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The Relationship Between Coach Identity Leadership and Athlete Engagement: The Mediating Role of Effective Communication Within Sports Teams

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Abstract

This study explored the relationship between coaches' perceived identity leadership and their dimensions, the athletes' engagement, and the mediating role of effective communication within the sports team. A convenience sampling method was used to conduct a questionnaire survey on 550 athletes. The research showed that there was a significant positive correlation between coaches' perceived identity leadership and each of its dimensions, effective communication within the sports team, and athletes' engagement; coaches' perceived identity leadership and its dimensions had a positive impact on effective communication within the sports team and athletes' engagement; effective communication within the sports team had a positive impact on athletes' engagement; and effective communication played a significant mediating role between coaches' perceived identity leadership and its dimensions and athletes' engagement.

1 Introduction

Driven by the perspective of positive psychology research, athlete engagement, as an active psychological state of athletes, has received extensive attention from sports scholars (Gu & Xue, 2022; Tian & Sun, 2024). Athlete engagement refers to athletes regarding their sports behavior as an indispensable part of their lives, including sports vitality, sports concentration, and positive sports states (Lonsdale et al., 2007). Empirical studies have shown that athlete engagement not only helps improve mental health levels but also alleviates sports burnout and sports withdrawal phenomena (Graña Ramos et al., 2021; Kim et al., 2020). Moreover, athlete engagement enables researchers to better understand the complexity of human sports behavior and provides a framework for promoting positive sports experiences (Hodge et al., 2009). Therefore, how to enhance athlete engagement has become an important topic in sports education, sports training, and related academic fields (Green, 2014; Till et al., 2022). Current research on the formation mechanism of athlete engagement mostly focuses on the internal motivation level of athletes, while the exploration of environmental factors is still insufficient. Coaches, as key social environmental factors in sports teams, their concepts and behaviors deeply influence athletes' cognition, emotions, and sports performance during training (Huang et al., 2021). According to the social identity theory, identity leadership is regarded as a social influence process, with its core being the ability of the leader to represent, promote, create, and embed the common social identity of group members (Steffens et al., 2014). Given that athlete engagement encompasses both cognitive and emotional aspects, the identity leadership of coaches may be associated with their level of engagement. In the social psychology model of collective action, team identity is considered a key factor in promoting members' willingness and behavior to contribute to the team's goals, and effective communication within the sports team is an important way to form team identity (Shah et al., 2023). Based on the above theoretical background, this study intends to explore the association between coach identity leadership and its dimensions and athlete engagement, and examine the mechanism of effective communication within the sports team in this regard, thereby deepening the understanding of coach identity leadership and the function of team communication, and providing theoretical references and practical basis for enhancing athlete engagement levels.

Identity leadership includes four principles: identity prototype, representing the leader's embodiment of the core characteristics of the group; identity promotion, focusing on the maintenance and promotion of the common interests of the group; identity entrepreneurial spirit, concerning the leader's ability to shape the collective consciousness; and identity embedding, that is, giving collective identity a real form through institutions and activities (Steffens et al., 2014). In the sports field, coach identity leadership has been proven to effectively promote the accumulation of individual resources and team resources (Fransen et al., 2020; Krug et al., 2021).

According to the basic propositions of positive psychology, in the field of organizational psychology, engagement is regarded as the opposite of burnout and is defined as a psychological state with persistence, positive emotions, and internal motivation (Graña Ramos et al., 2021). As this concept was introduced into the field of sports research, scholars further pointed out that athlete engagement reflects the persistent and positive cognitive and emotional experiences of athletes in sports activities (Hodge et al., 2009; Lonsdale et al., 2007). Specifically, athlete engagement has the following characteristics: a) confidence, which is the firm belief in one's ability to achieve high performance and reach goals; b) dedication, manifested as the willingness to invest time and effort for goals that one considers significant; c) vitality, referring to the abundant and active state of the body and mind; d) enthusiasm, reflected as a high level of excitement and pleasure during the sports process (Hodge et al., 2009; Lonsdale et al., 2007).

