129

Male	194
Academic Programs	Counts
Business Administration	21
Education	37
Engineering	61
Health Sciences	95
Humanities/Social Sciences	27
Natural Sciences	60
Other	22
Years as a Badminton Player	Counts
1-3 years	66
4-6 years	37
7-10 years	14
Less than 1 year	177
More than 10 years	29

2.2. Research Methods

This study employs a questionnaire survey method to collect badminton players' evaluations of coaches' adaptive leadership strategies. Various methods, including descriptive statistics, comparisons, and predictions, are used to examine the differences in these evaluations, explore athletes' perceptions of flexible leadership styles, and understand how they view their own performance in the sport. The subjects are badminton players from five schools in China, who participated in a survey regarding personal factors such as their gender, major, and duration of involvement in the sport.

2.2.1. Questionnaire Design

Based on the research tasks, objectives, and content of this study, a substantial amount of relevant literature and materials were reviewed. The questionnaire was designed rigorously in accordance with scientific research methods and adhered strictly to the requirements of questionnaire design, resulting in a preliminary draft of the survey. This questionnaire is specifically aimed at assessing several aspects of adaptive leadership strategies among badminton coaches, including the flexibility in coaching, emotional intelligence on the court, problem-solving in matches, empowerment of players, collaborative team environment, and systems thinking in strategic planning. Each survey factor was meticulously designed to ensure the authenticity of the viewpoints, opinions, and experiences expressed by the participants.

2.2.2. Reliability Testing of the Questionnaire

To ensure the reliability and accuracy of the questionnaire, a comprehensive validation process was conducted. This process included expert reviewers assessing content validity and performing factor analysis to establish construct validity. Additionally, the questionnaire underwent preliminary testing with a limited sample of badminton players to evaluate its clarity, comprehensibility, and acceptability. Further modifications were made as necessary. The study aims to enhance the accuracy and consistency of the results through careful and thorough selection and use of instruments. The goal of this technique is to create a reliable tool that can effectively measure participants' perceptions and evaluations of adaptive leadership in the of badminton coaches.

(1) Shapiro-Wilk Test

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.

(2) Shapiro-Wilk test

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.

2.3. Statistical Treatment

This study employs statistical methods that require the use of various analytical tools to examine the collected data. The characteristics of the research participants, including individual demographic statistics such as gender, major, and years of badminton experience, are summarized and described using descriptive statistics. To gain a comprehensive understanding of participants' evaluations of adaptive leadership strategies, we calculated various measurement methods, including means, standard deviations, frequencies, and percentages. Ultimately, we derived significant findings regarding the differences in badminton players' evaluations of coaches' adaptive leadership strategies.

In order to compare the evaluations of participants across various demographic categories, inferential statistical procedures such as t-tests or analysis of variance (ANOVA) were utilized. This study aimed to conduct comparative analysis to investigate potential variations in perceptions of adaptive leadership methods, taking into account demographic aspects such as gender, academic program, and duration of badminton commitment.

2.4. Ethical Considerations

This study explores key factors in badminton coaching tactics and player development, ensuring that researcher neutrality is maintained in the study, avoiding the influence of personal or professional relationships. The privacy of participants is strictly protected, and all data is processed anonymously and stored securely. Participation in the study is voluntary and participants give informed consent based on a full understanding of the purpose and risks of the study. The study focuses on the welfare of participants and measures are taken to ensure the health and safety of athletes. The use of transparent recruitment techniques ensures equal opportunities for participants from different backgrounds and promotes sample diversity.

And the study protocol was approved by the Institutional Review Board of Hunan Traditional Chinese Medicine College. The investigation was conducted in strict adherence to the ethical principles outlined in the Declaration of Helsinki.

3. Difference in the Assessment of the Players of the Adaptive Leadership Strategies in Badminton Coaching

3.1. Difference in the Assessment of the Players Based on Sex

Table 2 presents how the assessment of the players' adaptive leadership strategies in badminton coaching differs when they are grouped according to their assigned sex. The Mann-Whitney U test generated a p-value of less than the 0.05 level of significance for flexibility in coaching ($U = 10780.00$; $p = 0.034$), indicating the rejection of the null hypothesis. Specifically, male badminton players ($M = 3.49$) have a higher rating than their female counterparts ($M = 3.43$) by 14%. On the other hand, regardless of their assigned sex, the assessment of adaptive leadership in terms of emotional intelligence on the court ($p = 0.432$), problem-solving during matches ($p = 0.684$), empowerment of players ($p = 0.965$), collaborative team environment ($p = 0.934$), systems thinking in strategic planning ($p = 0.763$), and overall ($p = 0.883$) is the same.

