Anwar, R. S., & Khan, M. S. (2025). Multicultural coach-athlete relationships and athlete outcomes: A longitudinal study of sustainable performance, satisfaction, and innovation. *Transformations and Sustainability, 1*(4), 235-262.
https://doi.org/10.63775/na966w62

Multicultural coach-athlete relationships and athlete outcomes: A longitudinal study of sustainable performance, satisfaction, and innovation

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Abstract

This longitudinal study examines the characteristics of expatriate coaches, athlete outcomes, Leader-Member Exchange (LMX), and perceived safety climate in multicultural sports. The study examines these dynamics to gain a deeper understanding of athlete-coach relationships and their impact on athlete satisfaction, performance, and innovation. Local Malaysian athletes and expatriate coaches in Malaysian sports centers provided six-month longitudinal data. Structural Equation Modelling was applied on 78 participants. Expat coach qualities, athlete outcomes, and LMX's moderating role in perceived safety climate are significantly correlated. Positive athlete-coach interactions and supportive coaching environments have been shown to improve athlete satisfaction, performance, and innovation. This study reveals the complex dynamics of athlete-coach relationships and highlights the significance of interpersonal and organizational climate in influencing athlete performance. For coaches, athletes, sports organizations, and governments, multicultural sports contexts necessitate relationship-building strategies and supportive coaching environments to foster athlete growth and success.

Keywords: athlete-coach relationships, multicultural sporting contexts, leader-member exchange (LMX), perceived safety climate, athlete outcomes.

1. Introduction

The coach-athlete relationship has become a well-known factor in modern sports psychology that defines the level of satisfaction of athletes, their performance, and innovative behavior. Expatriate coaching has emerged as an important environment in the study of these relational dynamics as international mobility in sport is steadily increasing. The uniqueness of expatriate coaching is in the complexity of cultural distance, language barriers, and philosophies of coaching (Donnelly et al., 2024). As sport has become a highly globalised field, the way coaches can adjust and successfully work in the multicultural environment has become a key research question (Kuruzovic et al., 2024). The previous empirical evidence shows that the following types of constructs play a significant role in determining the outcome of athletes: leader-member exchange (LMX), coaching leadership style, cross-cultural

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Received 12 July 2025; **Accepted** 12 December 2025; **Published** 13 December 2025

competence, and safety climate (Kim et al., 2022; Mandan et al., 2024). However, the relationship between these factors and their impact on the satisfaction of athletes, their performance, and innovation in expatriate coaching environments has not been sufficiently studied (Roberto de Andrade do Nascimento Junior et al., 2024).

The current literature on the topic of coach-athlete interactions provides a background of knowledge about the processes that lie behind the experiences of athletes (Liu et al., 2024). Based on the LMX theory, the research highlights the significance of relationship quality towards performance improvement and satisfaction of an athlete (Yu et al., 2024). The importance of trust, communication, and mutual respect is always emphasized as the key to building positive experiences in the coaching environment (Braun et al., 2024). Moreover, the coaching practices of empowerment, feedback, and emotional support have a significant positive effect on the performance and motivation of athletes (Nam et al., 2024; Azid et al., 2024). Similar lines of research have investigated the importance of perceived safe climate, revealing that a psychologically safe climate, in terms of free communication and enabling leadership, has a positive impact on athlete well-being and performance (Bakri et al., 2022; Cotterill et al., 2022). Intercultural competence and cultural intelligence have also been defined as essential to successful coaching in a culturally diverse setting (Allami et al., 2022; De Backer et al., 2022). In sum, these works prove that relationship quality, coaching behaviors, cultural attributes, and safety climate influence the athlete experience (Kim & Cruz, 2022).

With these contributions, there are still some gaps. The current literature does not give much information on how such variables as LMX and perceived safety climate serve as explanatory variables between coach factors and athlete performances (Beattie et al., 2022; Jawoosh et al., 2022). Very little research has been conducted on the role of coach leadership style and learning goal orientation in the athlete creativity and long-term development (Saks, 2022; Gonzalez-Garcia et al., 2022). Although much research has been conducted on coaching behaviors, the impact of coach behaviors on athlete developmental trajectories has undergone under investigation (McShan et al., 2023). In addition, the peculiarities of multicultural coaching settings are not adequately reflected in the current research that generally ignores the role of the cultural variability in the athlete-coach life (Perez, 2023; Lee et al., 2023). The lack of longitudinal studies also prevents the knowledge of how the relationships between an athlete and a coach change and impact performance over time (Khorram, 2023). These gaps need to be addressed to increase theoretical and practical knowledge in the field (Farhansyah et al., 2023).

The current research is based on LMX theory (Zhao et al., 2023), the goal orientation theory (Qamar et al., 2023), and the theory of safety climate (Lopez de Subijana et al., 2023). With the help of these theoretical lenses, the impact of LMX and perceived safety climate on the relation between expatriate coach characteristics, namely leadership style and learning goal orientation, and athlete satisfaction, performance and creativity are explored. This study will offer a more in-depth insight into the dynamics of expatriate coaching over an extended period of time, which will

eventually result in investing in better coaching methods and the overall health of athletes in multicultural and sustainable sport contexts.

2. Literature review

The emphasis of sports psychology and performance improvement research has predominantly been on coaching expatriate athletes (Sumarsono et al., 2023). Expatriate coaching calls for mental toughness, cultural flexibility, and athleticism (Soto-García et al., 2023). The performance and cultural flexibility of athletes in foreign settings are enormously influenced by this phenomenon (Zhang et al., 2023). When competing and living overseas, expatriate coaching helps athletes manage their mental and emotional well-being and improve their physical conditioning (Gligor et al., 2024). Based on research, expatriate-coached athletes possessing knowledge of cultures and practical communication skills perform better. Professional training and advice from coaches can help athletes overcome cultural issues and perform efficiently globally (Han, 2020). Expatriate coaching influences society and institutions apart from athletes. Global instructors are in need. This trend underscores the technical and cross-cultural ability of coaches (Anwar et al., 2023). Foreign coaches working abroad must provide a welcoming and open environment for players to grow and thrive. Research indicates that sports persons benefit from foreign coaching in terms of personal and cultural development, both within and outside of sports (Riaz et al., 2023). Adopting diversity and cross-cultural thinking, expatriate coaches can enhance sporting performance and international sports solidarity.

Sports performance and psychology rely on the LMX hypothesis to understand the relationships between athletes and coaches. LMX theory identifies the interpersonal bond between followers (athletes) and leaders (coaches) as a component of organizational performance (Taylor et al., 2022). According to the hypothesis, LMX represents the respect, communication, and trust between athletes and coaches. Coaching abroad can be challenging due to language and cultural differences (Manthar et al., 2025). Coach-led and performance satisfaction indicate athlete joy and achievement. Athletes demonstrate innovative problem-solving, strategy, and adaptive sports tactics. Numerous studies have investigated the interactions between athletes and coaches and their impact on performance (Root et al., 2025). Several studies propose that LMX is a predictor of athlete enjoyment, performance, and creativity (Kim et al., 2023). Strong athlete-coach relationships have been shown to increase athlete happiness and performance, as concluded by Martin et al. (2019). According to research on coach leadership style and athlete performance, support, communication, and empowerment lead to a positive athlete experience and performance improvement (Muzalfitri, 2023). Grounded in prior empirical research, this study predicts that LMX mediates the relationship between expatriate coach leadership style, athlete performance, athlete satisfaction, and innovative behavior (Manthar et al., 2025). Athlete outcomes are mediated by the expatriate coach's leadership style and the quality of the athlete-coach relationship. Based on LMX and

leadership effectiveness literature, coaches who have strong, supportive relationships with their athletes are more likely to enhance athlete satisfaction, performance, and innovation (Ahmed et al., 2017). This is particularly true in expatriate coaching contexts, where cultural adaptation and communication challenges are prevalent (Legood et al., 2023).