According to research on work engagement, the identity entrepreneurship dimension of identity leadership is significantly positively correlated with employee work engagement. Studies show that when leaders practice identity entrepreneurship, it helps to enhance the level of employee work engagement (Steffens et al., 2014). These findings indicate that identity leadership has a positive effect on promoting individual engagement. In the field of sports research, some scholars have also pointed out that leaders implementing identity leadership are positively correlated with the degree of athletes' participation in group activities, and can indirectly improve the attendance rate of athletes in sports courses (Stevens et al., 2018). Moreover, the identity leadership of coaches has a promoting effect on enhancing athletes' confidence and enthusiasm (Fransen et al., 2016; Huan et al., 2021). Thus, there is a close relationship between the identity leadership of coaches and athlete engagement.

Effective communication within a sports team is a two-way process, in which team members exchange valuable resources to improve the attributes and efficiency of the team (Sullivan & Feltz, 2003; Sullivan & Short, 2011). Communication is regarded as a core element of leadership (Awamleh & Gardner, 1999; Den Hartog & Verburg, 1997). Internal team communication is a team process variable regulated by leadership factors (such as identity leadership), and leadership often forms an association with team outcomes through such process factors (Boies et al., 2015; Schei et al., 2023). Research shows that identity leadership has a significant promoting effect on team identity, and team identity is a key factor in enhancing the quality of team communication (Miller et al., 2020; Shan et al., 2021). In various group processes, such as communication and team goal commitment, the role of the leader is particularly crucial, and this phenomenon is particularly prominent in competitive sports environments (Haslam et al., 2020; Rees et al., 2015). Empirical research further indicates that the leader's identity leadership can

indirectly affect team communication and cooperation by enhancing athletes' team identity and psychological security (Fransen et al., 2020).

According to the social exchange theory, the social exchange framework understands human interaction as a continuous exchange process aimed at long-term resource acquisition, where the resources exchanged are regarded by the participants as valuable "goods" (Smith et al., 2013). In sports teams, the sharing of experience accumulated by team members during training and competitions is a concrete manifestation of such an exchange of goods. Research shows that supportive communication from coaches (such as enthusiastic encouragement) helps enhance athletes' self-confidence, and the positive interaction between the two parties can effectively stimulate athletes' enthusiasm for sports (Forlenza et al., 2018; Huang et al., 2021). In organizational behavior studies, the quality of internal communication within the team, the level of trust, and the degree of members' participation in decision-making are all positively correlated with job engagement, and effective communication has a positive effect on enhancing employees' job engagement (Welch, 2011). In related research in the sports field, two-way communication between athletes and coaches can mobilize athletes' vitality and enthusiasm, thereby promoting the improvement of their sports engagement level (Gu et al., 2023). Moreover, effective internal communication within the team can serve as a mediating variable, playing a connecting role between identity leadership and team cohesion (Schei et al., 2023).

Therefore, this study aims to investigate the relationship between coach identity leadership and its various dimensions and athlete engagement, and further explore the mediating mechanism of effective internal communication within the sports team. Although existing theories have revealed the general connection between identity leadership and individual engagement, the specific path of the coach's identity leadership in the sports training context, especially the mediating role of internal communication within the team, is still unclear. Based on this, this study proposes the following hypotheses:

Hypothesis 1

(H1): Coach identity leadership and its various dimensions are positively associated with effective internal communication within the sports team and athlete engagement.

Hypothesis 2

(H2): Effective internal communication within the sports team is positively associated with athlete engagement.

Hypothesis 3

(H3): Effective internal communication within the sports team has a significant mediating role in the relationship between coach identity leadership and its various dimensions and athlete engagement.

The research model of this study is shown in Fig. 1.

Figure . Research model.

