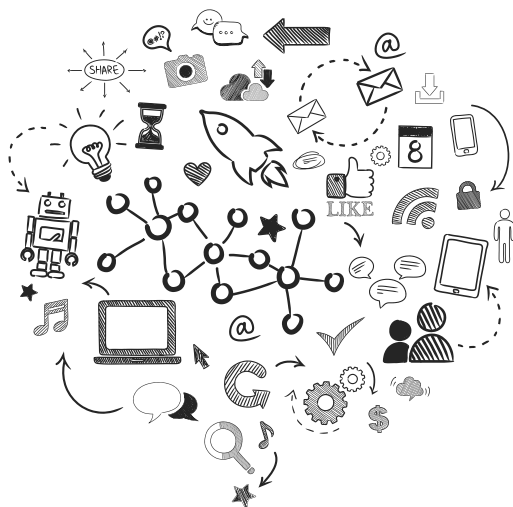

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Study on Sustainable Development of Sports Intangible Cultural Heritage into Campus: an Analysis of Tai Chi Chuan

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Received : September 3, 2024 Revised : December 31, 2024 Accepted : January 8, 2025

Abstract

This research investigates the sustainable integration of Tai Chi Chuan, a significant element of sports intangible cultural heritage, into physical education curricula in primary and secondary schools. Focusing on the challenges from the perspective of intangible cultural heritage protection, the research examined issues such as unsystematic curriculum design, limited teacher expertise, and low student engagement. Employing literature analysis and empirical investigation with (n=150) participants, the research assessed the interventions using literature analysis and an empirical inquiry with (n=150) participants. Grounded by theories of cultural inheritance and sustainable development, the research proposed strategies including optimized course content, policy support, diversified inheritance models, and the establishment of a collaborative educational ecosystem. The results demonstrated that these strategies effectively tackled the issues raised, promoting Tai Chi Chuan's long-term growth and preservation while offering insightful data for the broader safeguarding of sports' intangible cultural heritage in educational settings.

Keywords: Tai Chi Chuan; School Physical Education; Cultural Inheritance; Sustainable Development

1. Introduction

In 2020, the UNESCO Protection of Intangible Cultural Heritage will include the Tai Chi Chuan project in the UNESCO Representative List of Intangible Cultural Heritage of Humanity (Skowron-Markowska & Nowakowska 2021). Tai Chi Chuan is a significant element and outstanding representative of traditional Chinese culture and has a deep historical origin and extensive social influence. With the development of modern society, Tai Chi Chuan has become not only a self-cultivation exercise for the elderly to pursue health but also an important way for young people all over the world to enhance their physique and destroy their souls. Deng et al. (2022) active the development of Tai Chi Chuan has a positive effect on students' physical health. In recent years, with the increase in students' interest in learning and the country's emphasis on the inheritance of traditional culture, especially under the promotion of policies such as Strengthening the protection and Inheritance of Cultural Heritage and Promoting Excellent established Chinese traditions issued by the Ministry of Education of the People's Republic of China in 2024, Tai Chi Chuan began to enter the school physical education curriculum in the way of new curriculum objectives. However, how to effectively realize the sustainable inheritance of Tai Chi Chuan in the modern education system is still a topic that can be solved. This paper aims to explore the path of sustainable development by analyzing the current situation and problems of Tai Chi Chuan in school physical education inheritance and put forward corresponding optimization strategies to promote the large-scale and long and deep sustainable cultural inheritance of Tai Chi Chuan in schools' physical teaching curriculum. This research also explores the sustainable integration of Tai Chi Chuan into primary and secondary school physical education curriculums, addressing curriculum design, teacher expertise, and student engagement for long-term preservation and development.



Scope of the research

- Research determines a strategic framework for integrating Tai Chi Chuan into school programs, based on cultural inheritance and sustainable growth theory.
- Research, analyzed with 150 participants and SPSS 24.0, provides empirical evidence on the effectiveness of principles in enhancing Tai Chi Chuan integration into physical education programs.
- It suggests integrating Tai Chi Chuan in schools to safeguard sports' intangible cultural heritage, recommending path contented optimization, policy support, diversified inheritance models, and common educational ecosystems for sustainable expansion.
- It explores the sustainable integration of Tai Chi Chuan into school physical education curricula, considering its preservation and enlargement. It identifies challenges like unsystematic curriculum design, insufficient teacher expertise, and low student commitment and recommend strategies like curriculum optimization, policy support, and a collaborative educational ecosystem.