H1: LMX (Athlete and coach Relationship) significantly moderates the relationship between expatriate coach leadership style and athlete satisfaction and performance.

H2: LMX (Athlete and Coach Relationship) significantly moderates the relationship between the expatriate coach's leadership style and the athlete's innovative behavior.

Past empirical research has examined the complex interaction between LMX dynamics, expatriate coach cross-cultural competence, and athlete performance. LMX influences intercultural coaching, athlete satisfaction, and performance, as many studies have shown (Zaman et al., 2021). Alotaibi (2023) established that positive athlete-coach relationships are associated with cross-cultural athlete satisfaction and performance. Muzalfitri (2023) established that culturally attuned and adaptive coaches empower, invest, and trust athletes with LMX. Ullah et al. (2023) state that LMX enhances well-being and resilience among athletes, and therefore, it is beneficial for various coaching environments. The studies indicate that LMX acts as a mediator of the relationship between expatriate cross-cultural competency among coaches, athlete satisfaction, performance, and creativity (Theriou et al., 2024). When coaching in a foreign environment, expatriate coaches must possess the ability to navigate cultural differences and address issues effectively. Based on the literature, coaches with higher cross-cultural competency can develop and sustain healthy relationships with athletes, thereby enhancing their happiness, performance, and creativity (Ur Rehman et al., 2024). Roberto de Andrade do Nascimento Junior et al. (2024) established that cultural intelligence and adaptation enhance leadership as well as cross-cultural alliances. Therefore, this hypothesis aims to investigate how expatriate coaches' cross-cultural competence affects athlete results in multicultural sports contexts through LMX (Kuruzović[1] & Đorić, 2024). This research builds upon prior empirical evidence to further elucidate the relationship between LMX, expatriate coach cross-cultural competence, and athlete performance. These hypotheses apply leadership, cross-cultural psychology, and sports management knowledge to coaching interventions and practices, enhancing athlete satisfaction, performance, and innovation in multicultural and diverse sporting settings (Roberto de Andrade do Nascimento Junior et al., 2024). The empirical evidence supporting these hypotheses underscores the significance of positive athlete-coach relationships and the cross-cultural competencies of coaches in promoting athlete well-being and enhancing global performance.

H3: LMX (Athlete-Coch Relationship) significantly moderates the relationship between expatriate coaches' cross-cultural competency and athletes' satisfaction and performance.

H4: LMX (Athlete and Coach Relationship) significantly moderates the relationship between expatriate coach cross-cultural competency and the athlete's innovative behavior.

Research has shown that LMX, expatriate coach learning goal orientation, and athlete outcomes are linked. Coaching studies have demonstrated that LMX predicts athlete satisfaction, performance, and innovation. Yu et al. (2024) concluded that positive relationships between athletes and coaches are associated with enhanced motivation, commitment, and trust. Nam et al. (2024) concluded that support, communication, and empowerment in coaching enhance athlete experience and performance. According to Bakri et al. (2022), LMX enhances athlete performance and satisfaction. These findings elucidate the role of LMX in athlete-coach interaction and results. Drawing on prior empirical studies, the current research posits that LMX influences expatriate coach learning goal direction, athlete happiness, performance, and creativity (Allami et al., 2022). Personal development, professional development, and improvement, as well as mastering coaching skills abroad, are the primary learning goals for expatriate coaches. Learning goal coaches are likely to establish trust, effective communication, and respect with their athletes, which promotes athlete satisfaction, improved performance, and enhanced creativity, according to a study by Kim and Cruz (2022). Beattie and Turner (2022) found that a growth mindset, as opposed to a fixed mindset, increases adaptive behavior. The hypothesis attempts to describe how expatriate coach learning goal orientation influences athlete outcomes in multicultural sports through LMX (Saks, 2022). This study extends empirical evidence to predict LMX, expatriate coach learning goal orientation, and athlete performance. These hypotheses translate leadership, goal orientation, and sports psychology theories to coaching interventions and practices that enhance athlete satisfaction, performance, and innovation in multicultural and diverse sporting contexts (Jin, Kim, & Love, 2022). The empirical evidence supporting these hypotheses underscores the significance of positive coach-athlete relationships and a learning goal orientation for coaches in enhancing athlete development and performance in international sports.

H5: LMX (Athlete and coach Relationship) significantly moderates the relationship between expatriate coaches' learning goal orientation and athlete satisfaction and performance.

H6: LMX (Athlete and Coach Relationship) significantly moderates the relationship between the expatriate coach's learning goal orientation and the athlete's innovative behavior.

Past empirical studies have investigated how perceived safety climate impacts athlete experiences and results in coaching contexts. Safety climate perceptions influence athlete satisfaction, performance, and innovation, as supported by various studies. Perez (2023) found that an effective safety climate, characterized by clear communication, leadership support, and robust safety measures, enhances both employee satisfaction and performance. In sports, Khorram (2023) discovered that perceptions of safety climate influence athlete motivation, participation, and well-being. Zhao and Jowett (2023) found that a safe climate encourages psychological

safety and risk-taking among athletes, which can facilitate innovation and adaptive performance in competitive sports. These studies demonstrate that the perceived safety environment influences the athlete's experience and results in coaching (Sumarsono et al., 2023). Grounded on past empirical studies, this research theorizes that perceived safety climate mediates the association between expatriate coach leadership style, athlete satisfaction, performance, and innovation (Zhang et al., 2023). Expatriate coaches may need to employ a different leadership style in culturally diverse and communication-challenged nations. Based on the literature, expatriate coaches who develop a favorable safety climate by employing supportive, participative, and safety-minded leadership are more likely to enhance athletes' happiness, performance, and innovation (Han, 2020). Taylor et al. (2022) established that leadership influences perceptions of safety climate and enhances safety within organizations. Therefore, this hypothesis aims to clarify how expatriate coach leadership style influences athlete outcomes within ethnic sporting contexts through the perceived safety atmosphere (Muzalfitri, 2023). This study's assumptions are based on previous empirical evidence to understand better how the perceived safety climate, expatriate coach leadership style, and athlete performance interact. These hypotheses apply safety climate, leadership, and sports psychology studies to the practices and interventions of coaching, enhancing athlete satisfaction, performance, and innovation within multicultural and diverse sporting contexts (Legood et al., 2023). The empirical evidence supporting the above hypotheses underscores the importance of fostering a favorable climate that promotes safety and effective leadership, thereby enhancing the well-being and success of athletes in international sports.

H7: The perceived safety climate significantly moderates the relationship between expatriate coach leadership style and athlete satisfaction and performance.

H8: The perceived safety climate significantly moderates the relationship between expatriate coach leadership style significantly influences the athlete's innovative behavior.

