

Cultivating Morality, Cultivating Talents, Forging Souls, and Strengthening Skills: The Practical Model Construction of Tennis in Vocational Colleges with Sports Talents

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Abstract: In the current reality of talent cultivation in vocational colleges in China, there is a widespread emphasis on skills over literacy. As an essential way to enhance students' comprehensive literacy, physical education urgently needs to explore its deeper function as a "sports person". This article focuses on the core issue of how to effectively integrate the fundamental task of "cultivating morality and talent" into the specific practice of physical education teaching in vocational colleges. The primary research methods are action research and case study, and the 15-year practical exploration of tennis teaching and school teams at Zhongshan Polytechnic is used as a case study for systematic summary and model construction. The core of the research lies in proposing a three-in-one tennis education practice model, which integrates the cultivation of professional core competencies such as rule awareness, resilience, and collaborative spirit into the entire process of teaching, training, and cultural construction. Through typical student cases (such as Guanjie Zheng's growth leap from a junior college student to a doctoral student) and the collective achievements of the "Tennis Hundred Alumni Team", the significant effectiveness of this model in promoting students' comprehensive development has been demonstrated. Research has shown that tennis is an effective carrier for vocational colleges to implement the "sports-oriented" concept. The "Zhongshan Polytechnic Model" has not only achieved excellent competition results but, more importantly, laid the foundation for students' lifelong professional ethics and life, and provided replicable and practical paths and typical examples for similar colleges to carry out characteristic sports education work.

Keywords: Athletes, Vocational colleges, Tennis teaching, Core competencies, Practical models

1. Introduction

With the continuous deepening of China's industrial upgrading and economic structural adjustment, the importance of vocational education is becoming increasingly prominent, and its talent cultivation goals are shifting from a single "skill imparting" to a deepening transformation of "combining morality and technology, and comprehensively improving comprehensive literacy". In recent years, policy documents such as the "Implementation Plan for National Vocational Education Reform" have clearly called for efforts to cultivate high-quality workers and technically skilled talent, and the deepening of the "integration of sports and education" strategy has opened a critical path to achieving this goal. Physical education, as a key part of the "five educations simultaneously", has a function far beyond physical fitness, but also lies in shaping key qualities such as students' willpower, rule awareness, and teamwork spirit. These are the core capital urgently needed for vocational school students to enhance their employment soft skills and achieve lifelong development. However, in the actual operation of vocational colleges, the educational value of physical education has not been fully recognized, and the phenomena of "emphasizing skills over morality" and "marginalization of physical education teaching" persist ^[1]. How to effectively implement the concept of "sports-oriented people" and organically integrate it with professional skill training has become an important research topic of practical significance.

Regarding the theme of "sports people", existing academic research has engaged in extensive discussion from macro perspectives, such as conceptual interpretation and value demonstration. In the field of physical education in vocational colleges, scholars mainly focus on the role of physical education courses in promoting students' physical and mental health and improving their professional physical

fitness. As for the educational function of tennis, research generally focuses on reforming public physical education courses or on the training mode for competitive talent in undergraduate colleges^[2,3]. From a comprehensive review of the existing literature, it can be found that although the educational value of sports is generally recognized, there is a lack of a systematic, long-term, frontline, practice-based summary of educational models for vocational colleges^[4,5]. In particular, there is a lack of in-depth research that integrates curriculum teaching, training competitions, and cultural inheritance, and can be empirically tested through typical cases and group effects. This gap is precisely the key point that this study aims to address and fill.

Based on the above background, this study specifically focuses on the author, Ruijuan Liu from the Sports Teaching and Research Office of Zhongshan Polytechnic, who has been practicing tennis teaching and school team training for fifteen years since 2010. This is a complete journey from "pioneering" team building to repeatedly winning national and provincial awards, including rich first-hand practical materials and reflective summaries. In terms of research methodology, this study mainly adopts the action research method, positioning itself as a "practitioner researcher", conducting a systematic review, sorting, and pattern extraction of 15 years of teaching, training, and sports activities; At the same time, supplemented by case study method, a deep analysis of the growth trajectory of typical students such as Guanjie Zheng was conducted, and the effectiveness of the education model was verified from multiple dimensions through the group development analysis of the "Tennis Hundred Alumni Group". This type of research, grounded in long-term personal practice, aims to go beyond simple experience summarization and to construct a nurturing model with theoretical support and practical vitality.

Therefore, the structure of this paper is arranged as follows: Chapter 2 will lay the theoretical foundation for the research, define core concepts, and analyze the unique educational advantages of tennis; The third chapter is the core chapter, which systematically elaborates on the construction process of the three-dimensional integrated " Zhongshan Polytechnic" tennis education practice model of "curriculum teaching infiltration, training competition refinement, and cultural atmosphere infiltration"; Chapter 4 will verify the practical results of this model from three aspects: competition honor, individual cases, and group effectiveness; Chapter 5 will reflect on the internal driving forces and external guarantee conditions that promote the sustainable development of this practical model; Finally, Chapter 6 summarizes the entire text, elaborating on the conclusions, inspirations, limitations, and prospects of the research.

2. Theoretical cornerstone: The connotation of "sports-oriented individuals" in vocational colleges and the unique advantages of tennis sports

2.1. Core concept definition: the specific connotation of "sports-oriented individuals" in vocational colleges

The fundamental purpose of physical education is to cultivate students' physical fitness and sports skills through purposeful and organized sports activities, while also emphasizing the comprehensive cultivation of their ideological and moral character, willpower, behavioral norms, and social adaptability. However, when this concept is placed in the specific context of vocational colleges, it acquires distinct directionality and specificity that distinguish it from ordinary higher education.