2 Research Methods

2.1 Participants

This study employed a convenience sampling method. Athletes from 9 universities in the western, central, and eastern regions of China were selected and 600 of them were given questionnaires to fill out. All participants provided verbal informed consent after fully understanding the research purpose, the principle of voluntary participation, and the measures for data confidentiality. The entire survey process followed the ethical norms of scientific research, and the data were strictly confidential. The participation was completely voluntary, and the consent and support of the coaches of each team were obtained before the implementation of the study. This research has been approved by the Sports Science Ethics Committee of Shandong Sports University. All procedures were carried out in accordance with the research ethics standards. A total of 550 valid questionnaires were recovered, with an effective recovery rate of 91.7%. Among the participants, 365 were male (66.4%) and 185 were female (33.6%). The average age of the athletes was 20.73 ± 1.709 years, and the average duration of sports participation was 6.79 ± 2.071 years. The sports they engaged in included basketball, football, and volleyball.

2.2 Measures

Identity Leadership Scale (Identity Leadership). The Identity Leadership Inventory (ILI), developed by Steffens et al. (2014), was used to measure the identity leadership of coaches. To accurately measure the identity leadership of Chinese coaches, the original scale items were translated into Chinese using the two-way translation method. Firstly, two experts with expertise in sports psychology independently translated the English scale into Chinese, taking into account the contextual features and language habits of Chinese sports culture during the translation process. Then, an expert who was not familiar with the original content was invited to do a back-translation of the Chinese version, and the back-translation version was compared with the original one, item by item, to identify and correct semantic differences. After multiple rounds of revision and optimization, the scale was ensured to maintain the original measurement content while having accurate and fluent language expression and conforming to the cognitive habits of Chinese athletes. The scale consists of fifteen items and is divided into four dimensions: identity prototype, identity promotion, identity entrepreneurship spirit, and identity embedding. It uses the Likert 5 scoring method, ranging from 1 "strongly disagree" to 5 "strongly agree", with higher scores indicating a higher level of identity leadership of the coach. In this study, the overall Cronbach's α of the scale was 0.874, and the Cronbach's α of the four dimensions were 0.842, 0.841, 0.900, and 0.866, respectively. Through confirmatory factor analysis, it was found that $\chi^2/df = 1.961$, RMSEA = 0.042, CFI = 0.981, NFI = 0.963, TLI = 0.977.

Scale for Effective Communication in Team Sports (SECTS-2). The second edition of the Scale for Effective Communication in Team Sports (SECTS-2), developed by Sullivan and Short (2011), was used to measure the quality of effective communication within sports teams. To accurately measure the effective communication within sports teams, the original scale items were translated into Chinese using the two-way translation method. The scale consists of fifteen items and is divided into four dimensions:

acceptance, uniqueness, positive conflict, and negative conflict. It uses the Likert 5 scoring method, ranging from 1 "never" to 5 "always", with higher scores indicating a higher level of effective communication within the sports team. In this study, the Cronbach's α of the scale was 0.867, and the Cronbach's α of the four dimensions were 0.967, 0.853, 0.873, and 0.958. Through confirmatory factor analysis, it was found that $\chi^2/df = 3.278$, RMSEA = 0.064, CFI = 0.976, NFI = 0.966, TLI = 0.970.

Athlete Engagement Questionnaire. The Athlete Engagement Questionnaire (AEQ), developed by Lonsdale et al. (2007), was used to measure the level of athlete engagement. The scale consists of sixteen items and is divided into four dimensions: confidence, vitality, dedication, and enthusiasm. Using the Likert 5-point scoring method, ranging from 1 ("never") to 5 ("always"), the higher the score, the higher the athlete's engagement level. In this study, the overall Cronbach's α of the scale was 0.958, and the Cronbach's α of the four dimensions were 0.894, 0.904, 0.862, and 0.964. Through confirmatory factor analysis, it was found that $\chi^2/df = 3.482$, RMSEA = 0.067, CFI = 0.974, NFI = 0.964, TLI = 0.968.

2.3 Data Analysis

Data analysis was conducted using SPSS 26.0 and Amos 23.0 programs. Confirmatory factor analysis was used to verify the construct validity of the scale, and reliability analysis (Cronbach's α) was used to analyze the reliability of the scale. Then, to better utilize the data for analysis, item bundling was performed for each dimension of the scale. In addition, common method bias analysis, descriptive statistical analysis, and correlation analysis were conducted. At the same time, the plugin Process 4.1 was used for Bootstrap analysis to verify the research model and hypotheses proposed in this study.