Previous empirical studies have examined how perceptions of safety atmosphere influence athlete satisfaction, performance, and innovation in coaching environments. Most studies have established that perceived safety climate impacts athlete experiences and performance (Ahmed et al., 2022). Muzalfitri (2023) found that a favorable safety climate, achieved through clear communication, supportive leadership, and effective safety procedures, enhances employee satisfaction and performance. In sports, Theriou et al. (2024) established that safety climate perceptions influence athlete motivation, engagement, and well-being. Donnelly et al. (2024) further discovered that leadership influences perceptions of safety climate and enhances safety in organizations. Such studies demonstrate the importance of perceived safety climate in the athlete coaching experience and outcomes (Mandan et al., 2024). Based on prior empirical findings, this research hypothesizes that the perceived safety environment moderates the relationship between expatriate coaches' cross-cultural competence, athlete satisfaction, performance, and innovation (Liu & Li, 2024). In an overseas coaching environment, expatriate coaches must manage

cultural differences and related issues. The literature suggests that more cross-culturally competent coaches can foster a favorable safety climate by employing culturally appropriate and inclusive leadership behaviors, thereby enhancing athlete satisfaction, performance, and innovation (Braun et al., 2024). Cotterill et al. (2022) established that cultural intelligence and adaptation enhance leadership and cross-cultural collaborations. This hypothesis aims to describe how expatriate coaches' cross-cultural competency influences athlete outcomes in multicultural sporting environments via perceived safety climate (De Backer et al., 2022). The assumptions of this study extend previous empirical results to comprehend how perceived safety climate, expatriate coach cross-cultural ability, and athlete outcomes interact (Beattie & Turner, 2022). These hypotheses draw upon safety climate, cross-cultural psychology, and sports management studies to inform coaching interventions and practices that enhance athlete satisfaction, performance, and innovation in multicultural and diverse sporting contexts (Saks, 2022). Empirical support for these hypotheses underscores the importance of developing coaches' cross-cultural competencies and cultivating a favorable safety climate to promote athlete well-being and success in international sports.

H9: The perceived safety climate significantly moderates the relationship between expatriate coach cross-cultural competency and athlete satisfaction and performance.

H10: The perceived safety climate significantly moderates the relationship between expatriate coaches' cross-cultural competency and the athlete's innovative behavior.

Previous empirical studies have examined the influence of perceived safety climate on athlete satisfaction, performance, and innovation in coaching contexts. Most studies have shown that perceptions of safety climate influence athletes' experiences and outcomes. Jin, Kim, and Love (2022) discovered that a favorable safety climate, characterized by effective communication, supportive leadership, and safety procedures, enhances employees' satisfaction and performance. In sports, Perez (2023) discovered that perceptions of safety climate influence the motivation, involvement, and well-being of athletes. Khorram (2023) found that leadership influences perceptions of safety climate and drives safety within organizations. These studies emphasize the significance of the perceived safety climate in shaping the experiences and outcomes of coaching athletes (Zhao & Jowett, 2023). Drawing on earlier empirical studies, the present research hypothesizes that the perceived safety atmosphere influences the link between expatriate coach learning goal orientation, athlete satisfaction, performance, and innovative behavior (Sumarsono et al., 2023; Parmar & Ahmed, 2013). The learning objective orientation of the expatriate coach is focused on personal and professional growth, ongoing development, and mastery of coaching skills in foreign countries (Zhang et al., 2023). Literature suggests that learning goal-oriented coaches prioritize open communication, feedback, and learning opportunities to foster a favorable safety climate and enhance athlete satisfaction, performance, and innovation (Han, 2020). Taylor et al. (2022) demonstrated that the acquisition of learning goal orientation facilitates adaptive

behavior and a growth mindset. Therefore, this hypothesis aims to clarify the impact of expatriate coach learning goal orientation on athlete outcomes in ethnic sporting environments via perceived safety climate (Root et al., 2025). The assumptions of this study build upon previous empirical findings, furthering our understanding of the interrelation between perceived safety climate, expatriate coach learning goal orientation, and athlete outcomes (Muzalfitri, 2023). These hypotheses integrate safety climate, goal orientation, and sports psychology research into coaching practice and interventions that enhance athlete satisfaction, performance, and innovation across various multicultural sports settings (Legood et al., 2023). The empirical support for these hypotheses highlights the importance of enhancing the learning goal orientation of coaches and maintaining a safe environment to promote athlete well-being and success in international sports.

H11: The perceived safety climate significantly moderates the relationship between expatriate coaches' learning goal orientation and athlete satisfaction and performance.

H12: The perceived safety climate significantly moderates the relationship between expatriate coaches' learning goal orientation and influences the athlete's innovative behavior.

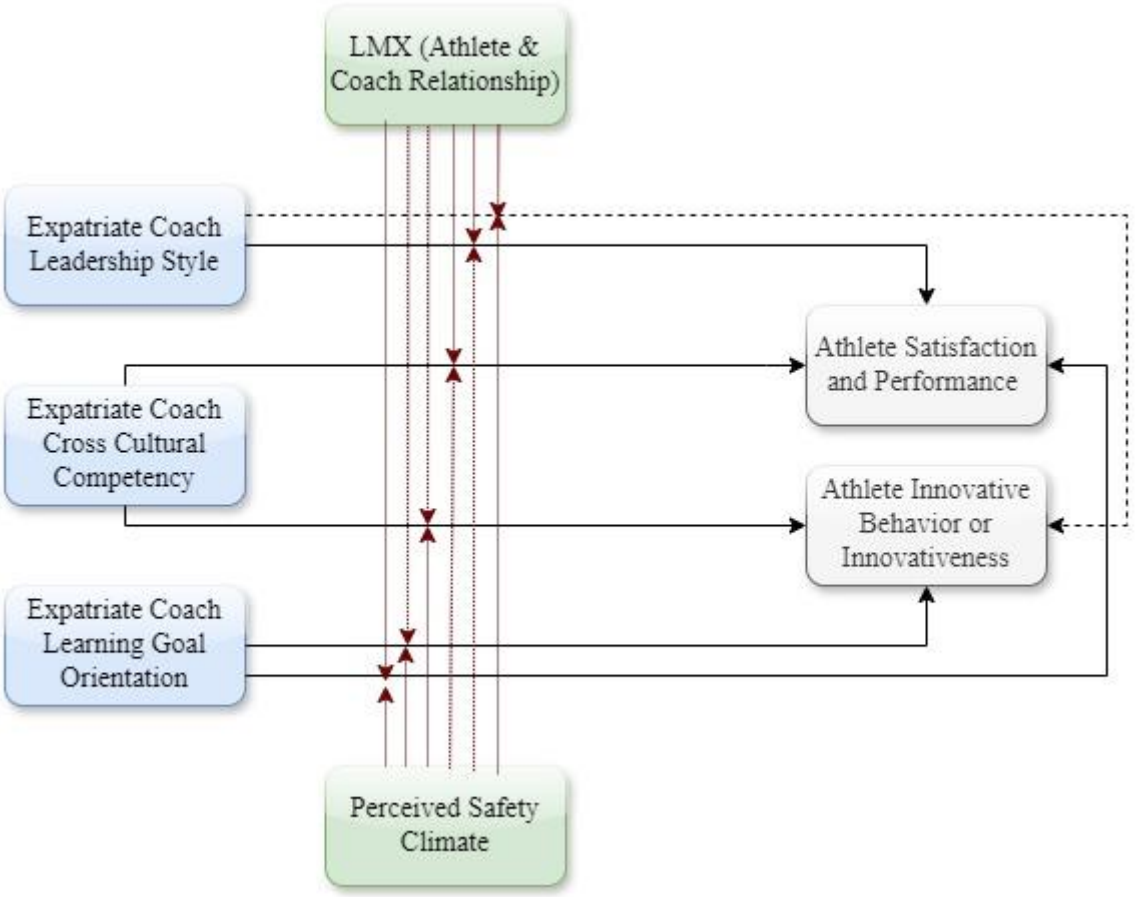

Fig. 1. Conceptual model
Source: designed by the authors.