The core goal of talent cultivation in vocational colleges is to produce high-quality technical and skilled talent for the front lines of production, construction, service, and management. This means that its focus as a "sports person" must closely align with the comprehensive quality requirements of the industry and enterprises for talent. Unlike ordinary universities that focus on general education and cultivating innovative thinking, vocational colleges place more emphasis on the cultivation and transfer of professional qualities through "sports talents". It is not just a general concept of a 'sound personality', but a specific set of key abilities and character traits that are necessary and transferable for future professional settings. Specifically, its connotation should include the following aspects:

Firstly, it is the internalization of rule awareness and professional ethics. The professional world highly relies on norms, standards, and processes. Tennis has its own strict and fair set of rules (such as serving and scoring rules and a code of conduct), which participants must absolutely respect and abide by. This reverence and habitual adherence to regulations on the sports field can effectively translate into students' conscious compliance with operating procedures, industry standards, and labor discipline in future workplaces, laying the foundation for a professional ethic of integrity and compliance. Secondly, it is the forging of uncompromising quality and compressive strength. Vocational positions, especially

those with technical skills, often involve high-intensity, high-pressure work environments. Tennis matches, especially when scores are lagging and physical limitations are present, are the ultimate test of players' psychological resilience and willpower. Every time you insist on running in exhaustion, and every time you adjust your mind to come back after a failure, it is a practical exercise of the spirit of "never giving up". The psychological resilience tempered through exercise is the 'invisible capital' that students need to face challenges and overcome difficulties in their future careers.

Again, it is the enlightenment of precise focus and a spirit of craftsmanship. Vocational education fosters a spirit of craftsmanship and striving for excellence. Tennis techniques are intricate and complex, requiring a perfect combination of body coordination, timing judgment, and strength control for a high-quality return shot. Even the slightest difference can lead to a thousand miles of error. This pursuit of meticulous technical actions and perfection in every detail is highly compatible with the essence of craftsmanship. Through tennis training, students can be guided to experience and comprehend the value of focus, precision, and pursuit of excellence.

Finally, it is the cultivation of collaborative communication and team spirit. Almost every modern workplace emphasizes teamwork. Although tennis is often considered an individual sport, doubles and team competitions require significant collaboration. Team members need tacit tactical cooperation, immediate communication and encouragement, selfless trust, and responsibility. This kind of team-based positioning, communication, and collaboration directly corresponds to the communication and collaboration skills required by project teams in the workplace.

Therefore, the essence of vocational colleges' 'using sports as a bridge' is to systematically and targetedly transform the experiences and insights gained on the sports field into core competencies that equip students for future careers and support lifelong development.

2.2. Theoretical basis: embodied cognition theory and comprehensive development education theory

2.2.1. Embodied cognition theory and its educational implications

The theory of embodied cognition challenges the traditional concept of "detached cognition", emphasizing that cognition, thinking, emotions, and even character do not occur solely in the brain but are closely related to the body's physical properties, sensory-motor systems, and environment. Cognition is embodied, meaning that our physical activity patterns and physiological experiences directly shape our cognitive structures and ways of thinking. This theory provides strong theoretical support for sports education.

In tennis instruction, students cannot truly understand the meanings of "persistence" and "focus" by listening to explanations. These abstract qualities must be constructed through concrete bodily experiences. For example, when students engage in a multi-turn tug of war under the scorching sun and feel extremely exhausted, the quality of "perseverance" is no longer a concept in books, but rather stems from the physical sensations of leg muscle soreness, sweating profusely, and the successful experience of overcoming limits to complete hitting the ball. The cognition gained through physical practice is profound and lasting. The embodied cognition theory enlightens us that tennis education cannot be limited to preaching, but must design rich "physical practice" scenarios (such as simulating adversity, setting challenge goals), allowing students to learn and perceive through their bodies in real sports experiences, to internalize external norms and requirements into stable character traits.

2.2.2. The theory of comprehensive development education and the requirements of the times

The Marxist theory of comprehensive human development and China's long-standing policy of comprehensive development education both clearly state that the ultimate goal of education is to cultivate socialist builders and successors who are well-rounded in morality, intelligence, physical fitness, aesthetics, and labor. In the field of vocational education, this theory has special guiding significance. It requires us to go beyond the narrow view of skill training that regards students as "tools" and opposes any form of one-sided development.

Vocational education should not only be a 'tool', but also an 'education'. As an essential component of physical education, the value of tennis lies precisely in its ability to promote the harmonious unity of morality, intelligence, physical fitness, aesthetics, and labor. In tennis activities, students not only exercise their bodies, but also learn sports knowledge and tactical wisdom; Not only did it cultivate the moral character of following rules and respecting opponents, but it also felt the beauty of sports and rhythm; Not only did they put in physical labor during swing practice, but they also demonstrated a spirit of hard work in organizing competitions and maintaining the field. Therefore, vigorously promoting

sports activities such as tennis in vocational colleges is an essential practical path to put the theory of comprehensive development education into practice, correct the deviation of "emphasizing skills over nurturing", and cultivate complete individuals.

2.3. Analysis of the educational function of tennis: high-density fit with professional ethics

Tennis, due to its unique characteristics, has formed a high-density and inherent fit with the cultivation of professional ethics, making it an ideal carrier for vocational colleges to "train athletes".