3 Results

3.1 Common method bias assessment

This study employed Harman’s single-factor analysis to assess the potential existence of common method bias (CMB). According to the established criteria, if the variance explained by a single factor exceeds 40% of the total variance, it indicates the presence of CMB; if the variance explained by the first factor is less than 40%, it suggests that CMB is unlikely to be a significant issue. The analysis results showed that the eigenvalues of the 9 factors were greater than 1, among which the first factor explained 29.755% of the total variance, which was below the critical threshold of 40%. Therefore, common method bias did not constitute a major problem in this study.

3.2 Descriptive analysis and correlation analysis

Based on the results of the descriptive and correlation analyses of the research variables (see Table 1 for specific results), the average score of coaches' identity leadership for 550 athletes was 4.296 (SD = 0.443), the average score of identity prototype was 4.225 (SD = 0.632), the average score of identity advancement was 4.266 (SD = 0.619), the average score of identity entrepreneurship was 4.311 (SD = 0.644), the average score of identity embedding was 4.412 (SD = 0.622), the average score of effective communication within the sports team was 4.246 (SD = 0.492), and the average score of athlete commitment was 4.285 (SD =

0.581). The correlation analysis results showed that coaches' identity leadership and each dimension, team communication, and athlete commitment were all significantly positively correlated with each other, with correlation coefficients ranging from 0.126 to 0.494, which provided strong support for the subsequent mediation effect test.

Table 1
Descriptive analysis and correlation analysis.

Variable	M	SD	1	2	3	4	5	6	7
1.ILI	4.302	0.443	1						
2.IP	4.225	0.632	0.737**	1					
3.IA	4.287	0.602	0.718**	0.366**	1				
4.IE	4.311	0.644	0.757**	0.381**	0.382**	1			
5.II	4.412	0.622	0.592**	0.271**	0.246**	0.309**	1		
6. SECTS	4.246	0.492	0.431**	0.311**	0.289**	0.310**	0.314**	1	
7.AE	4.285	0.581	0.347**	0.224**	0.126**	0.201**	0.494**	0.449**	1

M: mean; SD: standard deviation; ILI: Identity Leadership Inventory; IP: Identity Prototypicality; IA: Identity Advancement; IE: Identity Entrepreneurship; II: Identity Impresarioship; SECTS: Scale for Effective Communication in Team Sports; AE: Athlete Engagement; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. (The same applies hereinafter).

3.3 Analysis of the Direct Effect

Firstly, in order to verify the direct effect of identity leadership and its dimensions on effective communication within the sports team, this study took effective communication within the sports team as the dependent variable, and identity leadership and its dimensions as the independent variables. After controlling for demographic variables (gender, age, training years, and sports level), a hierarchical regression analysis was conducted. The results showed that identity leadership ($\beta = 0.425$, $p < 0.001$), identity prototype ($\beta = 0.300$, $p < 0.001$), identity promotion ($\beta = 0.282$, $p < 0.001$), identity entrepreneurship ($\beta = 0.302$, $p < 0.001$), and identity embedding ($\beta = 0.312$, $p < 0.001$) all had significant positive effects on effective communication within the sports team. Secondly, in order to verify the direct effect of identity leadership and its dimensions on effective communication within the sports team and the athlete's commitment, this study took athlete commitment as the dependent variable, and identity leadership and its dimensions and effective communication within the sports team as the independent variables. After controlling for demographic variables (gender, age, training years, and sports level), a hierarchical regression analysis was conducted. The results showed that identity leadership ($\beta = 0.324$, $p < 0.001$), identity prototype ($\beta = 0.211$, $p < 0.001$), identity promotion ($\beta = 0.113$, $p < 0.01$), identity entrepreneurship ($\beta = 0.188$, $p < 0.001$), identity embedding ($\beta = 0.489$, $p < 0.001$), and effective communication within the sports team ($\beta = 0.441$, $p < 0.001$) all had significant positive direct effects on athlete commitment. Therefore, both hypotheses H1 and H2 proposed in this study were effectively supported.

