

# Study on Physical Education Resource Sharing Mechanism for Primary and Secondary Schools in Guangdong, Hong Kong and Macao Greater Bay Area

-- A cross-regional cooperation model for badminton education

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**Abstract:** This study examines the disparities in sports education resources between Hong Kong and mainland China within the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), with a focus on badminton programs. Given the significant differences in professional coaching, facilities, and curriculum standards, this research proposes a cross-regional cooperation model to optimize resource utilization. By analyzing existing collaborative initiatives such as the Shenzhen-Hong Kong Junior Badminton League and Hong Kong Jockey Club-funded training programs, this paper constructs a public management-based resource-sharing framework. The findings offer practical insights for mainland schools seeking to enhance their sports education through regional partnerships, aligning with the GBA's educational integration policies. The study concludes with policy recommendations to facilitate sustainable resource mobility and curriculum standardization across jurisdictions.

**Keywords:** Greater Bay Area, Sports Resource Sharing, Badminton Education, Cross-Regional Cooperation, Public Management Model.

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## 1. Introduction

The construction of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) is a significant development strategy in China, aimed at enhancing the region's global competitiveness through regional synergy. Education, as the cornerstone of regional development, plays a pivotal role in this strategic goal. The Outline Development Plan for the GBA explicitly states the need to "promote the sharing and synergy of educational resources and the balanced development of education in the region," providing a crucial policy framework for this study.

In this context, physical education, particularly badminton, has emerged as a vital component of youth development. Badminton, with its spectator appeal and social nature, is highly popular in China and has garnered numerous international accolades. The GBA, with its advanced sports and fitness industry, is a hotspot for badminton. However, the distribution of sports education resources within the GBA is uneven. Hong Kong boasts abundant professional coaching resources, advanced training facilities, and mature competition systems, while mainland cities lag behind. This disparity limits the overall development of physical education in the region, affecting students' sports learning experiences and competitive abilities.

This study aims to analyze the current distribution of sports education resources in the GBA, explore the differences in badminton curricula between Hong Kong and mainland schools, evaluate existing cross-regional cooperation models, and construct a resource-sharing model based on public management theory. The research questions include: What is the current distribution of sports education resources in the GBA? What challenges and opportunities do existing cross-regional cooperation models face? How can an effective sports resource-sharing mechanism be constructed based on polycentric governance theory? By addressing these

questions, this study seeks to provide theoretical support and practical guidance for policymakers, education administrators, and practitioners, promoting collaborative development and enhancing the overall quality of physical education in the GBA.

## 2. Literature Review

### 2.1. Polycentric Governance Theory

Polycentric theory was co-founded by Eleanor Ostrom and Vincent Ostrom and their wife, based on Polish scholar Michael Polanyi's Polycentric Order. The so-called polycentric theory is that behavioral units will pursue their own interests independently and freely, but also coordinate and cooperate with each other (Ostrom, 2000) [1]. Some scholars believe that polycentricity is the integration of many social science methods into the governance of public affairs and the analysis of problems, and is able to give citizens more choices and better services through competition and collaboration, reducing free-riding behaviors and improving the scientific nature of decision-making (Wang, 2005) [2].

### 2.2. Research on Sports Resource Sharing

The lack of sports resources is one of the bottlenecks in the development of school sports in China at present, so the sharing of sports resources is particularly important. Some scholars analyze school sports facilities from the perspective of sharing educational resources (Li, 2009) [3]. Research on educational resource sharing considers that mutual benefit is the foundation of educational resource sharing, competition for resources is the key, and together with the cost factor, they form the influencing factors between sharing (Hughes, 1999) [4]. Major factors affecting sharing include geographic proximity, the role of the local education department, policy factors, and network resources. Barriers to sharing also come from differences between schools (West, 2003) [5].

Some scholars start from the sharing of sports resources between schools and communities, and the strengthening of the sharing guarantee mechanism, so as to promote the complementarity of advantages, the sharing of resources, and coexistence and co-prosperity of sports between schools and communities (Peng & Qian, 2023) [6]. However, from the current research, there are fewer studies on the sharing of physical education resources among different schools within a geographical area. There is a lack of research on physical education resource sharing for the Greater Bay Area.