The results indicate a disparity between genders in the perception of coaching flexibility, consistent with research suggesting that men and women may have distinct expectations and reactions to coaching methods [6].

Notably, gender did not significantly impact other elements of adaptive leadership, including emotional intelligence, problem-solving, empowerment, fostering a collaborative team environment, and using systems thinking in strategic planning. The uniformity seen in several measures indicates that while there may be variations in the perception of coaching flexibility, both males and females view other aspects of leadership and coaching equally. Studies have shown that female coaches tend to earn better evaluations regarding empathy and relationship skills, which might affect how coaching is seen to gender differences [7].

These results emphasize the need to comprehend gender-specific requirements and preferences in sports coaching. Coaches may consider using more customized strategies to address the varied expectations of male and female athletes, particularly about factors such as adaptability and emotional understanding. Recognizing these disparities may result in implementing more efficient coaching techniques that improve the overall sports experience for all individuals [8].

Table 2. *Difference in the Assessment of the Players of the Adaptive Leadership Strategies in Badminton Coaching Based on Sex.*

Indicators	Sex	N	Mean	U	p	Effect Size	Interpretation
Flexibility in Coaching	Female	129	3.43	10780.00	0.034	0.14	Significant
	Male	194	3.49				
Emotional Intelligence on the Court	Female	129	3.48	11871.00	0.432	0.05	Not Significant
	Male	194	3.43				
Problem-Solving in Matches	Female	129	3.41	12179.50	0.684	0.03	Not Significant
	Male	194	3.44				
Empowerment of Players	Female	129	3.42	12477.00	0.965	0.00	Not Significant
	Male	194	3.42				
Collaborative Team Environment	Female	129	3.41	12444.50	0.934	0.01	Not Significant
	Male	194	3.41				
Systems Thinking in Strategic Planning	Female	129	3.39	12266.50	0.763	0.02	Not Significant
	Male	194	3.39				
Overall	Female	129	3.42	12391.50	0.883	0.01	Not Significant

3.2. Difference in the Assessment of the Players Based on Academic Programs

All the p-values obtained from the Kruskal-Wallis test are greater than the 0.05 level of significance, as shown in table 3. Hence, it can be concluded that there is no significant difference in the assessment of the players' adaptive leadership strategies in badminton coaching in terms of flexibility in coaching ($H = 9.79$; $p = 0.134$), emotional intelligence on the court ($H = 7.17$; $p = 0.306$), problem-solving during matches ($H = 3.38$; $p = 0.760$), empowerment of players ($H = 8.87$; $p = 0.181$), collaborative team environment ($H = 6.33$; $p = 0.387$), systems thinking in strategic planning ($H = 7.20$; $p = 0.303$), and overall ($H = 7.59$; $p = 0.270$) when the players are classified based on their academic programs.

The results indicate that students from all academic backgrounds have similar views on the effectiveness of adaptive leadership tactics in badminton teaching. The absence of any notable distinction is consistent with research findings that suggest sports coaching effectiveness and leadership styles can be perceived similarly among various groups as long as the coaching environment and methods are inclusive and consistently implemented [9].

The uniform assessment across different academic programs may also indicate a standardized mentoring method inside educational institutions, guaranteeing that all athletes have comparable training and leadership opportunities. Ensuring an egalitarian sports environment is crucial for providing all athletes, irrespective of their academic background, with equal opportunities to receive top-notch coaching and leadership [10].

Table 3. Difference in the Assessment of the Players of the Adaptive Leadership Strategies in Badminton Coaching Based on Academic Programs.

Indicators	Academic Program	N	Mean	H	p	Interpretation
Flexibility in Coaching	Business Administration	21	3.56	9.7960 22	0.1343.45 3.48	Not Significant
	Education	37	3.39			
	Engineering	61	3.50			
	Health Sciences	95	3.44			
	Humanities/Social Sciences	27	3.42			
	Natural Sciences	60	3.49			
	Other	22	3.55			
Emotional Intelligence on the Court	Business Administration	21	3.44	7.17	0.306	Not Significant
	Education	37	3.40			
	Engineering	61	3.45			
	Health Sciences	95	3.43			
	Humanities/Social Sciences	27	3.47			
	Natural Sciences	60	3.52			
	Other	22	3.40			
Problem-Solving in Matches	Business Administration	21	3.43	3.38	0.760	Not Significant
	Education	37	3.42			
	Engineering	61	3.48			
	Health Sciences	95	3.40			
	Humanities/Social Sciences	27	3.43			
	Natural Sciences	60	3.44			
	Other	22	3.40			
Empowerment of Players	Business Administration	21	3.49	8.87	0.181	Not Significant
	Education	37	3.33			

