Interdisciplinary Academic and Research Journal, 6 (2), March-April 2026
Old ISSN 2774-0374: New ISSN 2985-2749
Website: https://so03.tci-thaijo.org/index.php/IARJ/index
Article ID: e293232

Developing Management Guidelines to Promote Excellent Tennis for Youth in Chengdu

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Received 03/09/2025 Revised 23/09/2025 Accepted 25/10/2025

Abstract

Background and Aims: Tennis is gaining popularity in Sichuan Province, especially among youth in Chengdu, but its development faces significant challenges in management, accessibility, and structured promotion. Key obstacles include the lack of systematic strategies, limited resources, inconsistent training programs, and a shortage of qualified youth coaches, which hinders players from reaching their potential. Nonetheless, sustainable youth tennis development requires substantial investment in facilities, coaching, and equipment, alongside stronger collaboration between clubs, schools, and sports organizations to establish a well-structured pathway for long-term growth. Therefore, this research aimed to develop management guidelines to promote youth tennis excellence in Chengdu.

Methodology: The population of this research was 383 young tennis players, 17 tennis coaches, and 12 tennis club managers from 5 tennis clubs in Chengdu, namely, Chengdu Qingshenglan Tennis, Chengdu Wuhou Tennis Center, Qikeshu Tennis Club, Huoshan Tennis Sports Center, and Chengdu Hi-Tech Tennis Center. A sample group consisting of all 17 tennis coaches and 12 tennis club managers. Using the Krejcie & Morgan table, 191 young tennis players were chosen as the research sample to investigate the current situation and challenges of promoting excellent tennis for youth in Chengdu City. In this research, 7 experts were invited for interviews to draft the components of the management guideline. Additionally, 10 experts participated in a focus group discussion to develop management guidelines. Following this, 7 experts were invited for a connoisseurship discussion to confirm the developed management guideline. Data were analyzed using mean, standard deviation, and content analysis. The IOC value was as follows: questionnaire for students was 0.80, questionnaire for tennis coaches and tennis club managers was 0.92, and expert interview outline was 0.87.

Results: The results showed that the management guideline was organized in 10 aspects as follows: (1) Financial Support with 3 elements; (2) Integrated Policy Development with 3 elements; (3) Foundation and Participation with 3 elements; (4) Talent Identification and Development with 3 elements; (5) Athletic Career and Post-Career Support with 3 elements; (6) Training Facilities

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with 3 elements; (7) Coaching Provision and Development with 3 elements; (8) (Inter)national Competition with 3 elements; (9) Scientific Research and Innovation with 3 elements; (10) Stakeholder Engagement and Governance with 3 elements.

Conclusion: Following validation through the connoisseurship method, all seven experts unanimously agreed that the developed management guideline to promote youth tennis excellence in Chengdu provides a comprehensive, practical, and contextually appropriate framework, aligned with local conditions. In addition, the management guideline developed in this research can also be applied to areas beyond Chengdu. The management framework can be adapted appropriately to different contexts and situations to support the development of youth tennis players toward excellence.

Keywords: Management Guideline; Excellent Tennis; Youth

Introduction

Tennis is not only a popular sport but also a powerful tool for the physical, mental, and social development of youth. Beyond recreation, it enhances coordination, agility, endurance, and strength, while reducing health risks and encouraging lifelong fitness (Franks & Mitchell, 2017). It fosters concentration, strategic thinking, problem-solving, resilience, and self-discipline, skills transferable to academics and careers (Gould & Carson, 2008). Tennis also builds social skills through teamwork, communication, sportsmanship, and intercultural experiences, as youth may compete internationally. Promoting tennis thus contributes to shaping healthy, confident, and well-rounded individuals. Youth sports play a vital role in nurturing talent, supporting organizations, advancing school programs, and expanding the sports industry. Policies such as the 2020 “Opinions on Deepening the Integration of Sports and Education” and Sichuan’s 2021 “Implementation Opinions” emphasize integrating sports and education to promote youth development (Guo et al., 2022; Sui, 2024). While Sichuan has produced talented players, its tennis development lags behind leading nations due to outdated foundational training and limited talent reserves (Zhong, 2020). Current challenges include weak management strategies, insufficient resources, limited participation opportunities, inconsistent training, and a shortage of specialized youth coaches. Although the government supports athlete development, tennis clubs are increasingly taking the initiative, but sustainable progress requires significant investment in facilities, coaching, and equipment, as well as collaboration among clubs, schools, and sports organizations (Zhu, 2021). This research addresses these challenges by proposing a comprehensive management guideline to promote youth tennis excellence in Chengdu. The guideline provides a framework to strengthen coaching, improve facilities, optimize training, and enhance

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collaboration, ensuring skill development, greater participation, and sustainable pathways for young athletes toward excellence and professional growth.