3.4 Mediation analysis

To test the mediating effect of effective communication within the sports team between the coach's identity leadership and its dimensions and athlete commitment, the study constructed a model with identity leadership and its dimensions as independent variables, effective communication within the sports team as the mediating variable, and athlete commitment as the dependent variable. The model was tested using the Process 4.1 plugin of the SPSS 26.0 macro program, with 5000 bootstrap replications. The significance of the mediating effect was determined based on whether the 95% confidence interval (CI) included 0. Meanwhile, the control variables of gender, age, training years, and sports level were included. The Bootstrap analysis results of the mediating effect test for effective communication within the sports team between identity leadership and athlete commitment are shown in Table 2.

When verifying the mediating effect of effective communication within the sports team between identity leadership and athlete commitment, it was found that the direct effect was 0.236, with a confidence interval of [0.127, 0.344] (excluding 0), and the mediating effect of effective communication within the sports team was 0.204, with a confidence interval of [0.142, 0.272] (excluding 0). This indicates that there is a partial mediating effect of effective communication within the sports team between identity leadership and athlete commitment.

When verifying the mediating effect of effective communication within the sports team between identity prototype and athlete commitment, it was found that the direct effect was 0.079, with a confidence interval of [0.006, 0.152] (excluding 0), and the mediating effect of effective communication within the sports team was 0.115, with a confidence interval of [0.076, 0.161] (excluding 0). This indicates that there is a partial mediating effect of effective communication within the sports team between identity prototype and athlete commitment. When verifying the mediating role of effective communication within the sports team in the relationship between identity advancement and athlete commitment, it was found that the direct effect was − 0.012, with a confidence interval of [-0.088, 0.065] (including 0), and the mediating effect of effective communication within the sports team was 0.121, with a confidence interval of [0.077, 0.172] (excluding 0). This indicates that there is a complete mediating effect of effective communication within the sports team between identity advancement and athlete commitment.

When verifying the mediating role of effective communication within the sports team in the relationship between identity entrepreneurship and athlete commitment, it was found that the direct effect was 0.055, with a confidence interval of [-0.017, 0.126] (including 0), and the mediating effect of effective communication within the sports team was 0.115, with a confidence interval of [0.076, 0.162] (excluding 0). This indicates that there is a complete mediating effect of effective communication within the sports team between identity entrepreneurship and athlete commitment.

When verifying the mediating role of effective communication within the sports team in the relationship between identity embedding and athlete commitment, it was found that the direct effect was 0.364, with a confidence interval of [0.297, 0.432] (excluding 0), and the mediating effect of effective communication within the sports team was 0.093, with a confidence interval of [0.062, 0.129] (excluding 0). This indicates

that there is a partial mediating effect of effective communication within the sports team between identity embedding and athlete commitment.

Through the above verification and analysis, it is indicated that Hypothesis 3 is valid.

Table 2
Bootstrap analysis of mediation effects tests.

Hypotheses	Path	Indirect effect	95%Confidence Intervals (CI)		Direct effect	95% Confidence Intervals (CI)		Test results
			Boot LLCI	Boot ULCI		Boot LLCI	Boot ULCI	
H3	ILI→SECTS→AE	0.204	0.142	0.272	0.236	0.127	0.344	Accepted
	IP→SECTS→AE	0.115	0.076	0.161	0.079	0.006	0.152	Accepted
	IA→SECTS→AE	0.121	0.077	0.172	-0.012	-0.088	0.065	Accepted
	IE→SECTS→AE	0.115	0.076	0.162	0.055	-0.017	0.126	Accepted
	II→SECTS→AE	0.093	0.062	0.129	0.364	0.297	0.432	Accepted