The 'real-life classroom' of rule awareness and professional ethics: Tennis rules are detailed and authoritative, covering issues such as serving foot faults, ball mark disputes, etc., all of which require players to have a high degree of integrity and often require them to make self-judgments actively. This 'unsupervised honesty' is a severe test of the participants' moral character. This practice of pursuing victory within the framework of rules is the most vivid and profound real-life teaching in professional ethics education, far more potent than empty preaching.

A dynamic exercise that focuses on perseverance and craftsmanship: A tennis match takes a long time and requires athletes to maintain a high level of concentration from start to finish. The handling of each ball requires quick judgment and precise response to the speed, rotation, and landing point of the incoming ball. This ultimate focus on every minute and every shot is similar to the craftsmanship spirit of striving for excellence in every process and detail. Long-term training can effectively cultivate students' professional qualities of focus and patience.

Individual assessment of independent coping and stress resistance: In singles matches, players face all situations on the field alone, requiring independent decision-making, self-motivation, and emotional management. This experience of independently solving problems under pressure greatly enhances students' psychological resilience, emotional regulation, and decision-making abilities, which are essential skills for navigating complex situations and intense pressure in modern workplaces.

Teamwork and collaborative communication: In doubles and team events, tennis becomes a team sport. Clear tactical communication, complementary technical and tactical characteristics, unconditional trust, and timely encouragement are required between partners. This is highly similar to the operational mode of project teams in the workplace. Through tennis doubles training and competitions, students can gain a first-hand understanding of the golden rules of the workplace, such as the idea that team goals surpass individual performance and that effective communication is the foundation of collaboration.

In summary, tennis is by no means a simple physical activity. Its inherent structure and logic make it a miniature and dynamic "social context" and "workplace rehearsal ground". Guided by scientific theories, in-depth exploration, and the systematic design of the educational function of tennis, it can play an irreplaceable and essential role in cultivating high-quality technical and skilled talent in vocational colleges.

3. Theoretical cornerstone: The connotation of "sports-oriented individuals" in vocational colleges and the unique advantages of tennis sports

Over the course of fifteen years of educational practice, Zhongshan Polytechnic's tennis education model has gradually formed a unique three-dimensional practice system (as shown in Figure 1). This system is based on curriculum teaching as the fundamental dimension, training and competition as the enhancement dimension, and cultural infiltration as the extension dimension. The three dimensions support each other and progress layer by layer, together forming a complete educational ecosystem. This system not only focuses on imparting tennis skills but also integrates the cultivation of professional ethics across all aspects, fostering the cultivation of the concept of "sports people".

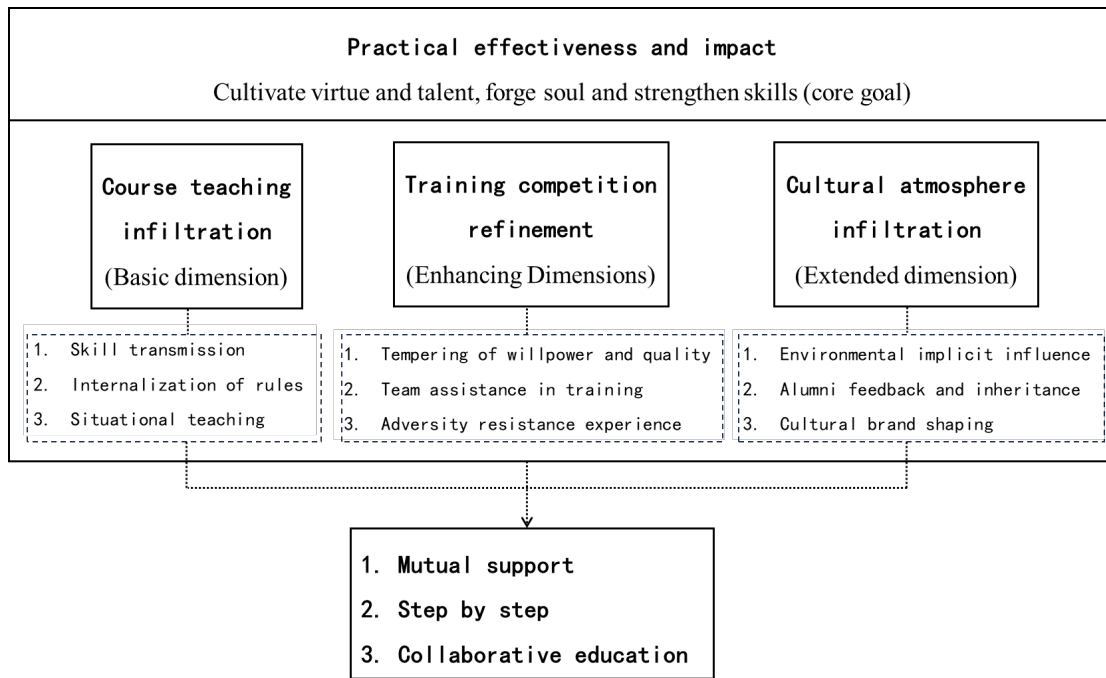


Figure 1. "Three-dimensional integrated" tennis education practice system model.

3.1. First dimension: Curriculum teaching - deep penetration of the main channel for education

Curriculum teaching is the main battlefield for tennis education practice, and it is also the fundamental link to achieving the goal of "cultivating sports talents". In this dimension, we always adhere to the teaching philosophy of "education occurs in every swing and run", transforming traditional physical education skills courses into comprehensive quality training courses. The physical education skills course has been transformed into a comprehensive quality training course. Our 'podium' is on the field, and 'chalk' is the racket. Through carefully designed teaching activities, our educational goals are achieved unconsciously.