2. Conceptual Framework

2.1 Connotation and application of cultural inheritance theory

Cultural inheritance theory emphasizes the continuity and transmission of culture in time and space, which is the basis for understanding how traditional culture continues in modern society. Cultural inheritance includes not only the transmission of material traditions but also the inheritance of spiritual culture, customs, and values. The key to cultural inheritance lies in maintaining the core values of culture and transmitting them between different generations through education and social activities. Wenjie (2022) developed the schools and built a decompression platform for calm meditation for students. Cultural inheritance is an important part of cultural innovation. In the framework of researching Tai Chi Chuan's

legacy, this theory emphasizes how traditional sports culture can be systematically transmitted and developed through school education.

2.2 Application of sustainable development theory in educational inheritance

The theory of sustainable development was originally applied to environmental science, emphasizing the sustainable use and protection of resources. However, this theory also has wide applicability and directing importance in educational grounds and cultural inheritance. In educational inheritance, sustainable development refers not only to the rational allocation of educational resources, but also to how to maintain the continuous interest of students, enhance the dynamic adaptability of educational content, and ensure that the education system can play its inheritance function in the long term. In this way, educational content not only maintains its long-term effectiveness but also perpetuates its cultural value in a changing social environment. Cheng & Guo (2024) pointed out that as a traditional physical education course with profound cultural connotations, the effective inheritance of Tai Chi Chuan needs to be systematically planned under the guidance of sustainable development theory. This means that in the process of teaching and promoting Tai Chi Chuan, it is necessary to ensure the reasonable allocation of teaching resources, optimize the course design, and flexibly adjust the inheritance mode to cope with the changing educational needs and social environment, to realize the long-term inheritance and enlargement of Tai Chi Chuan in the modern education system. Figure 1 illustrates the Structure of sustainable economic development.

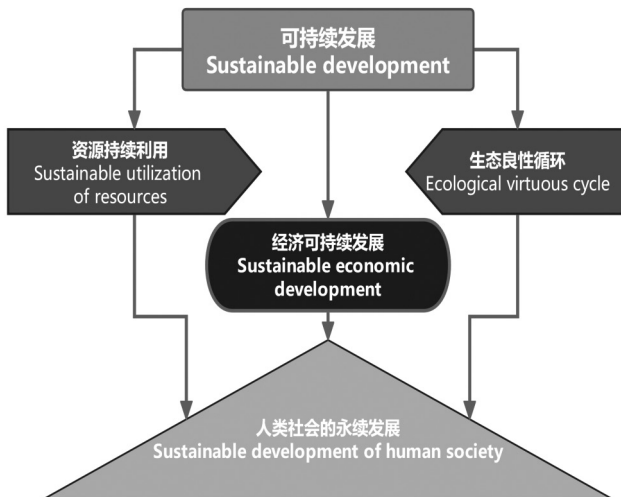


Figure 1: Structure of sustainable economic development

2.3 Analysis of the historical evolution and cultural value of Tai Chi Chuan

Tai Chi Chuan originated in China during the Ming and Qing dynasties. It integrates martial arts, Qigong, and health preservation. It is an important treasure of traditional Chinese sports culture. The heritage of Tai Chi Chuan is particularly prominent in Wudang Mountain in Hubei Province and Chenjiagou in Henan Province. There are various ways to inherit Tai Chi Chuan here. Parks, mountains, hospitals, schools, and other places have become venues for Tai Chi Chuan practice and dissemination. This diversified form of inheritance not only shows the adaptation and evolution of Chinese martial arts culture in modern society but also highlights the vitality and extensive influence of Tai Chi Chuan as a sports intangible cultural heritage.

Tang et al. (2022) pointed out that the introduction of Tai Chi Chuan into the campus not only enriched students' sports and cultural activities but also provided an important way to cultivate students' all-round development of morality, intelligence, physical fitness, the United States,

and labor. Through its unique movements and ideas, Tai Chi Chuan can improve students' physical fitness, enhance their mental adjustment ability, and provide them with a life philosophy that focuses on balance and harmony. Especially in modern education, the inheritance of Tai Chi Chuan is not only limited to the investigation of technical movements, but more importantly, it helps students form a dialectical way of thinking and a positive outlook on life through its ideological philosophy. Zhou (2019) emphasized that the core concept of Tai Chi Chuan, the balance of Yin and Yang, runs through its movements and philosophical thoughts, and has become a symbol of the concept of harmony in traditional Chinese culture. Therefore, Tai Chi Chuan is not only a kind of fitness exercise, but also known as ZheQuan, which gives practitioners a profound cultural experience while training the body. In the field of education, the inheritance of Tai Chi Chuan means integrating the essence of this traditional culture into the modern education system. The organic combination of culture and education not only ensures the sustainable development of the thousand-year cultural heritage of Tai Chi Chuan but also provides valuable practical experience for the construction of an education system with Chinese characteristics.