Research Objectives

To develop management guidelines to promote excellent tennis for youth in Chengdu.

Literature Review

The history and development of Tennis.

The origins of modern tennis can be traced to ancient ball games, with the Greeks and Romans playing harpastum, which involved hitting a ball back and forth. The game most closely linked to modern tennis, however, emerged in France in the late 12th century and was called jeu de paume ("game of the palm"), originally played with the hand before rackets were introduced in the 16th century (Gillmeister, 2003).

In the late 19th century, the modern version of the sport, lawn tennis, took shape. Major Walter Clopton Wingfield, an Englishman, patented the game in 1874, first played on an hourglass-shaped court and marketed as "Sphairistiké." It quickly spread across Britain and later the world, soon adopting the rectangular courts still in use today (Millett, 2004).

By the 1880s, tennis had expanded through the British Empire and into the United States, where the first lawn tennis clubs were founded. The U.S. National Championships, later renamed the U.S. Open, were first held in 1881, following the establishment of the United States Tennis Association (Whittington, 2002). Other major tournaments soon emerged, including the French Open (1891), Wimbledon (1877), and the Australian Open (1905). Collectively, these became known as the "Grand Slam" events. Wimbledon, the world's oldest tennis tournament, helped shape many modern rules, such as the use of grass courts and white attire (Long, 2008).

The concept of a tennis club

A tennis club is built around the idea of creating a structured and supportive environment where players of all levels can train, compete, and enjoy the sport. It serves as a central hub for both recreational and competitive tennis, offering opportunities for skill development, coaching, and community engagement. Through well-organized programs, clubs not only promote grassroots participation but also nurture elite-level athletes. The ultimate goal is to make tennis accessible, foster player development, and contribute to the sport's growth at local, regional, and national levels. At the heart of every successful tennis club is its coaching philosophy, which plays a decisive role in athlete development. Clubs typically offer coaching across all levels, from beginners to advanced players. Coaches must combine technical expertise with the ability to adapt to diverse ages and abilities. Many clubs adopt the Long-Term Athlete Development (LTAD)

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model, which guides players through age-appropriate stages of training, ensuring a balance between skill acquisition, physical conditioning, and psychological growth (Balyi, Way, & Higgs, 2013). This model lays a strong foundation for young players to maximize their potential.

Facilities also play a critical role in a club's success. High-quality infrastructure, such as indoor and outdoor courts with modern surfaces, gyms, recovery areas, and sports science support, provides athletes with the right environment for training and injury prevention. Increasingly, clubs also incorporate sports psychology and mental coaching, helping players build resilience, manage stress, and maintain focus during competition (Côté & Gilbert, 2009).

Grassroots development is another key focus, with many clubs and national tennis associations working closely with schools and colleges to integrate tennis into physical education (PE) curricula. Programs such as Tennis Australia's Schools Program and the USTA's Net Generation Initiative provide modified equipment and age-appropriate training to make the sport more accessible (USTA, 2023). Research shows that introducing sports early through PE significantly boosts long-term participation (Bailey et al., 2013). Organized school and collegiate tennis competitions also foster competitive growth. Leagues and championships, such as the NCAA Tennis Championships in the United States, offer student-athletes structured opportunities to progress into professional careers (NCAA, 2022). Scholarships and talent identification programs further strengthen this pathway. Initiatives like the ITF's Junior Tennis Initiative (JTI) provide financial and coaching support for promising players (ITF, 2022). Similarly, U.S. collegiate scholarships under NCAA Division I and II enable student-athletes to pursue both academic and athletic excellence at national and international levels.

Promoting excellent tennis

Tennis, as a globally recognized sport, requires effective promotion strategies at both grassroots and elite levels to ensure sustainable growth and inclusivity. Grassroots development initiatives, such as the International Tennis Federation's (ITF) (2022) Play and Stay and the United States Tennis Association's (USTA) Net Generation, have focused on accessibility by simplifying rules, modifying equipment, and creating community-based programs that lower entry barriers. These efforts aim to attract beginners, particularly youth, and encourage long-term participation, aligning with research that early exposure to sports strongly influences lifelong physical activity habits (Bailey et al., 2013).