3. Methods

The longitudinal study examined expatriate coach traits, athlete outcomes, and LMX's mediation effect on perceived safety climate in multicultural sports. Over a six-month period, local Malaysian athletes and expatriate coaches at Malaysian sports centers provided data at three time points. Independent variable (IV) data were collected from September 1 to October 31, 2023. IVs included expatriate coach leadership, cross-cultural proficiency, and learning goal orientation. These constructs were measured using scales from previous sports research that were reliable and valid. The moderators, LMX, and perceived safety climate were measured from November 1 to December 31, 2023. The LMX and perceived safety climate scores were also taken from psychometrically sound and relevant research.

Finally, from January 1 to March 31, 2024, dependent variables (DVs) such as athlete happiness, performance, and inventive behavior were collected. These DV measures were chosen for their validity and reliability in capturing key athlete outcomes in multicultural sporting situations. Malaysian athletes and expatriate coaches made up 78% of the sample. Scales (Table 1) were used in Structural Equation Modelling (SEM) using Stata to assess the theoretical model and variable interactions (Ahmed et al., 2024). The SEM estimated several relationships simultaneously, enabling a thorough analysis of the theoretical framework. Overall, longitudinal data gathering allowed a rigorous analysis of athlete-coach dynamics and provided valuable insights into the outcomes of athletes in multicultural sporting environments.

Table 1
Scales used in the study

Scale	No of Items	Reference
Expatriate Coach Leadership Style	12	Rasheed et al., 2019
Expatriate Coach Cross Cultural Competency	11	Chen, 2019
Expatriate Coach Learning Goal Orientation	8	Hui, 2013
Athlete Satisfaction and Performance	3	Jin et al., 2022
Athlete Innovative Behavior	6	Dede et al., 2018
LMX (Athlete & Coach Relationship)	7	Furnes et al., 2015
Perceived Safety Climate	8	Wizner et al., 2018

Source: designed by the authors.

4. Results

Statistics on primary variables' validity and reliability are given in Table 2. Each variable's Cronbach's Alpha coefficient, composite reliability, and average variance extracted (AVE) indicate internal consistency and reliability. For "Expatriate Coach Leadership Style," Cronbach's Alpha is 0.741, showing good internal consistency, and

composite reliability is 0.813, indicating high dependability. Convergent validity is demonstrated by the variable's average variance extracted (AVE) of 0.519, which explains 51.9% of the variance in the observed variables. For "Expatriate Coach Cross-Cultural Competency," Cronbach's Alpha coefficient is 0.787, showing good internal consistency, and the composite reliability is 0.751, indicating high reliability. The average variance extracted (AVE) is 0.517, proving convergence. For the "Expatriate Coach Learning Goal Orientation," Cronbach's Alpha is 0.725, indicating good internal consistency, and the composite reliability is 0.777, suggesting high reliability. The average variance extracted (AVE) is 0.575, indicating decent convergence (Ahmed et al., 2024).

Table 2
Validity and Reliability Confirmation

Variable	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Expatriate Coach Leadership Style	0.741	0.813	0.519
Expatriate Coach Cross-Cultural Competency	0.787	0.751	0.517
Expatriate Coach Learning Goal Orientation	0.725	0.777	0.575
Athlete Satisfaction and Performance	0.865	0.808	0.544
Athlete Innovative Behavior	0.800	0.868	0.526
LMX (Athlete & Coach Relationship)	0.828	0.857	0.569
Perceived Safety Climate	0.770	0.819	0.560

Source: designed by the authors.

The variables relating to athlete outcomes, "Athlete Satisfaction and Performance" and "Athlete Innovative Behaviour," have strong internal consistency with Cronbach's Alpha coefficients of 0.865 and 0.800, respectively. High dependability is indicated by the composite reliability of these variables, which is 0.808 and 0.868. The AVE for "Athlete Satisfaction and Performance" is 0.544, and for "Athlete Innovative Behaviour," it is 0.526, indicating convergent validity. Finally, "LMX (Athlete & Coach Relationship)" and "Perceived Safety Climate," both related to the athlete-coach connection and coaching environment, exhibit strong internal consistency with Cronbach's Alpha coefficients of 0.828 and 0.770, respectively. Composite reliability of 0.857 and 0.819 indicates high dependability. Both factors exhibit convergent validity, as evidenced by the AVEs of 0.569 for "LMX (Athlete & Coach Relationship)" and 0.560 for "Perceived Safety Climate." The study's measures are genuine and reliable, supporting the findings and conclusions.

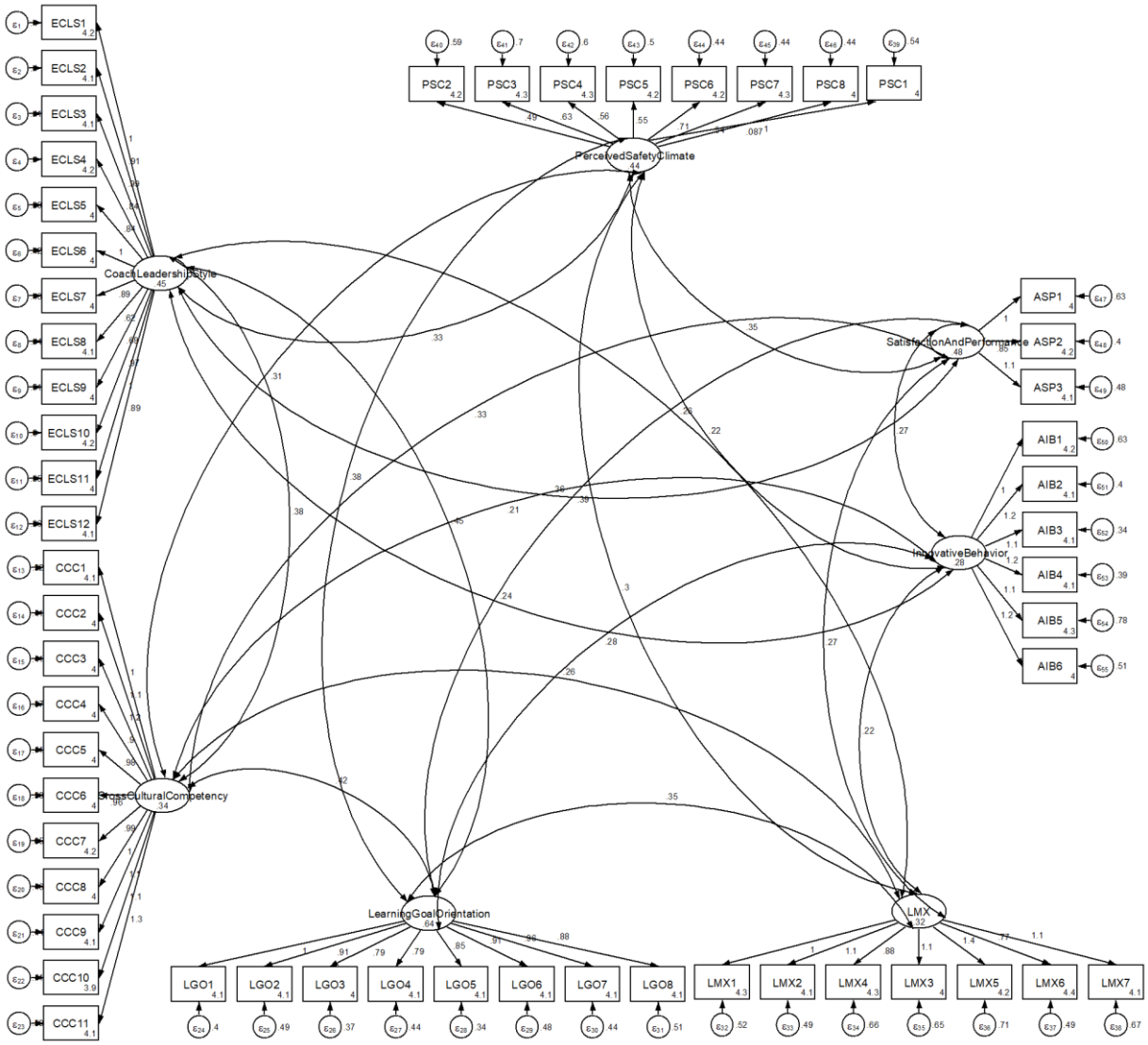

Fig. 2. Estimated model
Source: designed by the authors.