2.4 Problem Statement

The problem is necessity to preserve Tai Chi Chuan's cultural values in modern schooling and maintain its traditional nature. Integrating Tai Chi Chuan into curriculum requires a long-term approach that adapts to changing social and educational situations. The implementation of cultural inheritance theory is critical to maintaining its cultural importance.

3. Materials and Methods

This research investigates Tai Chi Chuan integration into school physical education programs with (n=150) participants and the study



design focuses on the education programs. Statistical analysis is performed using SPSS 24.0, with significant differences between the before and after determine the effects of the sustainable integration of Tai Chi Chuan school physical education curriculums.

3.1 Data Sampling

Research indicates a structured dataset for (n=150) participants, gathering important details about Tai Chi Chuan integration into school physical education programs as well as demographic data. The following data can be arranged in Table 1 to examine obstacles to the application of Tai Chi Chuan and evaluate the impact of different elements.

Table 1 : Characteristics of demographic variables
(Source: Author)

Demographic Variable	Category	Frequency (n=150)	Percentage (%)
Age Group	15-25	40	26.7%
	26-35	50	33.3%
	36-45	35	23.3%
	46-55	15	10.0%
	56 and above	10	6.7%
Gender	Male	80	53.3%
	Female	70	46.7%
Level of School	Primary School	50	33.3%
	Secondary School	50	33.3%
	Both	50	33.3%
	(Primary and Secondary)		
Curriculum Design	Satisfactory	90	60.0%
	Needs Improvement	60	40.0%
Teacher Expertise	High	100	66.7%
	Moderate	40	26.7%
	Low	10	6.7%
Student Engagement	High	85	56.7%
	Moderate	50	33.3%
	Low	15	10.0%

This research integrating Tai Chi Chuan into school physical education programs uses a demographic table to analyze participant characteristics, including age, gender, school level, curriculum design, teacher expertise, and student engagement. The above demographic Table 1 also tracks participants' backgrounds to assess how these factors influence the integration process. The analysis provides insights into the sustainability and success of the Tai Chi Chuan program in schools.

3.2 Study Design

Research assessed Tai Chi Chuan's incorporation into physical education curricula in elementary and secondary schools using a before and after intervention method. To assess their opinions, difficulties, and involvement with Tai Chi Chuan, 150 participants is selected for surveys and observe classes. This research also identifies the challenges, evaluates the success of Tai Chi Chuan integration, and proposes strategies for sustainable curriculum development.

3.3 Statistical Tools

In this research, the SPSS 24.0 software platform has been employed to perform statistical analyses, including t-tests to evaluate the participants' performance both before and after the intervention.

3.4 Analysis of the status quo of Tai Chi Chuan in school sports promotion

In recent years, as the country append enormous consequences to the heritage of conventional culture, Tai Chi Chuan is being gradually integrated into both schools' physical education curriculums, becoming a crucial content in certain areas. According to statistics from the Ministry of Education, as of 2023, about 30 percent of primary and secondary schools nationwide have incorporated Tai Chi Chuan into their physical education curriculum, covering about 18 million students. This trend shows that the country is actively encouraging the heritage of customary traditions



in the field of education. However, although the promotion efforts are increasing year by year, the promotion of Tai Chi Chuan in school sports still faces many challenges (Mengjiao et al., 2024). The latest Tai Chi Chuan inheritance and development mode is curriculum + research-based association. Such diversified innovative development and transformation is the living soul and essence of the "living inheritance" of sports intangible cultural heritage.