	Engineering	61	3.42			
	Health Sciences	95	3.37			
	Humanities/Social Sciences	27	3.46			
	Natural Sciences	60	3.46			
	Other	22	3.58			
Collaborative Team Environment	Business Administration	21	3.42	6.33	0.387	Not Significant
	Education	37	3.41			
	Engineering	61	3.48			
	Health Sciences	95	3.37			
	Humanities/Social Sciences	27	3.29			
	Natural Sciences	60	3.42			
	Other	22	3.52			
Systems Thinking in Strategic Planning	Business Administration	21	3.40	7.20	0.303	Not Significant
	Education	37	3.39			
	Engineering	61	3.43			
	Health Sciences	95	3.32			
	Humanities/Social Sciences	27	3.46			
	Natural Sciences	60	3.38			
	Other	22	3.46			
Overall	Business Administration	21	3.46	7.59	0.270	Not Significant
	Education	37	3.39			
	Engineering	61	3.46			
	Health Sciences	95	3.39			
	Humanities/Social Sciences	27	3.42			
	Natural Sciences	60	3.45			
	Other	22	3.48			

3.3. Difference in the Assessment of the Players Based on Years of Experience

To determine if there is a significant difference in the assessment of the players' adaptive leadership strategies in badminton coaching based on years of experience, the Kruskal-Wallis test was performed, as shown in Table 4. The data showed p-values higher than the 0.05 level of significance for being flexible in coaching ($H = 2.56$; $p = 0.633$), having emotional intelligence on the court ($H = 2.11$; $p = 0.715$), solving problems during games ($H = 3.97$; $p = 0.410$), giving players more power ($H = 7.26$; $p = 0.123$), working as a team ($H = 7.08$; $p = 0.132$), using systems thinking in strategic planning ($H = 5.51$; $p = 0.239$), and overall ($H = 1.10$; $p = 0.894$). This means that the null hypothesis will not be thrown out. Hence, regardless of their years of experience, their assessment of the adaptive leadership strategies in badminton coaching is the same.

Table 4. Difference in the Assessment of the Players of the Adaptive Leadership Strategies in Badminton Coaching Based on Years of Experience.

Indicators	Years as a Badminton Player	N	Mean	H	p	Interpretation
Flexibility in Coaching	1-3 years	66	3.44	2.56	0.633	Not Significant
	4-6 years	37	3.46			
	7-10 years	14	3.50			
	Less than 1 year	177	3.46			
	More than 10 years	29	3.56			

Emotional Intelligence on the Court	1-3 years	66	3.48	2.11	0.715	Not Significant
	4-6 years	37	3.45			
	7-10 years	14	3.57			
	Less than 1 year	177	3.42			
	More than 10 years	29	3.47			
Problem-Solving in Matches	1-3 years	66	3.36	3.97	0.410	Not Significant
	4-6 years	37	3.49			
	7-10 years	14	3.42			
	Less than 1 year	177	3.44			
	More than 10 years	29	3.42			
Empowerment of Players	1-3 years	66	3.32	7.26	0.123	Not Significant
	4-6 years	37	3.53			
	7-10 years	14	3.42			
	Less than 1 year	177	3.42			
	More than 10 years	29	3.53			
Collaborative Team Environment	1-3 years	66	3.39	7.08	0.132	Not Significant
	4-6 years	37	3.42			
	7-10 years	14	3.19			
	Less than 1 year	177	3.44			
	More than 10 years	29	3.35			
Systems Thinking in Strategic Planning	1-3 years	66	3.31	5.51	0.239	Not Significant
	4-6 years	37	3.44			
	7-10 years	14	3.34			
	Less than 1 year	177	3.40			
	More than 10 years	29	3.42			
Overall	1-3 years	66	3.38	1.10	0.894	Not Significant
	4-6 years	37	3.46			
	7-10 years	14	3.41			
	Less than 1 year	177	3.43			
	More than 10 years	29	3.46			

The uniformity seen indicates that the coaching techniques now used are regarded comparably by both inexperienced and experienced players. This demonstrates a consistent and successful use of leadership tactics across all levels. Consistency is essential for establishing a stable and fair training environment, fostering trust and a feeling of fairness among athletes. Research indicates that standardized coaching approaches play a significant role in promoting a unified team dynamic. This ensures that all athletes receive equal support and guidance regardless of their experience level. [11,12].