Educational institutions also play a critical role in tennis promotion. Integrating tennis into school and college curricula helps broaden participation and provides structured training pathways. Inter-school and intercollegiate competitions, such as the NCAA Tennis Championships in the United States, serve as platforms for nurturing young talent and transitioning them toward professional careers. Additionally, talent identification initiatives, such as the ITF Junior Tennis

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Initiative (JTI), provide scholarships and resources to promising players, strengthening the development pipeline from schools to elite levels (ITF, 2022).

Infrastructure and coaching development are equally vital for fostering participation and excellence. Investment in public facilities, coaching education, and digital innovations such as smart courts enhances both accessibility and quality of training. National and regional programs, supported by federations and private stakeholders, ensure that youth players are provided with high-quality environments and qualified instructors. Programs like Tennis Australia's Hot Shots emphasize systematic skill progression and holistic athlete development, ensuring that young players can maximize their potential while contributing to the broader growth of the sport (Tennis Australia, 2022). Partnerships between schools, colleges, and professional tennis organizations play a vital role in strengthening youth tennis development. National federations and private academies often support educational institutions by providing training resources, coaching expertise, and infrastructure development. For instance, the Rafael Nadal Academy collaborates with schools and universities to integrate elite-level tennis training into academic programs (Rafa Nadal Academy, 2023). Additionally, organizing school and college tennis tournaments fosters a competitive and engaging environment for young players. Competitions such as the ITF Junior Circuit, NCAA Tennis Championships, and national university games give students valuable opportunities to showcase their skills and gain meaningful competitive experience.

Forming school and college tennis teams is essential for encouraging competitive participation and skill development among student-athletes. In regions such as the United States, Europe, and Australia, inter-school and intercollegiate tennis leagues provide regular opportunities for players to compete and improve. For instance, the NCAA (National Collegiate Athletic Association) Tennis Championships in the U.S. act as a major pathway for young athletes aspiring to transition into professional or semi-professional careers (NCAA, 2022). To further strengthen tennis at the educational level, many institutions also offer scholarships and implement talent identification programs, while tennis federations and universities collaborate to provide financial support and specialized coaching for promising players.

The SPLISS model

The SPLISS (Sports Policy factors Leading to International Sporting Success) model is a comprehensive framework used to evaluate and improve national elite sports policies. Developed through decades of research and benchmarking across more than 20 countries, it identifies nine interconnected pillars and around 100 Critical Success Factors (CSFs) that contribute to international sporting success (De Bosscher et al., 2006). These pillars include financial support, governance and organization, grassroots participation, talent identification and development, athlete and post-career support, training facilities, coaching, competition structures, and the

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integration of scientific research and technology. Together, these factors provide a structured approach for nations to assess the strengths and weaknesses of their sports systems and design evidence-based strategies to enhance performance on the global stage.

At its core, the SPLISS model highlights that elite sports success cannot be achieved through financial investment alone but requires synergy across multiple domains. For example, strong grassroots participation and talent identification ensure a sustainable pipeline of athletes, while advanced training facilities, coach development, and access to international competition provide the environment necessary for excellence. Similarly, athlete support systems and the integration of science and innovation strengthen long-term performance and resilience. By adopting SPLISS, many nations have developed holistic and systematic policies that promote both elite performance and sustainable sports development, ensuring competitive advantage in international competitions (Truyens et al., 2016).

Summary

Promoting youth tennis requires a comprehensive approach that emphasizes accessibility, skill development, and long-term engagement. Effective initiatives integrate grassroots programs with structured, age-appropriate training, ensuring inclusivity for children of all backgrounds while fostering enjoyment and passion for the sport. Incorporating fun activities, modern coaching methods, and technology enhances learning experiences, while opportunities for competitive play through school events and local tournaments help strengthen both technical skills and mental resilience. Partnerships among schools, clubs, and tennis organizations further provide essential support systems and pathways for progression. By focusing on inclusivity, development, and competition, youth tennis programs can encourage lifelong participation, supporting overall health, personal growth, and future athletic potential.