The recognition of Tai Chi Chuan training varies considerably by area. In the economically developed eastern regions, such as Beijing, Shanghai, and Guangdong, the popularity of Tai Chi Chuan courses is relatively high due to the relative abundance of educational resources and the emphasis on traditional culture. Chen et al. (2023) developed regions of central and western China, and the popularity rate of Tai Chi Chuan is low. Due to the shortage of teachers, venues, and resources, some schools find it difficult to effectively integrate Tai Chi Chuan into the physical education curriculum, resulting in the difficulty for students in these regions to have access to this traditional culture. Tai Chi Chuan plays a positive role in improving students' Wang & Lyu (2024) mindfulness ability, and students' academic pressure and life rhythm are getting faster and faster. Opportunities to participate in Tai Chi Chuan can play a good role in regulating students' pressure. Table 2 displays notable variations in the prevalence of Tai Chi Chuan in primary and secondary school curricula across the country, using data from 2023 as an example:

Table 2 : Characteristics of Schools Curriculum
(Source: Author)

District	School penetration rate (%)	Number of participants (ten thousand)	Number of teachers (persons))	Site adequacy rate (%)
BEIJING	70%	150	3,500	85%
SHANGHAI	65%	120	3,200	80%
GUANGDONG	60%	180	4,000	78%
SICHUAN	45%	100	2,000	60%
YUNNAN	30%	80	1,500	50%
GANSU	20%	60	1,200	45%
QINGHAI	15%	50	800	40%

As can be seen from the table, the school penetration rate in Beijing is as high as 70%, covering about 1.5 million students; In Qinghai Province, the penetration rate is only 15 percent, covering less than 500,000 students. This significant difference reflects the imbalance in the allocation of educational resources and the emphasis on culture across the country. Many schools lack teachers with professional Tai Chi Chuan teaching ability. Although some teachers have participated in relevant training, due to the short training time and simple content, it is difficult to master the essence of Tai Chi Chuan and effectively impart it to students. This not only leads to the implementation of the curriculum is not ideal, but also difficult to stimulate students' interest and enthusiasm for participation, which further affects the popularization and promotion of Tai Chi Chuan on campus. In terms of venue facilities, regional differences also have a direct impact on the development of Tai Chi Chuan courses. For example, in the eastern developed areas such as Beijing and Shanghai, the completion rate of venues and facilities exceeds 80%, which can better support the development of Tai Chi Chuan teaching activities. However, in the less developed regions in central and western China,



such as Gansu and Qinghai, the completion rate of site facilities is less than 50%, which seriously restricts the effective promotion of Tai Chi Chuan courses in these regions, resulting in the difficulty of fully launching the courses and the limitation of students' participation.

Although some regions have actively explored the design of the Tai Chi Chuan curriculum, (Qu et al., 2024) integrated more cultural background introduction and practice into the curriculum in an attempt to enhance students' participation and interest by enriching teaching content and diversified teaching methods. But the overall effect is still not up to expectations. This situation is not only closely related to the problem of teachers but also reflects the lack of emphasis on the Tai Chi Chuan curriculum in schools, as well as limited investment in teaching resources and policy support.

3.5 Main problems in the current Tai Chi Chuan curriculum implementation

3.5.1 Bottleneck of course content design and teaching practice

The content design of the Tai Chi Chuan course is systematic and lacks depth, which directly affects students' understanding and feeling of the essence of Tai Chi Chuan culture. According to statistics, about 50 percent of students think Tai Chi Chuan courses are unattractive, mainly because the content of the courses does not fully show the rich cultural connotation of Tai Chi Chuan. The current curriculum design is often limited to the basic teaching of movements, ignoring the philosophical thought, historical background, and health concepts contained in Tai Chi Chuan. This single teaching method makes it difficult to stimulate students' learning interest and enthusiasm, which makes it difficult for students to deeply experience and comprehend the core values of Tai Chi Chuan. Malik et al., (2024) enhanced the appeal of Tai Chi Chuan courses, it is urgent to redesign the course content, pay attention to the combination of cultural elements

of Tai Chi Chuan with actual teaching, and create a more rich and meaningful learning experience.

3.5.2 Deficiency of teacher training and teaching quality

Currently, only about 40% of physical education teachers have received systematic training in Tai Chi Chuan, which has a direct impact on the teaching quality of the curriculum. Due to the lack of sufficient professional knowledge and practical experience in teaching, many teachers find it difficult to effectively convey the core values and technical essentials of Tai Chi Chuan. In addition, the existing training mechanism is not perfect, the training content is shallow and the period is short, which makes it difficult for teachers to continuously improve their professional level in teaching practice, and further limits the teaching effect of the Tai Chi Chuan course. To advance the teaching superiority, essential to support the systematic preparation of physical education educators, extend the training period, enrich the training content, and establish a continuous professional development mechanism to ensure that teachers can master and impart the essence of Tai Chi Chuan.