In developing the teaching syllabus, we have overcome the limitations of traditional physical education courses that focus solely on skill development and explicitly incorporated the cultivation of professional core competencies, such as "focus, persistence, resilience, and collaboration," into the teaching objectives. For example, in serving technique teaching, we not only require students to master the essentials of technical movements but also cultivate their concentration through continuous serving practice; in multi-turn training, the importance of persistence is emphasized; in tactical coordination exercises, emphasis is placed on cultivating teamwork awareness. This clear setting of teaching objectives ensures targeted education work.

In terms of innovative teaching methods, we have developed a series of distinctive teaching practices. The "Adversity Score Simulation" training method cultivates students' psychological qualities of staying calm and persevering in the face of danger by setting a situation where they are behind in the score; The system of "honest self judgment" requires students to actively admit in and out of bounds goals without the supervision of a referee, cultivating their character of honesty and trustworthiness; Group tactical discussions encourage students to independently analyze the characteristics of their opponents, develop combat plans, and enhance their teamwork and problem-solving abilities. The enlightenment of the "craftsman spirit" of precise technical movements is also a key practice that emphasizes the precision and repeated refinement of these movements, guiding students to develop a craftsman spirit of excellence. These teaching methods seamlessly embed educational elements into technical instruction, enabling students to master motor skills while subtly enhancing their comprehensive literacy.

Of particular note is the application of the "situational teaching" model. We transform tennis courts into miniature social scenes, allowing students to experience rules, responsibilities, and collaboration in simulated real-life situations. For example, designing doubles matches as project management simulations that require team members to develop tactics, assign responsibilities, and assess risks jointly, this teaching method makes abstract professional qualities tangible and perceptible. Through this type of instructional design, students not only learn how to play tennis, but more importantly, how to face

challenges, collaborate with others, and follow rules. These qualities will become a solid foundation for their future career development.

3.2. Second dimension: Training competition - strengthening and testing of educational effectiveness

Training competitions are a dimension for improving the tennis education model and an essential touchstone for evaluating its effectiveness. In this dimension, we adhere to treating the school team as the "vanguard" and, through systematic training and high-level competitions, further refine and enhance the basic qualities cultivated in curriculum teaching. We always believe that trophies are just a byproduct of educating people, and the real achievements lie in the spiritual growth students gain through hard training and intense competition.

The school team construction adopts a "pyramid-shaped" training mode. At the basic level, open tennis elective courses are offered to all students to discover potential talent; at the intermediate level, form a representative team of departments and conduct regular training; at the top, the school tennis team represents the school in various competitions. This kind of team building ensures the continuity and systematicity of talent cultivation. Since the establishment of the "Pioneer" team in 2011, we have adhered to the principle of "scientific hard training". The dewdrops in the morning witness our figures, and the sunset at dusk accompanies our perseverance. The daily "scientific training" scene of the school team. This daily training not only improves the technical and tactical level of the team members but, more importantly, cultivates their excellent qualities of self-discipline, punctuality, and persistence.

The competition segment is a centralized testing ground for the effectiveness of education. We actively organize team members to participate in a range of competitions, from school-level to provincial and even national. Especially during preparation for the tennis competition at the triennial Provincial University Games, players must face multiple physical, technical, and psychological tests. At the May 2025 Provincial Universiade, our team won the men's doubles title. In August of the same year, he achieved a strong result of "second in the country" at the 28th Vocational College Tennis Championships held in Nanchang. Behind these achievements are countless days and nights of arduous training by the team members, their perseverance in the face of adversity, and the mutual support between the teams. Through these high-level competitions, students further internalize and elevate the qualities learned on the training ground in real confrontations.

The reflection section after the competition is significant. After each game, we will organize a special seminar to not only analyze the gains and losses in skills and tactics, but also to explore the spiritual qualities demonstrated during the game. For example, how to maintain focus when the score is leading, how to adjust mentality when falling behind, and how to take responsibility at critical points. Through this deep reflection, students transform their competition experience into valuable life assets. This model of promoting education through competition and nurturing students through competition makes training and competition an accelerator for improving students' comprehensive quality.

3.3. Third dimension: cultural infiltration - continuity and migration of educational effectiveness

Cultural immersion is an additional dimension of the tennis education model, focusing on the long-term, sustainable effectiveness of education. This dimension breaks through the time and space limitations of traditional physical education and, by constructing a tennis cultural ecology, extends the educational effect from campus to the workplace, creating a virtuous cycle of "school graduation workplace". We sincerely recognize that the highest level of sports education is to enable students to internalize the excellent qualities developed in sports into lifelong behavioral habits.

The "Tennis Alumni League" is an essential carrier of cultural infiltration. At present, we have established a network of over 100 alums across the Guangdong-Hong Kong-Macao Greater Bay Area, who have become living business cards for the effectiveness of tennis education. The alum group regularly organizes exchange activities and invites outstanding alums to return to the school to share their workplace experiences, setting an example for current students. For example, the growth trajectory of Mr. Guanjie Zheng from a junior college student to a doctoral student has become an essential case for motivating current students. Through this intergenerational inheritance, tennis culture can continue, and its educational effect is continually amplified.