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Conceptual Framework

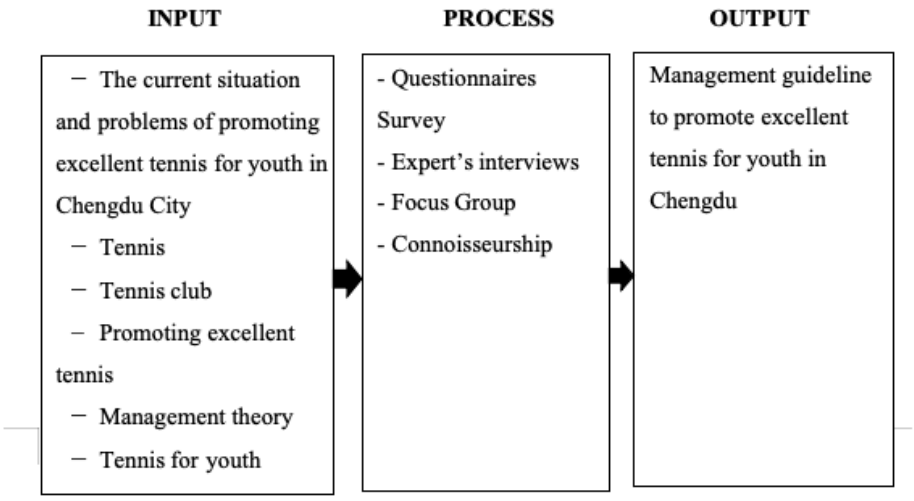


Figure 1 Conceptual framework

This diagram illustrates a research framework structured into three components: Input, Process, and Output. The Input highlights the foundational elements, including the current situation and problems of promoting excellent tennis for youth in Chengdu City, as well as key concepts such as tennis, tennis clubs, management theory, and youth tennis development. The Process outlines the methodological approaches used to analyze and address these inputs, including questionnaires, surveys, expert interviews, focus groups, and connoisseurship. Finally, the Output presents the ultimate goal of the framework: developing a management guideline to promote excellent tennis for youth in Chengdu, ensuring a systematic approach to improving tennis development in the region.

Methodology

Research Tools

In this research, the following tools were used to conduct the research: (1) Questionnaires for young tennis players, coaches, and club managers;(2) an Expert interview outline; (3) a focus group outline; (4) a Connoisseurship outline.

Population and Sample

The population of this research was 383 young tennis players, 17 tennis coaches, and 12 tennis club managers from 5 tennis clubs in Chengdu, namely, Chengdu Qingshenglan Tennis, Chengdu Wuhou Tennis Center, Qikeshu Tennis Club, Huoshan Tennis Sports Center, and Chengdu Hi-Tech Tennis Center. A sample group consisting of all 17 tennis coaches and 12 tennis club managers. Using the Krejcie & Morgan table, 191 young tennis players were chosen as the research

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sample to investigate the current situation and challenges of promoting excellent tennis for youth in Chengdu City. In this research, 7 experts were invited for interviews to assess the existing situation and issues related to promoting tennis for youth in Chengdu and draft the components of the management guideline. Additionally, 10 experts participated in a focus group discussion to develop management guidelines to promote tennis for youth in Chengdu. Following this, 7 experts were invited for a connoisseurship discussion to confirm the developed management guideline to promote tennis for youth in Chengdu.

Data Collection

1. Distribute the questionnaires to 17 tennis coaches, 12 tennis club managers, and 191 young tennis players from 5 tennis clubs. The questionnaire survey aims to investigate the current situation and problems in promoting excellent tennis for youth in Chengdu City.

2. Seven experts will be invited for face-to-face interviews to draft the components of a management guideline to promote excellent tennis for youth in Chengdu

3. Ten experts will be invited to participate in a focus group discussion to develop a management guideline to promote excellent tennis for youth in Chengdu

4 Seven experts will be invited to participate in a connoisseurship discussion to validate and confirm the developed management guideline to promote excellent tennis for youth in Chengdu.

Data Analysis

This study mainly used a software package for data analysis.

1. Use descriptive statistics, including mean (x) and standard deviation (S.D.), to analyze questionnaire results from young tennis players, tennis coaches, and tennis club managers.

2. Use content analysis to analyze expert interviews, focus group discussions, and appreciation discussions.

3. The Item-Target Consistency Index (IOC) was employed to evaluate the content validity of questionnaires targeting young tennis players, coaches, and club administrators, along with expert interview outlines. The questionnaire designed for young tennis players achieved an IOC value of 0.80, while those for coaches and club administrators showed an IOC value of 0.92, and the questionnaire for expert interview outlines reached an IOC value of 0.87

4. The researchers used a Likert scale to analyze the data collected from the questionnaire, calculating an average score for each item based on participants' evaluations and feedback.