### 2.3. Research on Badminton Education

Badminton is a ball sport program that involves hitting balls against each other, and is a small ball sport that can be played both indoors and outdoors (Liu, 2020) [7]. Since the 1980s, China has strengthened the reform process of physical education teaching in colleges and universities, and introduced badminton into physical education teaching in colleges and universities in the 1990s (Guan, 2015) [8]. Around the topic of badminton teaching, there have been some scholars at home and abroad from the teaching mode (Chen et al., 2017) [9], Teaching methods and strategies (Wu, 2017)[10], Curriculum Teaching Reform (Li, 2009)[11] and other aspects of research. With the rapid development of the Internet, the promotion of education informatization is becoming more and more in-depth, the research on the application of information technology in physical education teaching at home and abroad is also gradually enriched, and the trend is increasing every year (Liu, 2021) [12]. The current research theme in the field of badminton teaching mainly focuses on three aspects of pedagogy and instructional design, the integration of information technology and teaching, and badminton training, among which the research on pedagogy and instructional design is the most frequent (Fan, L. H. & Li, D., 2022) [13].

## 3. Current Distribution of Sports Education Resources in the GBA

### 3.1. Hong Kong's Badminton Resource Advantages

Hong Kong excels in badminton resources, particularly in coaching, venue accessibility, and competition systems. The region boasts a wealth of professional coaches, many of whom are former athletes. As of April 2025, the Hong Kong Badminton Association (HKBA) registered 230 coaches, all required to complete at least 6 credits of ongoing training annually. For instance, Mr. Tsang Siu Ping, a seasoned coach with 35 years of experience, exemplifies the high technical standards of Hong Kong's coaching corps. Additionally, the Hong Kong Sports Institute (HKSI) offers lucrative elite coaching positions, with annual salaries reaching HK\$1.25 million, attracting top-tier talent.

Hong Kong also enjoys extensive badminton facilities. With approximately 12,000 courts, 60% of which are indoor, these venues are widely distributed across urban, New Territories, and outlying island areas. The Leisure and Cultural Services Department (LCSD) manages 117 court sites, ensuring high accessibility. The government is also exploring temporary venue conversions, such as repurposing an abandoned school basketball court in Wan Chai, to meet demand.

Lastly, Hong Kong's comprehensive competition system, including inter-school leagues, youth tournaments, and open tournaments, provides a robust pathway for talent development. For example, the "Youth Badminton Training Program" identifies potential players, while elite athletes can participate in international events like the Asian Junior Championships through the HKSI, enhancing their competitive edge.

### 3.2. Mainland School Resource Constraints

Table 1. Comparative analysis of resources

Comparison Dimension	Hong Kong Data Indicators	Mainland Data Indicators	Gap Multiples/Proportions
Coaching Resources	Registered Coach 230 (HKBA 2025)	1.5 coaches per 1,000 students in Guangdong (2023)	Density difference of 8.7 times
	Mandatory annual training of 6 credits (HKBA Standard)	No uniform continuing education requirements	High degree of institutional variability
	Elite coaches' annual salary of HK\$1.25 million (HKSI)	Monthly salary of ordinary coaches around RMB 6,000 (Guangdong statistics)	Salary gap up to 17.3 times
Facilities	88% of indoor venues (LCSD 2025)	Guangdong 30% of indoor venues (2023 census)	Interior rate difference 2.9 times
	Per capita venue area 0.38m <sup>2</sup> (HKPD)	Per capita 0.12 square meters in Guangdong (General Administration of Sport)	Area difference 3.2 times
	Venue open rate 92% (LCSD Annual Report)	School open rate <40% (Guangzhou Education Bureau)	Open rate gap 2.3 times
Course System	Level 3 Accredited Program (Sports General Studies Program)	No unified certification system	Standardized degree difference 100%
	Mental Training 25% (HKSI Syllabus)	80% of basic skills (Shenzhen Sampling)	Course Structure Gap 220%
Competition System	Annual tournament tier: 6 levels (YPTP to international tournaments)	Ordinary school participation rate <15% (Guangdong Sports Commission)	Participation opportunities gap 5.4 times
	Annual Participation in International Tournaments: 120+ (HKSI)	87% of tournaments below provincial level (National Badminton Association)	Significant difference in tournament level

Compared with the badminton education resources in Hong Kong, schools in the Mainland are often subject to the

limitations and constraints of human, land and material resources.