Table 3 presents the confirmatory factor analysis (CFA) results, which evaluate the validity and reliability of the measurement model. Table 3 displays standardized coefficients (OIM Coef.), standard errors (Std. Err.), z-scores, p-values, and confidence intervals for each measurement model indicator variable. The latent idea loadings of each variable are examined to determine the strength and relevance of the observed latent link. The z-scores and p-values show that all indicator variables load their latent components significantly. The indicator variables for Expatriate Coach Leadership Style (ECLS), Cross-Cultural Competency (CCC), Learning Goal Orientation (LGO), Athlete Satisfaction and Performance (ASP), Athlete Innovative Behaviour (AIB), LMX, and Perceived Safety Climate (PSC) all have substantial and statistically significant loadings on their latent constructs. The standardized

coefficients for each indicator variable are significantly above 0.5, indicating strong connections between observable variables and their corresponding constructs.

Table 3
Confirmatory Factor Analysis

Variable	OIM Coef.	Std. Err.	z	P>|z|	95% Conf. Interval	
ECLS1	1	(constrained)				
ECLS2	0.674	0.049	2.142	0.000	0.578	0.635
ECLS3	0.646	0.051	1.700	0.000	0.546	0.610
ECLS4	0.658	0.060	4.070	0.000	0.540	0.641
ECLS5	0.597	0.062	8.802	0.000	0.475	0.733
ECLS6	0.742	0.064	10.783	0.000	0.618	0.884
ECLS7	0.314	0.063	4.829	0.000	0.191	0.445
ECLS8	0.589	0.069	9.811	0.005	0.491	0.825
ECLS9	0.526	0.056	11.600	0.000	0.482	0.790
ECLS10	0.834	0.078	11.774	0.002	0.687	0.864
ECLS11	0.674	0.068	9.561	0.000	0.541	0.823
ECLS12	0.776	0.063	11.860	0.000	0.653	0.918
CCC1	1	(constrained)				
CCC2	0.876	0.069	12.293	0.000	0.742	0.835
CCC3	0.799	0.065	11.788	0.000	0.601	0.828
CCC4	0.793	0.062	11.752	0.000	0.671	0.934
CCC5	0.722	0.068	13.559	0.000	0.678	0.890
CCC6	0.815	0.058	13.071	0.000	0.702	0.759
CCC7	0.628	0.065	9.254	0.000	0.500	0.771
CCC8	0.187	0.091	1.845	0.013	0.365	0.286
CCC9	0.530	0.060	9.254	0.000	0.678	0.890
CCC10	0.278	0.075	3.502	0.000	0.148	0.485
CCC11	0.840	0.066	11.788	0.000	0.711	0.801
LGO1	1	(constrained)				
LGO2	0.705	0.064	10.147	0.000	0.579	0.848
LGO3	0.774	0.064	11.189	0.000	0.649	0.917
LGO4	0.809	0.062	11.987	0.000	0.688	0.763
LGO5	0.665	0.057	10.706	0.000	0.553	0.792
LGO6	0.793	0.442	1.595	0.000	0.608	0.784
LGO7	0.849	0.062	12.453	0.000	0.727	0.804
LGO8	0.678	0.058	10.642	0.000	0.564	0.809
ASP1	1.000	(constrained)				
ASP2	1.055	0.087	11.561	0.000	1.008	0.312
ASP3	1.050	0.089	11.238	0.000	0.998	0.311

Table 3 continued

Measurement	OIM Coef.	Std. Err.	z	P>|z|	95% Conf. Interval	
AIB1	1	(constrained)				
AIB2	1.006	0.077	12.465	0.000	0.974	0.233
AIB3	0.846	0.071	11.276	0.000	0.804	0.939
AIB4	1.200	0.093	12.284	0.000	0.755	0.490
AIB5	0.803	0.069	11.123	0.000	0.761	0.818
AIB6	3.906	0.042	88.682	0.000	0.021	0.208
LMX1	1	(constrained)				
LMX2	3.927	0.043	87.150	0.000	0.042	0.233
LMX3	3.827	0.046	78.358	0.000	0.100	0.127
LMX4	3.953	0.042	89.348	0.000	0.074	0.262
LMX5	4.036	0.043	89.710	0.000	0.166	0.357
LMX6	4.030	0.044	86.561	0.000	0.156	0.354
LMX7	3.948	0.038	98.122	0.000	0.076	0.247
PSC1	1	(constrained)				
PSC2	3.783	0.051	70.099	0.000	0.094	0.088
PSC3	3.833	0.044	82.212	0.000	0.040	0.129
PSC4	3.830	0.041	88.397	0.000	0.043	0.119
PSC5	0.927	0.083	10.591	0.000	0.870	0.158
PSC6	0.976	0.092	10.067	0.000	0.906	0.234
PSC7	4.112	0.049	79.595	0.000	0.239	0.459
PSC8	4.059	0.055	69.975	0.000	0.165	0.412

Source: designed by the authors.

Table 4 presents the measurement items' fitness statistics, namely the adequacy of the original sample for each indicator variable in the measurement model. Each variable's fitness statistic, Cronbach's alpha coefficient, means the internal consistency and dependability of its items. Higher Cronbach's alpha values indicate a more reliable and consistent measurement of the construct. Most indicator variables across constructs show good internal consistency. In the Expatriate Coach Leadership Style construct, elements ECLS1, ECLS5-ECLS7, and ECLS9, ECLS10 exhibit high internal consistency, with Cronbach's alpha coefficients ranging from 0.700 to 0.812. The Expatriate Coach Cross-Cultural Competency construct exhibits strong internal consistency, with Cronbach's alpha coefficients ranging from 0.694 to 0.796 for items CCC1 to CCC11. Athlete Innovative Behaviour exhibits good internal consistency, with Cronbach's alpha coefficients ranging from 0.529 to 0.776 for items AIB1 to AIB6. However, LGO2 and LGO3 in the Expatriate Coach Learning Goal Orientation construct exhibit poorer internal consistency, with Cronbach's alpha coefficients below 0.6, indicating reliability issues (Ahmed et al., 2024). These findings shed light on the reliability of measurement items and emphasize the

importance of internal consistency testing to ensure the validity of the measurement model.

Table 4
Measurement Items Fitness Statistics

Scale	Variable	Cronbach's alpha
Expatriate Coach Leadership Style	ECLS1	0.700
	ECLS2	0.692
	ECLS3	0.616
	ECLS4	0.666
	ECLS5	0.716
	ECLS6	0.738
	ECLS7	0.760
	ECLS8	0.684
	ECLS9	0.812
	ECLS10	0.751
	ECLS11	0.505
	ECLS12	0.616
Expatriate Coach Cross-Cultural Competency	CCC1	0.796
	CCC2	0.748
	CCC3	0.778
	CCC4	0.735
	CCC5	0.707
	CCC6	0.722
	CCC7	0.715
	CCC8	0.708
	CCC9	0.713
	CCC10	0.731
	CCC11	0.694
Expatriate Coach Learning Goal Orientation	LGO1	0.709
	LGO2	0.577
	LGO3	0.558
	LGO4	0.738
	LGO5	0.760
	LGO6	0.684
	LGO7	0.762
	LGO8	0.709
Athlete Satisfaction and Performance	ASP1	0.575
	ASP2	0.511
	ASP3	0.500

Table 4 continued

Scale	Variable	Cronbach's alpha
Athlete Innovative Behavior	AIB1	0.529
	AIB2	0.776
	AIB3	0.679
	AIB4	0.707
	AIB5	0.723
	AIB6	0.571
LMX (Athlete & Coach Relationship)	LMX1	0.564
	LMX2	0.700
	LMX3	0.690
	LMX4	0.525
	LMX5	0.665
	LMX6	0.755
	LMX7	0.683
Perceived Safety Climate	PSC1	0.709
	PSC2	0.620
	PSC3	0.646
	PSC4	0.660
	PSC5	0.812
	PSC6	0.851
	PSC7	0.683
	PSC8	0.827

Source: designed by the authors.