The creation of cultural brands is the key to ensuring the sustainability of educational outcomes. We establish a 'Tennis Culture Wall' to record the team's development history and the deeds of outstanding players; establish the "Tennis Culture Festival" and organize a series of activities, such as tennis

knowledge competitions and photography exhibitions; and compile a collection of tennis education cases to summarize educational experience systematically. These cultural construction efforts have transformed tennis education from the practice of individual teachers to a distinctive school brand, shaping a sustained educational influence.

Of particular importance is the mechanism by which educational effectiveness is transferred. We found through tracking surveys that alumni generally believe that the qualities of punctuality, self-discipline, resilience, and collaboration developed on the tennis court have become the "hidden capital" for their career development. For example, alumni working in the finance industry have stated that the risk assessment and stress resistance developed during tennis training make them more confident in dealing with market fluctuations; Alumni engaged in educational work believe that the concept of teaching according to students' aptitude, which is understood in tennis teaching, directly assists in the development of their teaching work. This successful quality transfer proves that tennis education can indeed lay a solid foundation for students' lifelong development.

Through the organic integration of course instruction, training competitions, and cultural immersion, Zhongshan Polytechnic has built a comprehensive, three-dimensional tennis education system. This system not only focuses on cultivating basic literacy but also on improving comprehensive quality and pays greater attention to the needs of lifelong development, truly achieving the goal of "becoming a sports person". The three dimensions support and reinforce one another, forming a vibrant educational ecosystem that provides a practical model for reforming physical education in vocational colleges.

4. Effectiveness verification: Explicit display of educational achievements

The scientificity and effectiveness of any educational model ultimately need to be demonstrated through observable, verifiable results. The tennis education model at Zhongshan Polytechnic has been tested over 15 years of practice, and its effectiveness is reflected not only in explicit competition honors but also in students' individual growth and group development, forming a multi-level, three-dimensional education achievement system. This chapter will systematically verify the practical effectiveness of this educational model from three dimensions: competition results, individual cases, and group outcomes.

4.1. Competition results and honors: explicit benchmarks for educational achievements

The performance of competitive sports is one of the most intuitive indicators for measuring the effectiveness of teaching and training. The outstanding achievements of the tennis program at Zhongshan Polytechnic in various levels and competitions provide strong empirical support for the effectiveness of the education model. These honors not only represent recognition of technical proficiency but also a concentrated display of students' comprehensive qualities.

At the provincial level, tennis has achieved sustained, stable, excellent results (as shown in Figure 2). Since its establishment in 2011, the team has achieved outstanding results in the college tennis championship held by the Provincial Department of Education. Especially in 2016, Guanjie Zheng won the men's singles championship, marking a new height in the team's competitive level. In 2017, its successful defense of the tournament further demonstrated the team's continued talent development. In terms of team performance, the team has repeatedly ranked among the top three in the province, making it a traditionally strong team among vocational colleges. These achievements fully demonstrate the scientific and practical nature of the training system.

On the national stage, the team also performed impressively. In August 2025, at the 28th China University Tennis Championships, the team finished as national runners-up, setting a new historical best for the school in this event. The value of this achievement lies not only in the ranking itself, but also in the competitive level and spirit demonstrated in the competition with numerous undergraduate institutions. In addition, in the men's doubles competition at the triennial Provincial University Games held in May 2025, the team won the championship, a particularly valuable achievement in comprehensive sports events.

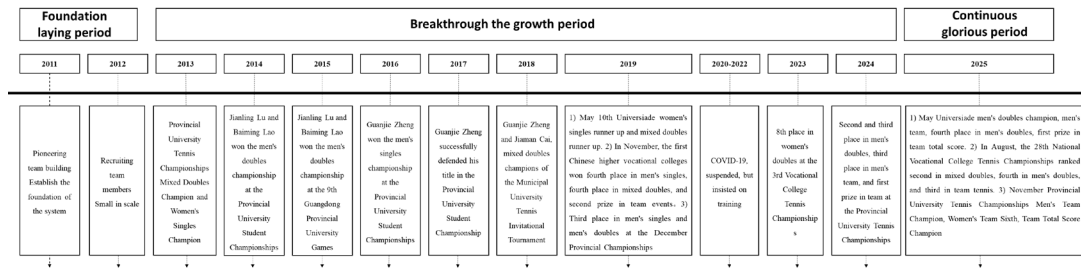


Figure 2. Development History and Honor Timeline of Tennis Projects at Zhongshan Polytechnic (2011-2025).

It is worth noting that receiving these awards is not an isolated event but an inevitable result of systematic education. For example, during preparation for the national championship, team members faced the dual challenges of high-intensity training and academic pressure. Yet, they maintained an excellent cognitive state and an excellent competitive level, which directly reflects their highly developed time management, stress resistance, and teamwork abilities. Winning certificates and trophies are just the tip of the iceberg; behind them lies comprehensive quality improvement, including the proper internalization of professional core competencies such as discipline, sense of responsibility, and fighting spirit. Therefore, the competition's performance as a clear benchmark for educational achievement strongly confirms the practical value of the "sports-oriented" model.

In addition, during these 15 years, the teacher has won the "Excellent Coach" award in the national competition once, the "Sports Ethics and Style Award" in the tennis event of the Provincial University Games three times, and the "Excellent Coach" award in the Provincial University Championships seven times. These personal honors further highlight the leadership role of teachers in educational practice, complementing team achievements and jointly proving the outstanding effectiveness of this model.