In Guangdong, there are only 1.5 coaches per 1,000 students, far fewer than in Hong Kong. Despite some outstanding coaches, resource distribution remains uneven. Mainland schools also lack sufficient badminton courts, with only 30% of the 15,000 courts in Guangdong being indoor, compared to 88% in Hong Kong. School venue openness rates are low, and utilization is hindered by management issues. The badminton curriculum in Mainland schools is relatively homogeneous, focusing mainly on basic skills. While world champion coaches occasionally teach in cities like Guangzhou, these activities are short-term and do not form regular programs. In contrast, Hong Kong coaches must pass a multi-level "Sports General Theory Course," ensuring comprehensive teaching content. The homogeneous curriculum in the Mainland struggles to meet students' diverse needs, affecting overall education effectiveness.

## **4. Divergence in Badminton Curricula Between Regions**

### **4.1. Hong Kong's Holistic Development Model**

Badminton courses in Hong Kong focus on the integration of techniques and tactics, emphasizing the application of the skills learned in actual matches. For example, the curriculum of the Hong Kong Badminton Association is designed in such a way that not only basic techniques are taught, but tactical training is also carried out in conjunction with real-life scenarios.

The badminton curriculum in Hong Kong incorporates sports science modules, including exercise physiology, exercise psychology and sports nutrition. These modules help students understand the importance of scientific exercise and improve their sports performance and health. For example, students can learn about sports nutrition and how to improve their sports performance through proper diet.

On the competition pathway, Hong Kong has established a comprehensive competition system, including inter-school leagues, youth championships and open competitions. These tournaments provide students with a wealth of competition opportunities and help enhance their competitive level.

### **4.2. Mainland's Standardized Skill-Based Approach**

Badminton courses in Mainland schools are usually taught as part of the physical education curriculum, and the teaching content mainly focuses on basic skills training, such as racket grip, serving and hitting. While this mode of teaching helps students master basic skills, it lacks systematic tactical and psychological training.

Badminton courses in Mainland schools tend to be examination-oriented, focusing on skill tests and overall assessment at the end of the term. While this mode of assessment emphasizes results, it may neglect the learning process, resulting in students' learning attitude tending towards test-taking.

Badminton courses in Mainland schools are relatively deficient in tactical training, focusing mainly on the teaching of basic skills and lacking in simulation of real-life combat scenarios and tactical application training. This mode of teaching is difficult to meet the diversified learning needs of students, and may affect the actual effectiveness of badminton education.

## **4.3. Collaborative Case Studies**

### **School Twinning Programs (STP)**

School Twinning Programs between Hong Kong and Mainland schools foster resource sharing and experience exchange via regular friendly competitions and coaching exchanges. For instance, Zhuhai Sports School collaborates with a Hong Kong school, promoting student exchanges through badminton matches and training camps. Since 2004, the HKSAR Government's "Sister Schools" Program has facilitated professional exchanges, with 950 local schools forming 3,096 pairs with Mainland schools, including 1,540 pairs with Guangdong. These programs enhance badminton skill exchange and cultural understanding between students.

### **Digital Resource Sharing**

The Hong Kong Badminton Association (HKBA) offers extensive online teaching resources, including video tutorials, technical analysis, and match videos, supporting independent student learning and providing coaching references. The HKBA's platform and online courses on platforms like China University MOOC and Superstar Learning Access cover badminton theory, practical techniques, and tactical applications, enriching students' learning options.

In summary, while Hong Kong's curriculum emphasizes technique-tactic integration, sports science, and competition systems, the Mainland's focuses on basic skills and exam orientation. Resource sharing and integration can effectively promote synergistic development and enhance regional badminton education.