4 Discussion

This study verified the direct correlation between the coach's identity leadership and its various dimensions and the athletes' engagement. The results indicated that the overall coach's identity leadership and its four dimensions all had a significant positive effect on the athletes' engagement, which was similar to the findings of previous studies (Fransen et al., 2016; Huang et al., 2021). Firstly, based on the social identity theory, coaches who embody the identity prototype dimension can closely combine the team goals with their personal identities and set an example by demonstrating internal respect and external humility. This behavior helps athletes deeply understand the team identity, enhances their sense of identification, and also improves the coach's leadership effectiveness. In this environment, athletes tend to be consistent in their cognition, emotions, and behaviors with those who conform to the team prototype characteristics, thereby stimulating their inner vitality and enthusiasm, and increasing their engagement level (Herbison et al., 2022; Hogg et al., 2005; Hogg & Turner, 1987; Steffens et al., 2021). Secondly, coaches who embody the identity promotion dimension act in the interest of the group and always take "we" as the action principle, striving for the team's progress. This behavior not only strengthens the connection between the coach and the athletes but also motivates team members through the coach's social identity, thereby enhancing the athletes' identification with the team identity, increasing the coach's influence, and gaining the athletes' trust (Slater et al., 2014). Trust serves as the foundation for stimulating the athletes' mental vitality, and athletes with a team identity show greater confidence and vitality under the support of trust, and are more willing to go all out for the team's development and goals (Hoegh & Bourgeois, 2002). Thirdly, coaches who embody the identity entrepreneurial spirit dimension guide athletes through clarifying the norms and goals of group behavior. At the same time, by explaining the team's actions, goals, and their significance, the

coach enhances the clarity of the team's shared activities, thereby strengthening the athletes' self-efficacy. Research shows that the identity entrepreneurial spirit can stimulate positive psychological resources (such as self-efficacy), reduce negative psychological states, and thereby enhance the athletes' confidence and vitality, promoting their engagement (Hu et al., 2011; Jekauc et al., 2023). Fourthly, coaches who embody the identity embedding dimension introduce group structures, rituals, and unity activities to promote interaction among team members (Chamberlain et al., 2021). Fourthly, coaches who embody the identity embedding dimension introduce group structures, rituals, and unity activities to promote interaction (Eys et al., 2019). In sports, cohesion is an important source of social support, enabling athletes to gain a sense of belonging, security, and effective guidance, thereby improving their sports skills. These factors collectively motivate athletes to fully engage in training and competitions with greater enthusiasm, vitality, and confidence (Gu & Xue, 2022). Secondly, this study verified the direct connection between effective internal communication within the sports team and the athletes' engagement. The results showed that effective internal communication among the team has a positive effect on the athletes' engagement, which is similar to the conclusions of previous studies (Forlenza et al., 2018); Huang et al., 2021). Effective team communication encompasses interactions among athletes and between athletes and coaches. Based on the social exchange theory, effective team communication can facilitate athletes to share training and competition experiences, which is conducive to enhancing their skill levels and psychological security, thereby strengthening their confidence in training and competitions (Davis et al., 2022). At the same time, mutual encouragement among athletes promotes the exchange of positive emotions, helping the team to resolve internal conflicts and cope with external challenges. The emotional support within the team and good communication can enhance the ability to resist pressure and improve team resilience (Bui et al., 2019). A resilient sports team can support each other during training and competitions, thereby enhancing athletes' confidence, stimulating their passion and vitality, and ultimately improving their engagement level (Freeman & Rees, 2010; Morgan et al., 2013). Moreover, the positive feedback and encouragement from coaches to athletes can make athletes feel cared for, respected and understood, satisfying their psychological needs. This not only enhances the sense of belonging and happiness of athletes, but also stimulates their training enthusiasm and vitality, motivating them to fully devote themselves to sports training and competitions (Lafrenière et al., 2011).