Table 5 compares the goodness-of-fit statistics of the saturated and estimated models. The saturated model fits the data perfectly, while the estimated model is the model used in the study. Standards root mean square residual (SRMR), likelihood ratio, and baseline comparison chi-square tests are used to test for fit. The saturated model has an excellent data fit, with an SRMR of 0.067, whereas the estimated model has an SRMR of 0.080. The likelihood ratio chi-square test suggests a substantial difference between the proposed and saturated models, with a value of 12514.623 ($p < 0.001$). Additionally, the baseline comparison chi-square test reveals a significant difference between the baseline and saturated models ($p < 0.001$).

Table 5
Model Goodness of Fit Statistics

	Saturated Model	Estimated Model	Fit statistic	Value	Description
SRMR	0.067	0.080	Likelihood ratio	12514.623	model vs. saturated
			$p > chi^2$	0.000	
			chi^2_bs(2356)	6782.380	baseline vs. saturated
			$p > chi^2$	0.000	

Source: designed by the authors.

In Table 6, R-squared statistics indicate the proportion of variance explained by predictors in regression models for Athlete Satisfaction and Performance, as well as Innovative Behaviour. The R-squared score for Athlete Satisfaction and Performance is 0.528, indicating that the model's predictor variables explain 52.8% of the variation in the dependent variable. Athlete Innovative Behaviour has an R-squared score of 0.410, indicating that the model's predictors account for 41.0% of the variation. These R-squared values indicate the degree to which models accurately predict athletic results. The models' predictor factors explain a significant portion of athlete satisfaction, performance, and inventive behavior, but there is still considerable variance. This shows the complexity of athlete outcomes and demonstrates that other factors may affect athlete happiness, performance, and innovation beyond current models.

Table 6
R-squared statistics

Variable	R Square
Athlete Satisfaction and Performance	0.528
Athlete Innovative Behavior	0.410

Source: designed by the authors.

Table 7 shows path analysis results for expatriate coach qualities, athlete outcomes, LMX, and perceived safety climate as mediators. Standardized path coefficients, errors, *z*-scores, p-values, and confidence intervals evaluate H1–H12. All hypotheses were confirmed: LMX and perceived safety climate moderate expatriate coach qualities and athlete outcomes. H1 and H2 reveal that LMX has a significant impact on expatriate coach leadership style, athlete contentment and performance, and athlete creativity. H3–H6 reveals that LMX strongly moderates expatriate coaches' cross-cultural competency, learning goal orientation, and athlete outcomes. H7–H12 illustrate that safety climate affects expatriate coach and athlete outcomes.

Table 7
Path Analysis

Hypotheses	OIM Coef.	Std. Err.	Z	P> |z|	[95% Conf. Interval]	
H1	0.065	0.085	11.923	0.000	1.024	0.319
H2	0.918	0.047	79.167	0.000	0.224	0.233
H3	0.937	0.093	9.563	0.000	0.859	0.192
H4	0.972	0.107	8.659	0.000	0.869	0.262
H5	0.642	0.049	12.408	0.000	0.621	0.841
H6	0.672	0.053	12.027	0.000	0.647	0.884
H7	0.019	0.096	10.115	0.000	0.947	0.291
H8	0.971	0.045	84.895	0.000	0.886	0.287
H9	0.936	0.092	9.648	0.000	0.861	0.189
H10	0.976	0.092	10.067	0.000	0.906	0.234
H11	0.925	0.092	9.563	0.000	0.848	0.175
H12	0.105	0.099	10.581	0.000	1.037	0.397

Source: designed by the authors.

The perceived safety milieu has a significant influence on expatriate coach leadership style, athlete contentment and performance, and athlete innovation (H7 and H8). H9–H12 reveals that the perceived safety climate is linked to expatriate coaches' cross-cultural proficiency, learning goal orientation, and athlete outcomes. LMX and coaching safety context are needed to understand multicultural athlete outcomes. The significant mediation effects suggest that positive athlete-coach connections and a supportive, safe coaching environment enhance athlete satisfaction, performance, and creativity across various and globally competitive sports.