## **5. Public Management Framework for Resource Sharing**

### **5.1. Operational Mechanisms**

In terms of operational mechanisms, it can be carried out mainly from the three aspects of establishing a resource sharing platform, setting up a coach exchange program, and constructing a joint accreditation system, so as to carry out resource sharing in terms of manpower, material resources, and management modes.

The first one is that a resource sharing platform can be established by using digital technology to integrate badminton education resources within the Guangdong, Hong Kong and Macao Greater Bay Area. The platform can provide services such as lesson plans, training videos and venue booking to facilitate the efficient utilization of resources. For example, the online platform of the Hong Kong Badminton Federation already provides a wealth of teaching resources, which can be further extended to Mainland schools for resource sharing. Through this platform, schools and coaches can easily access and share teaching resources to enhance the quality and efficiency of teaching.

Secondly, a coach exchange program can be set up to facilitate regular exchanges between coaches from Hong Kong and the Mainland. By sending coaches to each other, both sides can share teaching experience and methods and enhance the professionalism of coaches. For example, the coach exchange program between Hong Kong and the Zhuhai Sports School has not only improved the teaching ability of coaches, but also promoted the integration of teaching methods between the two places. This exchange mechanism helps to solve the problems of shortage of coaches and unbalanced teaching quality, and enhance the overall level of badminton education in the region.

In addition, a joint certification system should be constructed to establish a cross-regional badminton skills certification system to ensure standardization and consistency in teaching quality. Through joint accreditation, the skill certificates obtained by students in different regions will have the same validity, facilitating cross-regional mobility and learning for students. The Hong Kong Badminton Federation and the Guangdong Badminton Association can then work together to formulate accreditation standards and enhance the quality of teaching through uniform assessment and certification.

## 5.2. Addressing Governance Challenges

Currently, there is a problem of fragmentation of physical education policies within the Guangdong-Hong Kong-Macao Greater Bay Area, with policy differences in different regions leading to barriers to the flow and sharing of resources. To address this problem, it is recommended that a unified policy coordination mechanism be established, with the government taking the lead and joining hands with the education sector, sports sector and social organizations to formulate cross-regional physical education policies. For example, the Education Bureau of the HKSAR Government and the Department of Education of Guangdong Province can establish regular policy coordination meetings to ensure policy consistency and coherence.

Apart from that, uneven distribution of resources is one of the major problems faced by physical education within the Guangdong-Hong Kong-Macao Greater Bay Area. While Hong Kong has a significant advantage in badminton education resources, Mainland cities are lagging behind in these aspects. To address this problem, it is proposed to facilitate the rational flow and optimal allocation of resources through resource sharing platforms and coach exchange programs. For example, through the resource sharing platform, Mainland schools can access Hong Kong's quality teaching resources and enhance the quality of teaching. Meanwhile, through the coach exchange program, coaches from Hong Kong can visit Mainland schools to provide guidance and enhance the teaching standard of Mainland coaches.

At present, funding for physical education in the Guangdong-Hong Kong-Macao Greater Bay Area mainly relies on government funding and self-financing by schools, and there is a lack of a sustainable funding model. To address this problem, it is proposed to introduce diversified sources of funding, including corporate sponsorship, social donations and public welfare funds. For example, the badminton program funded by the Hong Kong Jockey Club provides students with professional training and competition opportunities, and this model of public welfare can provide reference for Mainland schools. At the same time, the Government can encourage enterprises and social organizations to participate in physical education projects through tax concessions and policy support, so as to develop a sustainable funding model.

## 6. Discussion

This study analyzed the current situation of badminton education resources within the Guangdong, Hong Kong and Macao Greater Bay Area, explored the differences in curriculum development between schools in the two regions,

and evaluated the effectiveness of the existing cross-collaboration model. The results of the study show that the sharing and optimal allocation of resources can be effectively promoted through the polycentric governance theory and the multi-stakeholder model. The overall level of badminton education in the region can be enhanced through the establishment of resource sharing platforms, coach exchange programs and joint certification systems. Meanwhile, through policy coordination, resource optimization and funding diversification, the challenges in governance can be addressed and the synergistic development of physical education within the region can be promoted.

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