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4.2. In-depth analysis of individual student growth cases: Guanjie Zheng's transformation path

If the results of the competition serve as collective proof of the educational model, then Guanjie Zheng's growth trajectory is a vivid footnote at the individual level. His experience clearly demonstrates how tennis education triggers a chain reaction of "skill improvement, confidence establishment, goal setting, academic leap" (as shown in Figure 3), providing a typical case study for examining the mechanism of sports education.

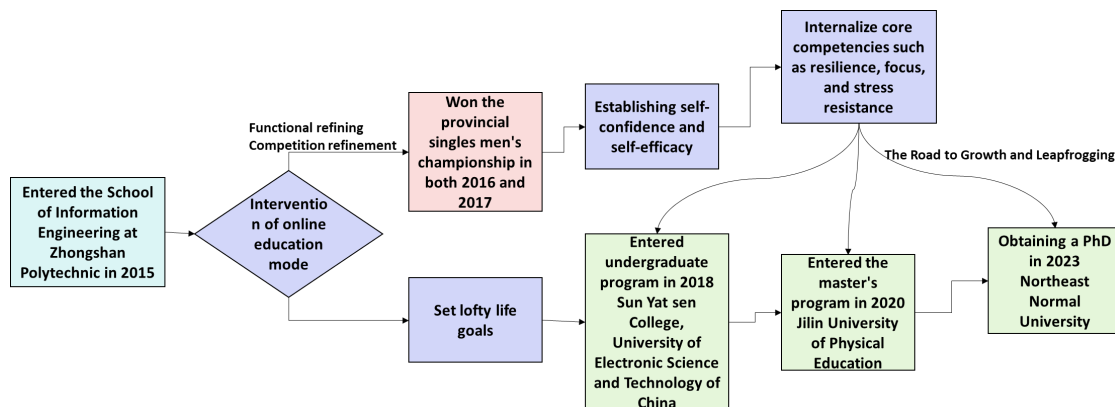


Figure 3. Growth path diagram of the typical case, Guanjie Zheng (2015-2023).

Guanjie Zheng entered the School of Information Engineering's Network major in 2015 and, in his sophomore year, won the men's singles championship at the Provincial University Tennis Championships on behalf of the school. He successfully defended his title the following year. In the early stages of tennis training, he was a novice with weak foundations, but through systematic training, his technical level

improved rapidly. During this process, he not only mastered tennis skills but, more importantly, established strong confidence through successful competition. Every technological breakthrough and victory in every game has strengthened his sense of self-efficacy, which gradually extends from the field to his studies and life.

As technological advancement and confidence-building advance, the key qualities cultivated in tennis training begin to play a role. After discovering his calm personality and outstanding abilities, the coach guided him to balance training and studies in a targeted manner and set higher life goals. The focus, persistence, and sense of purpose cultivated in tennis enable him to apply the same qualities to his academic studies. With the joint help of class mentors, counselors, and course teachers, he identified and filled in gaps, intensified his review, and successfully enrolled in the Computer Science and Technology major at Sun Yat sen College, University of Electronic Science and Technology of China in 2018, achieving an essential leap from junior college to undergraduate.

What is even more enlightening is that Guanjie Zheng's growth did not stop here. With a passion for tennis, he earned a full-time master's degree in sports training from Jilin Sport University in 2020, transforming from engineering to sports studies. In 2023, he successfully obtained a full-time PhD in Sports Humanities and Sociology from Northeast Normal University. The root of this series of academic leaps lies in the intrinsic motivation and transferable abilities inspired by tennis. From a beginner in tennis to a provincial tournament champion, from a network major to a sports major, from a junior college student to a doctoral student, Guanjie Zheng's transformation path clearly demonstrates how tennis education triggers comprehensive quality improvement through skill cultivation, thereby promoting the internal mechanism of extensive development.

4.3. Social effectiveness of student group development: The social value of the "Tennis Alumni Group"

The long-term effectiveness of the tennis education model ultimately needs to be tested through the long-term development of the student population. The outstanding performance of the "Zhongshan Polytechnic Tennis Alumni Group," with over 100 members after graduation, provides the most convincing evidence of the social value of the education model. These alumni are like sparks of fire, spread throughout the thriving Guangdong-Hong Kong-Macao Greater Bay Area, serving as living business cards of the effectiveness of the tennis education model.

The alum tracking survey shows that the tennis alum group has a wide occupational distribution and a high level of hierarchy. Among them, about 35% have become the technical backbone of various enterprises, performing outstandingly in fields such as intelligent manufacturing and information technology; About 20% choose entrepreneurship and become a pioneer force in the innovation economy; About 15% enter the education industry and devote themselves to the education industry like Teacher Liu Ruijuan; The remaining 30% have achieved good development in sectors such as finance, management, and services. This diverse and high-quality occupational distribution indicates that students trained by the tennis education model have broad social adaptability and competitiveness.

More importantly, alumni generally believe that the qualities developed during tennis training have become the "hidden capital" for their career development. An alumnus who works as a project manager in a well-known technology company said, "The punctuality habit I developed on the tennis court has made me particularly value deadlines in project management; The collaborative spirit cultivated in doubles matches has enabled me to excel in team management." Another entrepreneurial alumnus talked about, "The adversity coping strategies I learned in tennis matches directly helped me maintain resilience and confidence during the low point of entrepreneurship." This genuine feedback fully demonstrates that the qualities cultivated in tennis are highly transferable and can be effectively translated into workplace competitiveness. The alum group has also formed a unique intergenerational inheritance mechanism. Graduating alums contribute to the growth of current students by returning to school for exchange, providing internship opportunities, and serving as off-campus mentors. This virtuous cycle not only expands the effectiveness of education but also forms a unique tennis cultural ecology. It is worth noting that regional tennis activities organized spontaneously by alumni have become an essential platform for connecting alums, expressing emotions, and building professional networks.