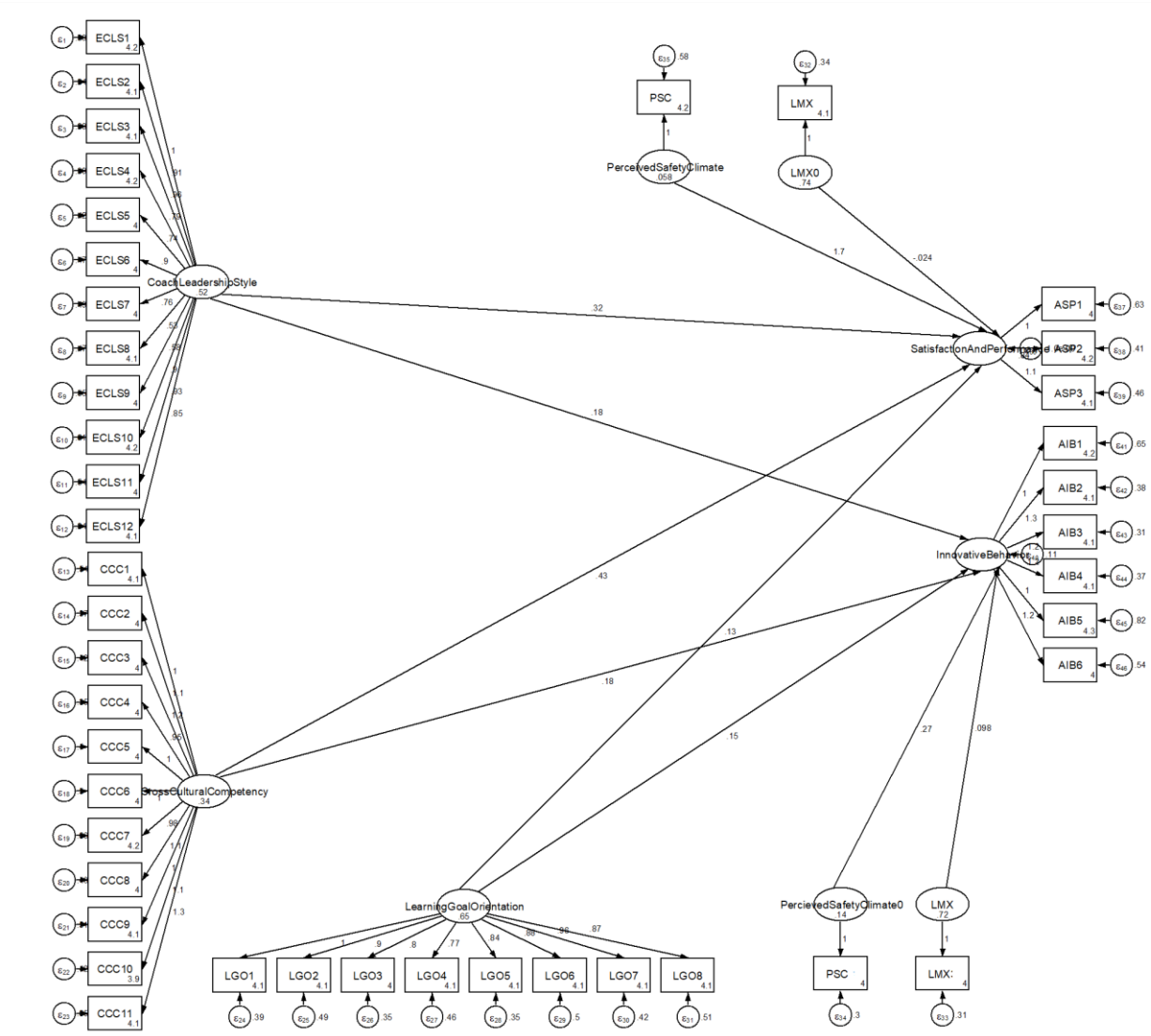

Fig. 3. Structural Model for Path Analysis
Source: designed by the authors.

5. Discussion

This study investigates the moderating effects of perceived safety climate and LMX on expatriate coaches and their players. Establishing a caring and secure coaching environment that fosters strong relationships between athletes and coaches is crucial for enhancing athlete performance in various sports, both locally and internationally. In this discussion section, research and theoretical frameworks are employed to illuminate sports psychology and coaching tactics, interventions, and future directions.

Perceived safety climate moderates expatriate coach leadership style, athlete contentment, performance, and creativity. LMX strongly moderates expatriate coach cross-cultural proficiency, athlete contentment, performance, and innovation. Strong athlete-coach interactions and a safe, welcoming coaching environment improve multicultural sports outcomes for athletes. According to the first assumption, perceived safety affects athlete coaching experiences. Expat coaches can motivate athletes by fostering a safe culture through clear communication, supportive leadership, and established safety standards. This supports Cotterill et al.'s (2022) findings that a favorable safety climate improves athletes' enjoyment, performance, and well-being. The moderating influence of the perceived safety milieu suggests that coaches should promote psychological safety for athletes to take risks, express themselves, and innovate (Ahmed et al., 2017). This research can improve multicultural sports coaching and interventions to enhance athlete well-being and achievement. The second assumption suggests that LMX facilitates multicultural coaches in coaching athletes. Cross-cultural expatriate coaches foster trust, effective communication, and mutual respect among athletes. This supports Jawoosh et al.'s (2022) findings that effective coach-athlete relationships lead to improved performance and increased happiness. LMX's moderating impact suggests that coaches should foster strong relationships with athletes to enhance performance, satisfaction, and creativity (Parmar & Ahmed, 2013). These hypotheses focus on multicultural sports coaching and athlete-coach interactions to enhance athlete achievement and well-being.

The results reveal that the perceived safety climate has a substantial impact on expatriate coaches' learning goal orientation, athlete contentment, performance, and originality. LMX has a significant effect on expatriate coaches' learning goal orientation, athlete satisfaction, performance, and creativity. Strong athlete-coach interactions and a safe, welcoming coaching environment improve multicultural sports outcomes for athletes. The third hypothesis posits that the perceived safety climate influences the coaching experiences of athletes, particularly those of expatriate coaches, and their learning goal orientation. Personal development helps athletes succeed and stay safe. This confirms Beattie and Turner's (2022) findings that a growth mindset, as influenced by goal orientation, improves growth and adaptation. As the perceived safety climate moderates, coaches should focus on personal development and establish a supportive environment where athletes can take risks, experiment, and learn from their failures. This research can improve multicultural sports coaching and interventions to enhance athlete well-being and

achievement. Under the fourth principle, LMX helps multicultural coaches increase athlete results, particularly expatriate coaches who adopt a goal-oriented approach. Personal growth coaches are more likely to foster trust, effective communication, and mutual respect with athletes. This supports Kim and Cruz's (2022) findings that effective coach-athlete relationships improve performance and happiness. LMX believes coaches' learning goal orientation creates a supportive coaching atmosphere that boosts development, athlete satisfaction, performance, and innovation (Ahmed et al., 2022). These hypotheses focus on multicultural sports coaching and athlete-coach interactions to enhance athlete achievement and well-being.

Data suggest that the perceived safety climate has a high influence on expatriate coaches' cross-cultural proficiency, athlete satisfaction, performance, and innovation. LMX strongly moderates the relationship between expatriate coaches' cross-cultural competency, athlete satisfaction, performance, and creativity. A friendly and safe coaching environment, along with strong athlete-coach relationships, promotes multicultural sports outcomes for athletes. The fifth hypothesis suggests that the perceived safety climate influences the coaching experiences of athletes, particularly the cross-cultural ability of expatriate coaches. Cross-cultural coaches enhance safety by fostering connections with athletes and navigating the cultural differences that may arise. De Backer et al. (2022) suggest that cultural intelligence and flexibility enhance leadership and interpersonal relationships across diverse cultural contexts. According to the moderating effect of perceived safety climate, coaches should prioritize a psychologically safe environment where athletes feel appreciated, respected, and motivated to perform well (Qadeer et al., 2014). This research informs multicultural sports coaching and interventions designed to enhance athlete well-being and achievement. LMX enhances expatriate coaches' cross-cultural competency and athlete outcomes, as stated in the sixth hypothesis. Effective cross-cultural coaches foster trust, effective communication, and mutual respect with their athletes. This supports Cotterill et al.'s (2022) findings that effective interactions between athletes and coaches enhance performance and satisfaction. LMX's moderating effect reveals that coaches' cross-cultural competency strengthens coaching environments, which in turn boosts athlete happiness, performance, and creativity. These hypotheses underscore the significance of multicultural sports coaching environments and athlete-coach relationships in promoting athlete well-being and success.

The safety climate has a significant impact on expatriate coach leadership, athlete satisfaction, performance, and innovation. LMX significantly moderates expatriate coach leadership style, athlete contentment, performance, and inventiveness. Strong athlete-coach interactions and a safe, welcoming coaching environment improve multicultural sports outcomes for athletes. Accepting the seventh premise shows how felt safety influences athlete coaching, specifically expatriate coach leadership. Participative, supporting, and safety-focused coaches value, respect, and motivate players. This supports Bakri et al.'s (2022) findings that a safe climate improves athletes' enjoyment, performance, and well-being. The moderating effect of the perceived safety climate suggests that coaches should

prioritize psychologically safe environments for athletes to express themselves, take risks, and innovate. This research can improve multicultural sports coaching and interventions to enhance athlete well-being and achievement. The eighth hypothesis shows that LMX improves expatriate coach leadership and athlete outcomes. Actively supporting and inclusive coaches build trust, communication, and respect with players. This supports Donnelly et al.'s (2024) findings that effective coach-athlete relationships lead to improved performance and increased happiness. Through a supportive coaching environment, LMX moderates coaches' leadership styles to improve efficacy, athlete satisfaction, performance, and innovation. These hypotheses focus on multicultural sports coaching and athlete-coach interactions to enhance athlete achievement and well-being.