3.5.3 Challenges to students' interest, cognition, and engagement

With its slow movements and unique rhythm, Tai Chi Chuan puts forward high demands on students' patience and understanding, which affects students' interest and participation to a certain extent. According to the survey, more than 60 percent of students said that Tai Chi Chuan classes failed to attract them effectively, mainly because the classes lacked fun and incentive mechanisms. In addition, students do not know enough about the cultural background of Tai Chi Chuan to fully understand its intrinsic value, which further weakens students' motivation to learn. To cope with these challenges, it is necessary to integrate more interactive elements and cultural background knowledge



into the course design and enhance students' interest and participation through innovative teaching methods such as gamification teaching and interdisciplinary integration, to improve the educational effect of the Tai Chi Chuan course.

In general, Tai Chi Chuan courses face a series of challenges in the implementation process, including the limitations of course content design, the lack of teacher training and teaching quality, the difficulty of student interest and participation, and the lack of venue facilities and teaching resources. These problems not only restrict the promotion effect of the Tai Chi Chuan course. To address these challenges, systematic improvements are needed in several areas: (Jiang et al., 2024) to optimize curriculum content to incorporate rich cultural content, improve the quality and depth of teacher training, innovate teaching methods to increase student interest and engagement, and to improve infrastructure and resource allocation through policy support and funding. Only by comprehensively improving the attractiveness and effectiveness of the curriculum can we ensure the extensive promotion and sustainable inheritance of Tai Chi Chuan in school sports, and give full play to its unique value in the comprehensive development of students.

4. Optimize the inheritance strategy of Tai Chi Chuan in school physical education

4.1 Curriculum design and optimization from the perspective of cultural inheritance

4.1.1 Integration of Tai Chi Chuan culture into curriculum content and teaching methods

The cultural connotation of Tai Chi Chuan is its essence, such as the balance of Yin and Yang, rigid and soft, and other philosophical ideas, which can not only improve students' understanding of movement

but also help to cultivate students' cultural literacy. To improve and incorporate these connotations into teaching, teachers container assist students in recognizing the place of Tai Chi Chuan culture in traditional Chinese thought through interdisciplinary cooperation, such as combining history and philosophy courses.

4.1.2. Establishment of linkage mechanism between community resources and schools

The linkage between schools and communities can not only enhance the practicability of Tai Chi Chuan courses but also enhance students' sense of social responsibility. By introducing community resources such as local Tai Chi Chuan masters or dedicated training venues, students can learn in a more authentic environment. Tai Chi Chuan can have a positive effect on students' muscles (Wang et al., 2024) fiber pain and help students improve their physical health quality.

4.1.3. Promotion mode of internal and external competitions and activities

Competitions and activities are important means to stimulate students' interest and participation. By holding Tai Chi Chuan competitions or cultural festivals inside and outside the school, students can demonstrate their Tai Chi Chuan skills and improve their skills through interaction and competition with others. To enhance the impact of the event, schools can also cooperate with other schools, community organizations, or sports associations to organize regional or national Tai Chi Chuan competitions and demonstrations.

4.2 Educational practice strategies under the theory of sustainable development

4.2.1 Optimal allocation and long-term guarantee of educational resources

As the Tai Chi Chuan course is being promoted, rational allocation of educational resources is the key to realizing the sustainable



development of the course. According to the latest data, about 60 percent of schools nationwide are unable to fully implement Tai Chi Chuan courses due to a lack of professional teachers and suitable venues. This situation highlights the problem of uneven allocation of educational resources, especially in less developed areas, where the shortage of educational resources is more serious. Therefore, it is particularly important to increase funding to ensure an adequate supply of curriculum resources. The government should actively encourage local schools to cooperate with communities and businesses to jointly develop and utilize resources. To better realize the popularization and sustainable development of the Tai Chi Chuan course, the following Table 3 denotes the status quo and objectives of the optimal allocation of educational resources.

Table 3 : Allocation of educational resource
(Source: Author)

Resource class	Current popularity (%)	Target popularization (%)	Capital requirement (billion)	Estimated time of completion
Professional teachers	40%	80%	15	2025年
Suitable site	50%	85%	20	2026年
Allocation of teaching materials	60%	90%	10	2024年

Through these measures, it can effectively promote the widespread popularization of Tai Chi Chuan courses and ensure its sustainable development across the country. Continuous policy support and financial investment will help narrow the educational gap between regions, improve the balanced allocation of educational resources, and arrange a concrete establishment for the inheritance of Tai Chi Chuan.