Finally, this study verified the mediating role of effective communication within the sports team in the relationship between the coach's identity leadership and its dimensions and athletes' engagement. The results showed that the coach's identity leadership and its various dimensions could indirectly affect athletes' engagement through effective team communication. First, coaches who embody the identity prototype act as representatives of the team identity, better understand and value the athletes' values and needs, and prioritize them. This approach makes athletes feel respected and cared for, thus encouraging them to freely express their opinions, promoting effective communication within the team (Slater et al., 2014). Effective communication facilitates emotional exchanges among team members, meeting the basic psychological needs of athletes, and making them more willing to go all out for the team's goals (Lafrenière et al., 2011). Second, coaches who embody identity promotion act with the group's interests as the guiding principle, dedicated to the team's progress, which can enhance athletes' identification with the coach and the team. Athletes with a high degree of identification with the team are more likely to exhibit

cooperative behaviors (Fransen et al., 2020). During the cooperation process, team members engage in positive and constructive discussions to achieve common goals, thereby promoting effective communication within the team and enhancing athletes' engagement level. Third, coaches who embody the identity entrepreneurial spirit focus on the personal needs and abilities of athletes, emphasizing their contributions to the team in communication, and through experience sharing and encouragement, enhance athletes' sense of belonging and self-cognition of value, thereby promoting their common social identity recognition (Herbison et al., 2022). Research shows that strong social identity can enhance an individual's willingness to participate in physical exercise, improve psychological adaptability, control, and resilience, help athletes actively cope with training and competition pressures, and ultimately enhance vitality and engagement level (Balaguer et al., 2012). Fourth, coaches who embody the identity embedding principle organize various activities at the beginning of the season to promote interaction and communication among team members (Chamberlain et al., 2021). Additionally, by providing structured support and group activities, coaches promote the implementation of team values and goals, strengthening athletes' social identity. This not only enhances the recognition and trust of athletes towards the coach but also stimulates their spiritual vitality. With the support of trust, athletes demonstrate greater confidence and enthusiasm and are more willing to go all out for the development of the team (Hoegh & Bourgeois, 2002; Slater et al., 2014; van Dick et al., 2021).

5 Conclusions and recommendations

This study examined the relationship between the coach's identity leadership and its various dimensions, effective communication within the sports team, and athlete engagement. The main results are as follows: First, the overall coach's identity leadership and its various dimensions positively promoted effective communication within the sports team and athlete engagement. Second, effective communication within the sports team had a direct positive effect on athlete engagement. Third, effective communication played a significant mediating role between the coach's identity leadership and its various dimensions and athlete engagement.

Based on these conclusions, the following practical implications are proposed: First, strengthen the awareness of identity leadership and shape a shared team identity. Coaches should consciously apply the principles of identity leadership by setting examples (identity prototypes), emphasizing collective interests (identity promotion), clarifying common goals and behavioral norms (identity entrepreneurship), and organizing team-building activities (identity embedding), to closely unite athletes around the shared team identity, thereby directly enhancing their engagement. Second, build open communication channels to promote positive team interaction. Coaches should actively create an open and trusting team atmosphere, encourage experience sharing and emotional support among athletes and between athletes and coaches. Through establishing regular feedback mechanisms and organizing team meetings, ensure smooth information flow and use effective communication as an important way to enhance athlete engagement. Third, make good use of the role of communication bridges to optimize the leadership transmission path. Coaches should recognize that excellent leadership needs to be effectively transformed into athletes' voluntary actions through effective team interaction. Therefore, in practice, they should consciously

amplify the positive effects of identity leadership through improved communication to maximize leadership effectiveness.

6 Research Limitations and Future Development

This study, by examining the relationship between the coach's identity leadership and its various dimensions and athlete engagement, and introducing effective communication within the sports team as a mediating variable, not only enriches the theoretical system in the fields of sports management, sports psychology, and organizational behavior, but also provides a new perspective for interdisciplinary research. Moreover, the research results help to deeply understand how coaches, through their identity construction, behavior performance, and interaction methods, promote athletes' psychological engagement, thereby providing a theoretical basis for the mechanism of coach leadership and offering reference value for improving coach leadership effectiveness. Although this study has reached conclusions with certain theoretical significance and practical implications, it still has several limitations that need to be further explored in future research:

First, this study uses cross-sectional data, which can reveal the correlations between variables, but it is difficult to establish the causal relationship between the coach's identity leadership, team communication, and athlete engagement. Future research can adopt longitudinal tracking designs or experimental research methods, through multi-time point data collection or intervention experiments, to further verify the paths and causal directions of the relationships between variables.