Results

The research findings, based on this research process, are presented in four key sections:

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Part 1: Analysis of the current situation and problems of Wushu education in higher education

To collect data on the current situation and problems in promoting youth tennis excellence in Chengdu, this research employed a questionnaire survey distributed to three key stakeholder groups: youth tennis players, tennis coaches, and tennis club managers. A total of 191 young tennis players, 17 tennis coaches, and 12 tennis club managers from five tennis clubs in Chengdu City participated in the survey. The findings obtained from this analysis are presented as follows:

Table 1 The results of the questionnaire survey for young tennis players (n=191)

Questionnaire Items	Total Score		Result
	$\overline{X}$	S.D.	
1. The facilities at my tennis club are adequate for high-level training.	2.12	0.89	Poor
2. I have access to professional coaching regularly.	1.78	0.56	Poor
3. My training program includes physical conditioning and mental preparation.	2.30	0.44	Poor
4. My coach provides individualized guidance based on my strengths and weaknesses.	3.10	1.89	Moderate
5. There is sufficient communication between players, coaches, and parents.	3.05	0.73	Moderate
6. I have access to sports science support (e.g., nutrition, injury prevention, psychology).	2.40	1.12	Poor
7. There are enough competitive events for youth players in Chengdu.	2.11	0.64	Poor
8. I regularly participate in matches or tournaments that challenge my abilities.	1.25	0.14	Very Poor
9. I feel encouraged and motivated to pursue excellence in tennis.	2.35	1.44	Poor
10. Academic pressure affects my ability to commit to tennis training.	4.10	2.89	High
11. There are enough high-performance programs for talented youth players.	1.26	0.20	Very Poor

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Questionnaire Items	Total Score		Result
	$\bar{X}$	S.D.	
12. I intend to pursue a future career in tennis (athlete, coach, or related field).	4.76	2.20	Highest
13. Financial limitations affect my ability to train and compete effectively.	4.35	1.89	High

The questionnaire survey results highlight that young tennis players in Chengdu face significant challenges in both their training environment and development opportunities. In terms of training and support, they reported poor conditions in facilities ($\bar{X}$ = 2.12), limited access to professional coaching ($\bar{X}$ = 1.78), inadequate training programs with physical and mental preparation ($\bar{X}$ = 2.30), and insufficient sports science support ($\bar{X}$ = 2.40), while individualized coaching ($\bar{X}$ = 3.10) and communication with coaches and parents ($\bar{X}$ = 3.05) were rated only moderate. Regarding competition and development, players indicated poor opportunities for competitive events ($\bar{X}$ = 2.11), very poor participation in challenging matches ($\bar{X}$ = 1.25), and low motivation levels ($\bar{X}$ = 2.35).

Table 2 The results of the questionnaire survey for tennis coaches and tennis club managers (n=29)

Questionnaire Items	Total Score		Result
	$\bar{X}$	S.D.	
1. The facilities at our tennis club are sufficient for high-performance youth training.	2.40	0.49	Poor
2. The training program incorporates physical conditioning, technique, and mental preparation.	2.12	1.43	Poor
3. The club has a structured and progressive training program for youth players.	2.61	0.69	Moderate
4. Coaches receive ongoing professional development and training opportunities.	2.30	0.46	Poor
5. The coach-to-player ratio is appropriate for effective individual development.	1.96	0.54	Poor

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Questionnaire Items	Total Score		Result
	$\bar{X}$	S.D.	
6. There is a clear pathway for talented players to progress to advanced levels.	2.36	0.60	Poor
7. There are adequate local and regional competitions available for youth players.	1.80	0.49	Poor
8. Participation in competitions is financially accessible for most players.	2.90	0.54	Moderate
9. The club encourages and supports player participation in high-level events.	2.10	0.80	Poor
10. Parents are actively involved and supportive in their child's tennis development.	3.00	0.45	Moderate
11. Public and private funding for youth tennis development is adequate.	1.40	0.49	Very Poor
12. Government policies and local sports authorities provide strong support for youth tennis.	2.40	0.70	Poor
13. The cost of training and equipment is a barrier for many talented youth athletes.	4.05	0.66	High
14. Partnerships with schools and universities help promote tennis at the grassroots level.	4.72	0.59	Highest