4.2.2 Curriculum oriented by students' needs and interests

According to the latest survey data, more than 60% of primary and secondary school students show a strong interest in traditional cultural sports, but with the growth of age, the interest fluctuates, so flexibility and interest in the course content are particularly important. The flexibility of the curriculum is also reflected in the regular adjustment of the teaching content. According to a report released by the Ministry of Education, about 70 percent of schools collect students' feedback on their courses through regular questionnaires and classroom observations and adjust their curriculum content and teaching methods promptly based on the feedback. This dynamic adjustment strategy has been shown to significantly increase student engagement and satisfaction. Table 4 denotes the Tai Chi Chuan curriculum recommendations for students at different educational stages.

Table 4 : Overview of the different educational stages
(Source: Author)

Phase	Course content	Teaching method	Student interest growth rate (%)	Teacher feedback satisfaction (%)
Primary school	Basic movements, gamification exercises	Game teaching, interactive	65%	70%
Junior high school	Action refinement, cultural connotation	History and culture complement each other	58%	75%
Senior high school	Advanced routine, cultural philosophy	Discussion-based, project-based learning	62%	80%
Collegiate	Advanced techniques, cultural depth	Discussion, practice, and paper writing	70%	85%

Through scientific planning of the curriculum of students in different education stages and dynamic adjustment according to the actual needs, the educational effect of the Tai Chi Chuan course can be effectively improved, and the continuous participation of students.



4.2.3 Construction of long-term evaluation and adjustment mechanism

To ensure the long-term effectiveness of Tai Chi Chuan courses, and required to establish a systematic estimate apparatus. Regular evaluation of the curriculum can help schools understand the effectiveness of the implementation of the curriculum and identify existing problems. Evaluation mechanisms should include student learning outcomes, teacher performance, and feedback from parents and the community. By collecting and analyzing this data, schools can make targeted adjustments and improvements. Establishing a dynamic adjustment mechanism to optimize the course content and teaching methods with time and the change of students' needs is an important strategy to realize the sustainable development of the Tai Chi Chuan course. Specific measures can include regular teacher training, updating teaching materials, and introducing new technologies such as video teaching and online interactive platforms to enhance the attractiveness and effectiveness of courses. Table 5 represents the core elements of the long-term evaluation mechanism.

Table 5 : Characteristics of evaluation element
(Source: Author)

Evaluation element	Evaluation frequency	Data source	Adjustment measure
Student participation rate	Each semester	Student attendance record, questionnaire survey	Adjust teaching methods
Teacher's teaching performance	Each semester	Classroom observation, student feedback	Regular teacher training
Parent and community feedback	Each semester	Parent-teacher meetings, community discussions	Enhance community interaction

Through the implementation of these strategies, Tai Chi Chuan courses cannot only be effectively promoted within the school but also achieve long-term sustainable development and provide students with rich cultural and physical education experiences. This systematic and scientific management could help ensure that Tai Chi Chuan, as a significant element of traditional Chinese culture, is passed on and carried forward in modern education for a long time.

5. Results

The research determines that before and after an intervention, average scores for Curriculum Design, Teacher Expertise, Student Engagement, and Policy Support are compared. Table 6 represents the t-test findings of the research.

Table 6 : T-test Findings of before and after intervention
(Source: Author)

Variable	Mean (Before)	Mean (After)	t-Statistic	p-Value
Curriculum Design	3.45	4.20	6.50	<0.01
Teacher Expertise	3.30	4.05	7.00	<0.01
Student Engagement	3.10	4.00	8.20	<0.01
Policy Support	3.25	4.10	7.85	<0.01

Larger t-statistic values, which indicate the significance of the difference, indicate more significant changes. The p-value, which shows the statistical significance of the differences, shows that the intervention effectively improved these parameters in the context of implementing Tai Chi Chuan into school physical education programs. Every p-value has been below 0.01.+

5.1. Future development path of Tai Chi Chuan inheritance in primary and secondary schools

5.1.1. Deep strategies for the integration of school sports and Tai Chi Chuan culture

The future heritage of Tai Chi Chuan should achieve closer cultural and sports integration in the school physical education curriculum.



In addition to physical exercise, Tai Chi Chuan teaching should highlight its cultural and philosophical connotations, such as Yin and Yang balance, and internal and external cultivation. This can be achieved by integrating cultural background explanation, multimedia resource display, and cultural thematic discussion into the classroom.