Second, this study mainly focuses on the mediating role of effective communication within the sports team. However, the mechanism by which the coach's identity leadership affects athlete engagement may have other mediating paths. Future research can introduce more psychological and social process variables, such as athlete psychological need satisfaction, to more comprehensively reveal the multi-path mechanism of identity leadership on athlete engagement.

Ethical considerations

Declarations

Consent to participate

Informed consent was obtained verbally before participation. The consent was audio-recorded in the presence of an independent witness.

Consent for publication

The data for this study were collected through anonymous surveys, with respondents’ consent obtained prior to participation. No human experimentation was conducted, in accordance with the principles of non-maleficence and informed consent. We ensured the privacy and confidentiality of the data, and the study received approval from the Research Ethics Academic Committee.

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Data availability

The datasets generated and/or analysed during the current study are not publicly available due to ethical restrictions regarding participant confidentiality, but are available from the corresponding author on reasonable request.

Author Contribution

Zheng Shuaiwei: Proposed research ideas and plans, designed the research plan, conducted a feasibility analysis of the plan, and revised the paper; Zhang Yi: Collected and analyzed the results; Ma Shasha: Translated and organized the paper;Bu Xiangui: Managed the literature and participated in the writing of the paper.

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Figures

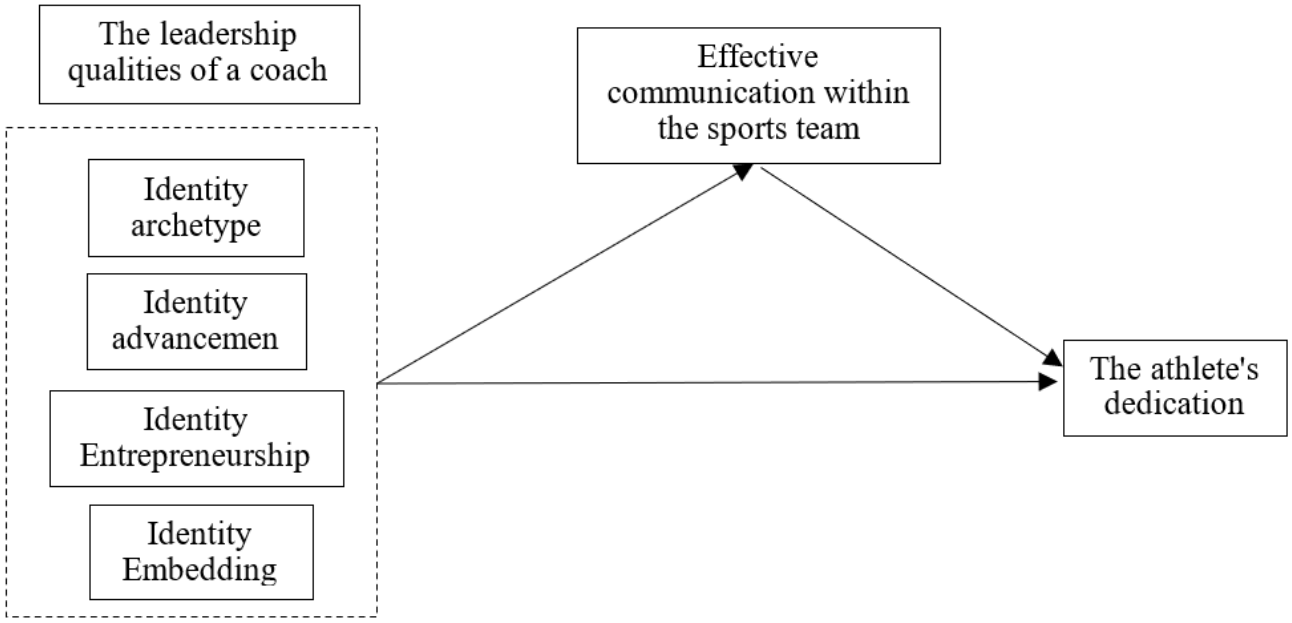


Figure 1

Research model.