The survey results from tennis coaches and club managers reveal significant gaps in Chengdu's youth tennis development system. Both groups identified poor conditions in facilities ($\bar{X}$ = 2.40), inadequate training programs that lack physical and mental preparation ($\bar{X}$ = 2.12), limited professional development for coaches ($\bar{X}$ = 2.30), and an inappropriate coach-to-player ratio ($\bar{X}$ = 1.96), with only moderate progress in structured training programs ($\bar{X}$ = 2.61). Competition opportunities were also found to be insufficient, with poor availability of local and regional tournaments ($\bar{X}$ = 1.80), low club support for high-level events ($\bar{X}$ = 2.10), and very poor funding ($\bar{X}$ = 1.40), while financial barriers for families were rated high ($\bar{X}$ = 4.05). Although parental involvement ($\bar{X}$ = 3.00) and financial accessibility of competitions ($\bar{X}$ = 2.90) were moderate,

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policy support remained weak ($\overline{X}$ = 2.40). Notably, partnerships with schools and universities were considered the strongest factor ($\overline{X}$ = 4.72) in promoting grassroots tennis.

Overall, the findings emphasize the urgent need for better facilities, professional coaching, structured training systems, more competition opportunities, and stronger institutional support to effectively foster youth tennis excellence in Chengdu.

Part 2: Expert interviews to inform the development of a management guideline.

In this section, expert interviews were conducted with tennis coaches, sports management experts, and tennis club managers to gather in-depth insights into effective strategies for promoting youth tennis excellence. The qualitative data obtained served as a foundation for drafting the components and framework of the management guideline aimed at enhancing youth tennis development in Chengdu.

Experts indicated that the SPLISS model (Sports Policy factors Leading to International Sporting Success) provides a robust framework for creating a management guideline to promote youth tennis excellence in Chengdu. By addressing nine key areas, such as financial support, coaching, facilities, and talent identification, the model ensures a systematic, evidence-based, and performance-driven approach aligned with international standards. Experts emphasize that applying the SPLISS model fosters long-term planning, stakeholder collaboration, and sustainable talent development, while its flexibility allows adaptation to Chengdu's local context. Thus, integrating the SPLISS framework with locally tailored strategies offers a structured, scalable, and strategic pathway to advance youth tennis excellence in the city.

Part 3: Development of the management guideline through expert focus group discussions.

A focus group discussion was held with ten experts to support the development of a management guideline aimed at promoting youth tennis excellence in Chengdu. The expert panel included three sports management experts, three tennis coaches, two tennis club managers, and two members of the Chengdu tennis association.

This section presents the findings derived from the focus group discussion, analyzed using content analysis. The following summarizes the key insights and expert opinions shared during the session:

Table 3 The management guideline to promote youth tennis excellence in Chengdu

The management guideline to promote youth tennis excellence in Chengdu	
Financial Support (Pillar 1)	
Diversify Funding Sources	Establish a funding model combining government grants, private sponsorships (e.g., sportswear brands), CSR partnerships, and

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The management guideline to promote youth tennis excellence in Chengdu	
	community fundraising.
Incentive-Based Allocations	Provide financial rewards to clubs and schools that demonstrate outstanding youth development outcomes.
Subsidies and Scholarships	Offer need-based scholarships and subsidize participation fees, equipment, and tournament travel costs for underprivileged youth.
Integrated Policy Development (Pillar 2)	
Formulate Localized Tennis Policies	Align municipal youth sports strategies with a tennis-specific development plan, with clear objectives and performance metrics.
Cross-Sector Coordination	Strengthen collaboration between education, sports, and health departments to ensure consistent and supportive policies.
Monitoring and Evaluation	Introduce a policy evaluation mechanism to track outcomes, ensure accountability, and inform policy adjustments.
Foundation and Participation (Pillar 3)	
Expand Access Through Schools	Integrate tennis programs into school physical education curricula and extracurricular activities, especially in underserved districts.
Community Outreach Initiatives	Launch mobile coaching units and open tennis clinics to promote entry-level participation.
Public Engagement Campaigns	Promote tennis through media campaigns, talent festivals, and community events to build interest and awareness.
Talent Identification and Development (Pillar 4)	
Standardized Identification Protocols	Develop a city-wide athlete tracking and assessment system incorporating physical, psychological, and technical criteria.
Progressive Talent Pathways	Structure clear stages, introductory, developmental, performance, elite, with benchmarks and regular evaluations.
Athlete Monitoring	Implement continuous monitoring and data collection to personalize training and prevent dropout.
Athletic Career and Post-Career Support (Pillar 5)	
Flexible Education Programs	Promote partnerships between schools and tennis academies offering hybrid or online learning options.
Academic-Athletic Counseling	Provide career guidance and academic planning services for youth athletes and their families.