5.1.2. Policy support and improvement of education management system

To ensure the effective inheritance of Tai Chi Chuan in primary and secondary schools, the government's policy support and the improvement of the education management system are crucial. The government should formulate and implement relevant policies to incorporate Tai Chi Chuan into the national and local education standards system and provide special financial support to guarantee its long-term implementation.

5.1.3. Exploration and promotion of diversified inheritance mode

The procedure of inheriting Tai Chi Chuan is the key to exploring diversified inheritance modes. The arrangement of direct and internet education models, such as online courses and virtual practice platforms, allows students to continue practicing Tai Chi Chuan after class or during holidays, which can expand the spread of Tai Chi Chuan. Deep cultural integration: The inheritance of Tai Chi Chuan should not only pay attention to its physical exercise function, but also dig deep into its cultural and philosophical connotation, and let students fully understand and identify with Tai Chi Chuan culture through innovative teaching methods. Policy support and system guarantee: The government and educational management departments should formulate clear policies and standards, provide necessary financial support, and ensure the standardized implementation of Tai Chi Chuan courses through guidance and supervision mechanisms. Diversified inheritance mode: Expand the spread and influence of Tai Chi Chuan through the arrangement of online and offline education methods

and the development of interdisciplinary comprehensive courses. Sustainable education ecosystem: Build a Tai Chi Chuan inheritance network of schools, communities, and families to ensure its long-term and stable development and enhance the social identity of traditional Chinese culture.

Suggestions: Deepen the curriculum content and emphasize cultural education: It is suggested that schools should increase the content related to Tai Chi Chuan culture in Tai Chi Chuan teaching, so that students can not only master the technical movements of Tai Chi Chuan, but also understand the cultural philosophy behind it, and cultivate students' interest in and identification with traditional Chinese culture. Strengthen policy and financial support: The government should formally incorporate Tai Chi Chuan into the national and local education standards system, and provide continuous financial support. The education management department should set up a special fund for the enlargement of the Tai Chi Chuan curriculum, and regularly evaluate and adjust the implementation of each school. Promote diversified inheritance modes: It is suggested to explore and promote the teaching mode combining online and offline and encourage schools to combine Tai Chi Chuan with other traditional cultural courses, develop interdisciplinary comprehensive courses, and enhance students' participation and learning interest. Building an education ecosystem with community linkage: It is suggested that schools cooperate with community organizations to carry out Taiji-related activities regularly, and encourage parents to participate, to form a Tai Chi Chuan inheritance network with the school as the core and the community and family as the support, to ensure the continuous promotion of Tai Chi Chuan in modern society. To sum up, as an intangible cultural heritage project with profound cultural connotations, the inheritance and support of Tai Chi Chuan in the modern education system not only requires innovative educational methods and solid policy support but also needs to build



a sustainable inheritance network with schools as the core and communities and families as the support. Through these comprehensive strategies, Tai Chi Chuan continues to play its unique cultural value and educational significance in future school education and promote the promotion and inheritance of traditional Chinese culture at the broader social level.

5.2. Discussion

Research investigates the challenges associated with integrating Tai Chi Chuan into primary and secondary school curricula, emphasizing key issues such as unsystematic curriculum design, insufficient teacher expertise, and low student engagement. Based on the analysis of 150 participants, the results reveal that curriculum design and teacher expertise were notably improved after the intervention. The intervention facilitated a more controlled and widespread approach to incorporating Tai Chi Chuan into the curriculum, helping to maintain its cultural value and promote the learning outcomes. Continuous professional enlargement for teachers was also identified as crucial for effectively incorporate Tai Chi Chuan into modern educational frameworks. The intervention led to a significant increase in student engagement, particularly when course content was made more suitable to students' personal or educational experiences. Policy support played a vital role in guarantee the program's success, with active efforts to encourage Tai Chi Chuan within the physical education curriculum and distribute resources for teacher training. Statistical analysis utilizing SPSS software confirmed that the observed improvements were statistically significant, with t-statistics values of 6.50, 7.00, 8.20, and 7.85 for curriculum design, teacher expertise, student engagement, and policy support, respectively, all with p-values below 0.01. This examines that the implemented strategies had a meaningful impact on the integration of Tai Chi Chuan in schools.