Looking at the evidence from three dimensions of competition results, individual cases, and group effectiveness, it is clear that the tennis education model of Zhongshan Polytechnic has produced multi-level and sustainable educational effects. These explicit achievements fully demonstrate that this model not only achieves breakthroughs in competitive sports performance but, more importantly, promotes the

comprehensive development and lifelong growth of students, providing a successful example for vocational colleges to practice as "athletes".

5. Reflection on the power mechanism and guarantee conditions

The successful implementation and continuous deepening of any educational practice cannot be achieved without the support of internal driving forces and the guarantee of external conditions. The tennis education model at Zhongshan Polytechnic has persisted for 15 years and has continuously made breakthroughs, with profound driving mechanisms and solid guarantee conditions behind it. This chapter will delve into the core driving forces and key guarantee factors that promote the sustainable development of this practical model, to reveal its internal logic of success.

5.1. Core driving force of practitioners: integration of educational sentiment and mission responsibility

The intrinsic driving force of practitioners is the fundamental guarantee for the sustainable development of educational models. In this case, the driving force comes from two intertwined dimensions: one is the endogenous driving force shaped by the educational sentiment of "gratitude and inheritance", and the other is the mission consciousness derived from the responsibility of "teacher ethics and party spirit". These two dimensions together constitute the spiritual engine that drives the continuous deepening of practice.

The driving force of gratitude and inheritance is reflected in the intergenerational transmission of educational love. Practitioners always remember the careful cultivation of their mentor, Professor Kai Zheng, during their university years. It was this enlightening teacher who led students who had never been exposed to tennis into the world of tennis, not only imparting professional skills, but also infecting students through personal charm. This educational experience has formed a strong emotional imprint, enabling practitioners to understand that the essence of 'education deeply is one tree shaking another tree, one cloud pushing another cloud'. After becoming a teacher, practitioners naturally have a strong desire to continue passing on this warmth and harvest. In daily teaching, practitioners are always able to guide with the most incredible patience and enthusiasm when facing students who are as naive as they were back then. This emotional logic of "being treated well in the past, so it is even more important to treat others well" has become a necessary emotional support for overcoming difficulties and persisting in educating people. The dew drops in the morning, and the sunset at dusk, witness the persistence of this inheritance. Even when feeling tired and asking oneself, "Why do I make myself so tired?", once I step onto the court and see the students' hopeful eyes, I will unconsciously devote myself wholeheartedly. This "unconscious" dedication is the natural expression of the internalized educational sentiment.

The dual identity of "teacher ethics and party spirit" imbues practice with a more profound sense of mission. As teachers of the people, practitioners always bear in mind the sacred responsibility of "teaching and educating", firmly believing that education is everywhere and that sports have their own unique educational power. This professional identity makes practitioners unsatisfied with merely imparting tennis skills and constantly exploring how to cultivate students' sound personalities through sports. As a Communist Party member, this identity adds a heavy political responsibility. Practitioners deeply recognize that the educational cause of the Party needs to take root at the grassroots level, and the exemplary role of Party member teachers is reflected through concrete actions such as "wholehearted physical education classes" and "training that sacrifices rest time". This dual identity enables practitioners to connect their personal work with larger educational missions and national development goals, thereby gaining lasting motivation beyond individual interests. Under the party banner in front of the administrative building, practitioners often reflect on how to better fulfill their original mission, and this regular spiritual baptism further strengthens their sense of responsibility and accountability.

It is worth noting that these two driving forces do not exist in isolation; instead, they reinforce and promote each other. The educational sentiment provides an emotional foundation for responsibility and accountability, preventing the sense of mission from becoming hollow, and the sense of responsibility endows educational sentiment with a higher value positioning, elevating personal emotions into a sense of social responsibility. It is the dual driving force of this internal drive that supports practitioners in maintaining enthusiasm and creativity throughout their 15-year educational career, constantly promoting the development of tennis education models to a higher level.

5.2. Key guarantee conditions: synergistic effect of organizational support and team collaboration

The sustainable development of any educational innovation practice requires a suitable organizational environment and support system. The success of the tennis education model at Zhongshan Polytechnic is inseparable from the strategic support at the school level and the collaborative cooperation of colleagues in the teaching and research department. These external conditions and internal driving forces form a joint force to ensure the smooth implementation of the practice.

Forward-looking support from school leaders is an essential prerequisite for implementing practice. The school management not only ensures that hardware needs, such as tennis court construction, equipment procurement, and competition funds, are managed economically, but, more importantly, provides sufficient support at the institutional level, for example, including tennis training in teachers' workloads, reserving flexible space for training and competitions in curriculum arrangements, and providing spiritual and material rewards to award-winning students and guidance teachers. These institutional arrangements convey the school's high recognition of the value of sports education and provide a stage for practitioners to showcase their talents. Especially in the context of promoting the construction of the "Double High Plan" and the reform of school quality education, the tennis education model is highly compatible with the school's development strategy, and this resonance has provided additional resources and policy support for practice. School leaders not only encourage innovation verbally, but also express their importance to tennis education through practical actions such as regular observation and training, personally leading teams to participate in essential competitions, etc. This demonstration effect has created a good atmosphere of valuing sports education throughout the school.