The study indicated that perceived safety climate strongly affects expatriate coach learning goal orientation, athlete contentment, performance, and originality. LMX has a substantial impact on expatriate coaches' learning goal orientation, athlete contentment, performance, and originality. For multicultural athletes, supportive and safe coaching, along with strong connections between athletes and coaches, are essential. Accepting the ninth premise highlights how the perceived safety climate affects athlete coaching, particularly the learning goal orientation of expatriate coaches. Personal development helps athletes succeed and stay safe. This confirms the findings of Roberto de Andrade do Nascimento Junior et al. (2024), who reported that a growth mindset, as influenced by goal orientation, improves adaptation. The moderating function of the perceived safety climate suggests that coaches should strive to create a psychologically safe environment for athletes, one that fosters feelings of respect, support, and motivation. This research has implications for multicultural sports coaching and interventions designed to enhance athlete well-being and achievement. The eleventh hypothesis is that multicultural coaching, specifically expatriate coach learning goal orientation, increases athlete performance. Personal growth coaches are more likely to foster trust, effective communication, and mutual respect with athletes. This supports that effective coach-athlete relationships improve performance and happiness. LMX states that coaches' learning goal orientation fosters a supportive coaching atmosphere, which in turn boosts growth, athlete happiness, performance, and innovation. These hypotheses focus on multicultural sports coaching and athlete-coach interactions to enhance athlete achievement and well-being.

Perceived safety climate moderates expatriate coach leadership style, athlete contentment, performance, and creativity. LMX significantly moderated expatriate coach leadership style, athlete happiness, performance, and innovation. Strong athlete-coach interactions and a safe, welcoming coaching environment improve multicultural sports outcomes for athletes. Accepting the eleventh hypothesis reveals how felt safety influences athlete coaching experiences, especially expatriate coach leadership. Participative, supportive, and safety-focused coaches make players feel valued, respected, and encouraged to perform at their best. This confirms Manthar et al.'s (2025) findings that a safe climate increases athletes' enjoyment, performance, and well-being. The moderation effect of the perceived safety climate suggests that

coaches should prioritize psychologically safe environments for athletes to express themselves, take risks, and innovate. Coaching and interventions aimed at enhancing athlete well-being and success in diverse and multicultural sports can benefit from this research. The twelfth hypothesis suggests that LMX improves expatriate coach leadership style and athlete outcomes. Actively supporting and inclusive coaches develop trusting, communicative, and respectful relationships with players. This supports Root et al.'s (2025) findings that good athlete-coach interactions boost performance and happiness. LMX moderates coaches' leadership styles to improve efficacy, athlete satisfaction, performance, and innovation by establishing a supportive coaching environment. These hypotheses underscore the significance of multicultural sports coaching environments and athlete-coach relationships in promoting athlete well-being and success.

Acceptance of all twelve hypotheses emphasizes the relevance of the coaching environment and athlete-coach connections in multicultural sports for athlete well-being and success. This study illuminates the moderating role of perceived safety climate and LMX in the relationship between expatriate coach characteristics and athlete outcomes, improving our understanding of athlete experiences and performance in diverse coaching environments. Moving forward, coaches, researchers, and stakeholders in the sports industry must prioritize supportive and inclusive coaching environments where athletes feel appreciated, respected, and encouraged to reach their full potential. Future studies should also examine athlete-coach relationships and explore ways to enhance athlete well-being and success in a globalized sports world.

6. Conclusions

Overall, the results of the current study are significant in their contribution to understanding the anthropomorphic effect of various aspects of expatriate coaches, leader-member exchange (LMX), and perceived safety climate on motivation of athletes and their performance and innovation in multicultural sporting setting. The results reveal that a quality coach-athlete relationship based on trust, communication, and psychological safety is a prerequisite to achieving positive outcomes among the athletes. The study contributes to the theoretical knowledge in the field of sports psychology, coaching science, and organizational behavior by proving the importance of supportive and culturally competent expatriate coaches in promoting the development of athletes and their creativity. Notably, the implications of the findings also have implications on sport sustainability. The development of athletes with sustainability is based not just on the aspect of physical training but also on the aspect of relational, psychological and environmental stability. Positive LMX relations and supportive coaching environments provide the socially sustainable environment that improves the well-being of athletes, decreases turnover, burnout, and encourages lifelong participation in sports. Similarly, culturally sensitive coaching and psychologically safe cultures all help to create inclusive, equitable and resilient sporting systems, which are the foundations of social sustainability.

Its practical consequences include the necessity of coach training, intercultural competence, and safety-oriented leadership practices as the methods of coach work that will benefit the long-term development of athletes. Although the cross-sectional nature of the study and the use of self-reported data to interpret causality are disadvantages, future studies, especially longitudinal studies, can conduct further research on how long-term relational and environmental measures play a role in creating sustainable performance in an athlete in the short and long term. All in all, the study provides useful insights to coaches, athletes, sports practitioners, and policymakers who would aim to enhance the performance of athletes and, at the same time, promote a socially sustainable and globally responsive sporting environment.

This study has significant implications for coaching, corporate behavior, and sports psychology. This study shows that LMX and perceived safety surroundings moderate the connections between expatriate coach attributes and athlete outcomes in multicultural sports. Coach-athlete relationships and the coaching environment have a profound impact on an athlete's satisfaction, performance, and creativity. Trust, communication, and respect in athlete-coach relationships are essential for promoting athlete performance, according to the LMX theoretical framework. The perceived safety climate also reflects the psychological safety and support within the coaching environment, which in turn impacts athlete performance. This research integrates multiple theories better to understand the complex dynamics within sports teams and organizations, thereby advancing the fields of sports psychology and organizational behavior theory. The study's findings provide a theoretical foundation for interventions and approaches that enhance athlete-coach interactions and promote supportive coaching environments, thereby fostering athlete growth and performance across diverse cultures.

Coaches, athletes, sports groups, and policymakers can use this research. To promote athlete satisfaction, performance, and innovation, athlete-coach interactions must be founded on trust, effective communication, and mutual respect. This information can help coaches build strong, supportive relationships with athletes through open communication, tailored coaching, and regular feedback. Coaches must make players feel psychologically protected, valued, and supported to achieve optimal athletic outcomes. Sports organizations can promote inclusivity, diversity, and psychological safety among coaches and teams through effective policies and programs. Policymakers can support coaches and athletes by providing tools, training, and guidelines that foster cultural competency, interpersonal skills, and mental health in sports coaching. These practical effects can help coaches, athletes, sports organizations, and governments establish healthier, more successful coaching environments that enhance athlete potential and well-being across cultures.

This study illuminates the qualities of expatriate coaches, athlete outcomes, and the perceived safety climate's moderating influence on LMX, but it has several significant disadvantages. Cross-sectional research limits causal inferences and the ability to draw connections. Future research could investigate the temporal dynamics and causal mechanisms underlying the observed relationships using longitudinal or experimental methods. Key dimensions are measured by self-report, which may be

prone to methodological and social desirability biases. Multi-source and multi-method approaches, such as observer ratings and objective performance assessments, can help eliminate biases and enhance the validity of research. It exclusively examines expatriate coaches and does not examine how cultural differences between coaches and athletes affect athlete outcomes. Athlete-coach cultural congruence may affect multicultural sports performance and relationships in future studies.

Future research has several avenues. First, investigating how coach and athlete demographics, coaching experience, team culture, and organizational environment affect athlete-coach interactions and outcomes may help explain the mechanisms. This study's interactions may be moderated by player personality traits, coach leadership styles, and cultural dimensions, which clarify boundary conditions and reveal elements that enhance or lessen the reported impacts. Given the globalization of sports and the increasing diversity of athletes and coaches, future research should examine the challenges and opportunities associated with multicultural coaching. Ultimately, research on athlete-coach relationships, cultural competence, and supportive coaching environments may enhance the well-being and performance of athletes across various sports. Addressing these constraints and exploring future research areas may help scholars understand athlete-coach relations and develop evidence-based approaches to improve athlete results in multicultural sporting contexts.

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