6. Conclusion

Research provided valuable insights into the integration of Tai Chi Chuan into primary and secondary school physical education programs. Research determined key barriers, including challenges in curriculum design, teacher expertise, and student engagement, and highlighted the importance of addressing these issues to ensure the sustainability of Tai Chi Chuan as part of the educational curriculum. By applying an intervention approach, significant improvements were observed in all areas examined, with statistical evidence supporting the effectiveness of the intervention. The t-statistics values of 6.50, 7.00, 8.20, and 7.85, along with p-values below 0.01, demonstrate the intervention's substantial impact on improving curriculum design, teacher expertise, student engagement, and policy support. This research underscores the importance of a holistic approach, combining curriculum reform, teacher training, and policy backing, in preserving Tai Chi Chuan as an invaluable aspect of sports intangible cultural heritage. The findings indicate that with appropriate interventions, Tai Chi Chuan can be successfully integrated into school programs, contributing to both cultural heritage preservation and enhanced educational outcomes.

Limitations and Future Scope of the Research: The research explores the integration of Tai Chi Chuan into school physical education programs, but has limitations. It only focused on curriculum design, teacher capability, student engagement, and policy support, and had a small sample size. Future research should investigate scalability and flexibility, and evaluate long-term impact on students and teachers.



References

- Chen, Y., Qin, J., Tao, L., Liu, Z., Huang, J., Liu, W., ... & Tao, J. (2023). Effects of tai chi chuan on cognitive function in adults 60 years or older with type 2 diabetes and mild cognitive impairment in China: A randomized clinical trial. *JAMA network open*, 6(4), e237004-e237004.
- Cheng, Y., & Guo, N. (2024). An ethnography of construction and characteristics of curriculum for inheritance of intangible cultural heritage martial arts in universities. *Frontiers in Sports and Active Living*, 6, 1395128. *Asian Social Science*, 12(10), 273-277. <https://doi.org/10.5539/ASS.V12N10P273>.
- Deng, M., Zheng, X., & Chen, L. (2022). Inheritance of sports intangible cultural heritage and the construction of physical education in colleges and universities under the wireless communication microprocessor. *Wireless Communications and Mobile Computing*, 2022(1), 7124632.
- Jiang, Y., Abdullah, N. Q. J., & Nordin, N. (2024). Tai Chi training: An effective method to enhance the oneness of mind and body in dance performance. *Environment and Social Psychology*, 9(10), 3124.
- Malik, N., Mitchell, A., Liao, L., Gravesande, J., Thong, B., Gardner, P., ... & Zheng, R. (2024, June). Annotating Virtual Tai Chi Instruction to Improve Learning Outcomes for Older Adults. *In International Conference on Human-Computer Interaction* (pp. 364-383). Cham: Springer Nature Switzerland.
- Mengjiao, G., Hongke, J., & Jinyong, S. (2024). The Difference between Competitive Tai Chi Chuan and Traditional Tai Chi Chuan and Training Countermeasures. *Journal of Human Movement Science*, 5(2), 68-73.
- Qu, P., Zhu, X., Zhou, H., Kang, Z., Li, R., Wen, J., & Wang, Y. (2024). The effects of mindfulness enhanced Tai Chi Chuan training on mental and physical health among beginners: a randomized controlled trial. *Frontiers in Psychology*, 15(2024), 1381009.

- Skowron-Markowska, S., & Nowakowska, M. (2021). Chinese destinations related to martial arts tourism from the UNESCO perspective. *Sustainability*, 13(14), 7581.
- Tang, S., Yang, Q., & Song, P. (2022). The Current Situation, Predicament, and Strategies of Tai Chi Teaching and Spreading in European Confucius Institutes-Taking the Confucius Institute of Belarus National University of Sport as an Example. *Journal of Asian Society for Health & Exercise*, 4(2), 67-76.
- Wang, L., Gai, W., Jiang, N., Chen, G., Bian, Y., Luan, H., & Yang, C. (2024). Effective motion self-learning genre using 360 virtual reality content on mobile device: a study based on taichi training platform. *IEEE Journal of Biomedical and Health Informatics*, 28(6), 3695-3708, <https://doi.org/10.1109/JBHI.2024.3371470>.
- Wang, M., & Lyu, B. (2024). Effect of 24-form simplified Tai Chi on executive inhibitory control of college students: a randomized controlled trial of EEG. *Frontiers in Psychology*, 15(2024), 1344989.
- Wenjie, H. (2022). The Practical Path of Campus Inheritance of Sports Intangible Heritage under the Background of the "Double Reduction" Policy. *Academic Journal of Humanities & Social Sciences*, 6(15), 157-161.
- Zhou, J. (2019). *A Survey of the Value of Chinese Kung-fu on the Physical and Mental Health of College Students from the Perspective of Healthy China*. Atlantis Press.