The team collaboration in the sports teaching and research department is an essential support for deepening practice. Colleagues in the teaching and research department provide a complete understanding and support in scheduling and adjusting courses, ensuring that training time is guaranteed. Regularly conduct discussions and exchanges on teaching methods to jointly improve teaching levels; when leading teams to participate in competitions, they complement each other's positions to form a joint force. This kind of 'help and peer' not only reduces practitioners' work pressure but, more importantly, creates a community environment for professional development. In this community, practitioners can receive both professional support and emotional recognition, and this sense of belonging is crucial for maintaining long-term work enthusiasm. The regular teaching seminars and collective lesson preparation activities organized by the teaching and research department provide practitioners with a platform to reflect and improve. Through mutual inspiration among colleagues, they continuously optimize their educational strategies. In addition, the positive organizational culture formed by the teaching and research department also inspires every teacher to pursue excellence, and this collective motivation is an essential driving force for continuous breakthroughs in practice.

It should be noted that there is a dynamic interaction between internal driving forces and external guarantee conditions. The enthusiasm and effectiveness of practitioners have enhanced school support's confidence, and school support has further stimulated practitioners' enthusiasm. This virtuous cycle continuously strengthens the tennis education model. At the same time, team collaboration in the teaching and research department not only provides technical support but also strengthens practitioners' professional identity through peer recognition, thereby nourishing their internal drive. The synergistic effect of individual and organizational, internal and external factors is the key to the sustainable development of the tennis education model over the past 15 years.

In summary, the driving mechanism of the tennis education model at Zhongshan Polytechnic is a complex system composed of internal driving forces and external guarantee conditions. Among them, the educational sentiment of "gratitude and inheritance" and the mission consciousness of "teacher ethics and party spirit" have formed a strong internal driving force. At the same time, the support of school leaders and the teamwork of the teaching and research office provide necessary external guarantees. These two levels mutually promote and reinforce each other, jointly driving the continuous development of practice. The analysis of this driving mechanism not only helps to understand the successful experience of this case but also provides valuable insights for other educational practices.

6. Conclusions

This study conducted an in-depth analysis of the 15-year tennis education practice at Zhongshan Polytechnic. It systematically summarized and constructed a three-in-one tennis education model: "curriculum teaching infiltration training competition refinement cultural atmosphere infiltration".

Research has shown that this model effectively achieves the organic unity of skill imparting and personality shaping by seamlessly embedding the cultivation of professional ethics throughout the entire process of tennis teaching. Specifically, in the dimension of curriculum teaching, by creating characteristic teaching scenarios such as simulating adversity scores and self judging honesty, students can internalize professional qualities such as rule awareness and focused quality through embodied experiences; In the dimension of training and competition, relying on a systematic training system and high-level competition platform, the spirit of sports is transformed into students' practical ability to face challenges and cooperate in teams; In the dimension of cultural infiltration, a sustainable educational ecosystem can be formed by creating cultural carriers such as tennis alum groups. Empirical data show that this model not only cultivates numerous outstanding students, such as Guanjie Zheng, who have achieved life leaps, but also shapes a group of graduates with "hidden capital" such as punctuality, self-discipline, and resilience, fully verifying its significant effectiveness in cultivating high-quality technical and skilled talent. These achievements strongly confirm the practical value of embodied cognition theory in sports education, highlighting the unique advantages of tennis as a vehicle for cultivating professional qualities.

The practical exploration of this study provides a comprehensive reference system for the "concept path method" that can serve as a guide for similar universities. At the conceptual level, universities should establish a consensus that "sports are an important carrier of comprehensive education", break through the traditional pattern of emphasizing skills over literacy, and fully recognize the catalytic role of sports activities in cultivating professional spirit. At the path level, it is recommended to construct a hierarchical and progressive implementation system: at the basic level, integrate literacy goals into physical education curriculum standards, at the meso level, establish a transformation mechanism between competitive sports and professional literacy, and at the top-level design, focus on the sustainable impact of sports culture. At the methodological level, specific strategies such as situational teaching and alums feedback mechanisms can be promoted, while emphasizing the development of characteristic projects tailored to the school's needs, such as designing sports-teaching activities that simulate workplace scenarios based on regional industrial demands. Each institution must establish a support system that includes a mechanism for motivation stimulation, a resource guarantee system, and quality evaluation standards to ensure the continuous and in-depth development of educational practices.

This study also has certain limitations. As a single case study, the universality of its conclusions needs further practical verification; the method's qualitative orientation lacks quantitative analysis of the effectiveness of education; the tracking cycle for graduates' career development remains short, making it difficult to evaluate the long-term effectiveness of education comprehensively. Future research can be further expanded in three directions: conducting cross institutional comparative studies to explore the differentiated implementation paths of sports education models under different educational backgrounds; Establish a long-term tracking mechanism for graduates and use the life cycle theory to analyze the sustained impact of physical literacy on career development; Introduce quantitative research tools and establish statistical methods such as structural equation modeling to accurately measure the mechanisms and impact weights of various educational elements. In addition, with the development of new technologies such as artificial intelligence, exploring the integration and innovation of smart sports and literacy cultivation will also become a research direction worth attention.

In summary, the practice of the tennis education model at Zhongshan Polytechnic has shown that when sports are given the necessary educational mission and when the sports field becomes a training ground for professional qualities, vocational education can truly achieve the goal of "forging the soul and strengthening skills". We hope this study will inspire more vocational colleges to explore innovative paths for sports education and make greater contributions to cultivating new talent who can shoulder the great responsibility of national rejuvenation.

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