The absence of notable disparities also underscores the coaching personnel's capacity for adjustment and versatility. Skilled coaches can customize their communication and instructional approaches to accommodate the varying demands of athletes, guaranteeing that every player gets the appropriate degree of guidance and assistance. The capacity to adapt is crucial in creating an inclusive atmosphere that not only enhances physical performance but also encourages personal growth and advancement. The capacity to cater to the many requirements of athletes, ranging from novices to experienced players, clearly indicates a high degree of proficiency in coaching leadership [13].

These results emphasize the need for ongoing evaluation and improvement of coaching practices. Although the present approaches are successful, coaches must be

watchful and adaptable to the changing requirements of their players. Further investigation might focus on comprehending the many distinctions that may be present within these overarching conclusions, including examining specific sub-categories or contextual elements that could impact perceptions in different ways. By doing this, coaches can enhance their methods, guaranteeing that they not only fulfill the present requirements of their athletes but also anticipate and adjust to future obstacles and modifications in the sport [12,13].

Overall, the findings support the use of a well-rounded and flexible coaching strategy that effectively caters to the requirements of all athletes. Coaches are advised to continuously enhance their adaptive leadership abilities to ensure their tactics are still applicable and efficient in creating a good, inclusive, high-performing team atmosphere. The dedication to ongoing improvement is crucial for sustaining the confidence and involvement of athletes, thereby amplifying both personal and collective achievements.

4. Conclusions

The modest observability of adaptive leadership tactics shows a chance for coaches to improve their adaptive leadership abilities to assist athletes in their growth and progress more effectively. Enhancing these specific areas has the potential to improve the overall efficacy of coaching and have a favorable influence on players' development. The absence of notable disparities in evaluating coaching procedures across various demographic groups (gender, academic program, years of experience) suggests the presence of uniform coaching methods. The homogeneity indicates that the training and growth opportunities are distributed relatively, guaranteeing that all athletes get the same high-level coaching, regardless of their background. Players consider their progress in essential areas such as fundamental skills, involvement in many sports, technical development, and mental skills modest, with the most focus on developing their cognitive abilities. This emphasizes acknowledging the significance of mental fortitude and concentration in athletics. However, it also suggests a need for more emphasis on developing physical and technical skills to attain a more well-rounded progress.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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References

- [1] Zhu, J.; Li, L. The development and countermeasures of badminton in China under the background of “big sports” strategy. *Journal of Hubei Sports Science*, 2019, 38(3), 71-75.
- [2] Northouse, P.G. *Leadership: Theory and practice*. Sage publications, 2021.
- [3] Jiang, Y.; Chen, L.; Tan, J. The influence of government policy on the development of badminton in China. *Journal of Shenyang Sport University*, 2018, 37(2), 141-144.
- [4] Forth, J.; Zhang, J. China and the Chinese in global badminton: A partnership between authoritarianism and transnational capital. *International Journal of the History of Sport*, 2016, 33(15), 1844-1863.
- [5] Yang, S.; Zhou, M.; Zhang, L.; Hu, L.; Wang, L. Research on the innovative development strategy of badminton teaching in colleges and universities. *International Journal of Academic Research in Business and Social Sciences*, 2020, 10(1), 186-194.
- [6] Library of Professional Coaching. How Gender Affects Coaching. 2023. Available online: <https://libraryofprofessionalcoaching.com> (accessed on 12 October 2024)
- [7] Johnson, S.R.; Wojnar, P.J.; Price, W.J. et al. A coach’s responsibility: Learning how to prepare athletes for peak performance. *The Sport Journal*, 2011, 14(1), 1-14.
- [8] McCleery, J.; Tereschenko, I.; Li, L. et al. Gender differences in coaching behaviors supportive of positive youth sports experience. *Women in Sport and Physical Activity Journal*, 2023, 31(2), 63-72.
- [9] University of Charleston. Sport Analytics. 2023. Available online: <https://www.ucwv.edu/academics/majors-degrees/sport-analytics/> (accessed on 12 October 2024)
- [10] University of Virginia. Sports Analytics and Statistics Laboratory. 2023. Available online: <https://uva.theopenscholar.com/sasl> (accessed on 12 October 2024)
- [11] Raidbard, M. How NCAA division I, II, and III men’s college basketball coaches perceive themselves as leaders. *The Sport Journal*, 2019, 22.
- [12] Zamecnik, A.; Kovanović, V.; Joksimović, S. et al. The perceptions of task cohesion in collaborative learning teams. *International Journal of Computer-Supported Collaborative Learning*, 2024, 1-25.
- [13] Murray, P.; Lord, R.; Lorimer, R. The influence of gender on perceptions of coaches’ relationships with their athletes: A novel video-based methodology. *The sport journal*, 2018.



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