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The management guideline to promote youth tennis excellence in Chengdu	
Dual Career Pathways	Encourage education-sport integration models that prepare athletes for life beyond competitive play.
Training Facilities (Pillar 6)	
Equitable Distribution	Develop more public courts in suburban and low-income areas through school-community partnerships.
Facility Upgrades	Invest in improving lighting, surfaces, and indoor facilities for year-round training.
Shared Access Policies	Promote agreements allowing schools, clubs, and communities to share facilities efficiently.
Coaching Provision and Development (Pillar 7)	
Tiered Certification System	Establish a localized coaching education and certification program aligned with international standards.
Continuing Education	Require regular professional development, including workshops in sport science and youth psychology.
Coaching Incentives	Implement a career advancement and recognition system tied to athlete progress and retention.
(Inter)National Competition (Pillar 8)	
Structured Competition Pathways	Develop a tiered competition system (district, city, regional) with ranking points and age-group circuits.
Tournament Support Mechanisms	Provide financial and logistical support for travel to domestic and international competitions.
Innovative Formats	Introduce team-based and mixed-format competitions to enhance match experience and reduce burnout.
Scientific Research and Innovation (Pillar 9)	
Integrate Sport Science	Build multidisciplinary teams (strength coaches, nutritionists, psychologists) into training environments.
Pilot Programs	Collaborate with universities on research in growth-sensitive training, biomechanics, and recovery.
Technology Adoption	Encourage the use of wearables and performance-tracking systems to personalize training and prevent injury.

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The management guideline to promote youth tennis excellence in Chengdu	
Stakeholder Engagement and Governance	
Establish a Steering Committee	Form a multi-stakeholder committee with representatives from clubs, schools, government, parents, and the Chengdu Tennis Association.
Transparent Implementation	Use public dashboards, annual progress reports, and regular consultation forums to ensure accountability.
Capacity Building	Provide training and resources to local administrators and partners to support implementation and continuous improvement.

In conclusion, the proposed management guideline offers a strategic and practical framework that combines international best practices with local expert insights to advance youth tennis in Chengdu. Grounded in the SPLISS model, it prioritizes diversified funding, strong policy integration, and expanded grassroots participation through schools and communities. The guideline establishes structured talent pathways, enhanced coaching systems, improved facilities, and more competitive opportunities, while also supporting academic-athletic balance, sport science integration, and injury prevention. With stakeholder collaboration, transparent governance, and continuous evaluation, this framework provides a sustainable approach to elevating Chengdu's youth tennis ecosystem to national and international standards of excellence.

Part 4: Validation of the management guideline through the connoisseurship method.

To evaluate its effectiveness, applicability, and practicality, the guideline underwent validation through the connoisseurship method. A panel of seven experts, including three sports management experts, three tennis coaches, and two tennis club managers, participated in the validation process.

The connoisseurship validation with seven experts confirmed that the management guideline for promoting youth tennis excellence in Chengdu is comprehensive, practical, and well-aligned with both international standards and local conditions. Experts highlighted its strengths in addressing talent development, coaching systems, facility access, and sport science integration, while clearly defining stakeholder roles and implementation strategies. Although minor refinements such as phased implementation, tailored stakeholder versions, and enhanced school engagement were suggested, all experts endorsed its adoption, emphasizing its feasibility within current resources and its strong potential to support sustainable youth tennis development in Chengdu.

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Interdisciplinary Academic and Research Journal, 6 (2), March-April 2026
Old ISSN 2774-0374: New ISSN 2985-2749
Website: https://so03.tci-thaijo.org/index.php/IARJ/index
Article ID: e293232

Summary

The development of a comprehensive management guideline to promote youth tennis excellence in Chengdu, grounded in the SPLISS model, followed a systematic multi-step process. Collectively, these steps ensured the guideline is evidence-based, context-specific, and strategically designed to support sustainable youth tennis development in Chengdu.

The details of the management guideline to promote youth tennis excellence in Chengdu were as follows:

1) Financial Support (Pillar 1) is divided into 3 elements, namely, diversifying funding sources, incentive-based allocations, and subsidies and scholarships.

2) Integrated Policy Development (Pillar 2) is divided into 3 elements, namely, formulate localized tennis policies, cross-sector coordination, and monitoring and evaluation.

3) Foundation and Participation (Pillar 3) is divided into 3 elements, namely, expand access through schools, community outreach initiatives, and public engagement campaigns.

4) Talent Identification and Development (Pillar 4) is divided into 3 elements, namely, standardized identification protocols, progressive talent pathways, and athlete monitoring.

5) Athletic Career and Post-Career Support (Pillar 5) is divided into 3 elements, namely, flexible education programs, academic-athletic counseling, and dual career pathways.

6) Training Facilities (Pillar 6) is divided into 3 elements, namely, equitable distribution, facility upgrades, and shared access policies.

7) Coaching Provision and Development (Pillar 7) is divided into 3 elements, namely, the tiered certification system, continuing education, and coaching incentives.

8) (Inter)national Competition (Pillar 8) is divided into 3 elements, namely, structured competition pathways, tournament support mechanisms, and innovative formats.

9) Scientific Research and Innovation (Pillar 9) is divided into 3 elements, namely, integrating sport science, pilot programs, and technology adoption.

10) Stakeholder Engagement and Governance is divided into 3 elements, namely, establishing a steering committee, transparent implementation, and capacity building.

Conclusion

The developed management guideline to promote youth tennis excellence in Chengdu provides a comprehensive, practical, and contextually appropriate framework, aligned with local conditions. The tennis clubs and schools can apply this in preparing youth tennis athletes, fostering them to become individuals with excellence, while also establishing collaboration between schools and tennis clubs.

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Discussion

A systematic process was carried out to design a comprehensive management guideline for promoting youth tennis excellence in Chengdu, using the SPLISS model as its foundation. Results from surveys and expert interviews revealed critical challenges such as unequal access to training facilities, limited competitive opportunities, insufficient integration of sports science, and the absence of structured talent development pathways. To address these issues, the guideline highlights the need for policy alignment, sustainable funding, robust coach development, and stronger stakeholder collaboration. Drawing on expert insights and SPLISS principles, it emphasizes diversified funding, integrated policies, and expanded grassroots participation through schools and community programs. It also proposes structured athlete pathways, enhanced coaching systems, improved infrastructure, and broader access to competitions, while supporting academic-athletic balance, sports science integration, and innovative injury-prevention measures. Successful implementation will depend on transparent governance, active stakeholder engagement, and continuous evaluation to ensure sustainable development of youth tennis in Chengdu.

Focusing on Foundation and Participation (Pillar 3), the research found that expanding tennis access through schools by embedding it into physical education curricula and extracurricular activities, especially in underserved districts, is essential for building a grassroots base. This aligns with Bailey et al. (2013), who stressed that school-based tennis programs are critical in shaping lifelong activity habits. Many federations collaborate with education departments to provide coaching, inter-school competitions, and scholarships for talented youth. The Rafa Nadal Academy (2023) reinforces this by demonstrating how partnerships between schools, colleges, and professional organizations integrate elite-level training into academics, offering coaching expertise and infrastructure support. Similarly, NCAA (2022) highlights the role of school and collegiate teams in creating consistent competition opportunities, with the NCAA Tennis Championships serving as a pathway toward professional careers. Scholarships and talent identification programs further strengthen these efforts, ensuring that promising players receive financial and coaching support. Together, these multi-level collaborations illustrate the importance of integrating tennis within the education system as a foundation for long-term youth tennis excellence.

Recommendation

Recommendation for current research

1. The research should expand to include a larger and more diverse sample from additional districts in Chengdu and other cities in Sichuan Province to enhance the generalizability of findings.

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2. In developing the guideline, incorporating perspectives from parents, physical education teachers, and education policymakers would offer a more comprehensive view of the youth tennis ecosystem.

3. Longitudinal studies should be conducted to assess the long-term impacts of implementing the management guideline on player development, participation levels, and performance outcomes.

Recommendation for further research

1. Future research should investigate how youth tennis management guidelines can be developed and applied in other cities or provinces across China.

2. Additional studies should examine the economic impact and cost-effectiveness of youth tennis initiatives, focusing on funding models, sponsorship opportunities, and the return on investment for clubs, schools, and local governments.

3. Comparative studies with international youth tennis development systems, such as those in the United States, Europe, and Japan, are recommended to identify best practices and potential areas for adaptation.

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