

Research on the Value, Challenges and Countermeasures of Higher Education Institutions in the Guangdong-Hong Kong-Macao Greater Bay Area Assisting the Revitalization of Rural Basic Education

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Abstract: By virtue of their advantages in policy-driven support, resource radiation, and model innovation, higher education institutions in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) have deeply integrated into the cause of rural basic education revitalization through educational assistance. They are becoming a backbone force in promoting the balanced development of regional education and supporting the national strategy of building a strong education country. However, the current assistance practice faces practical challenges such as unsmooth cross-border coordination mechanisms, insufficient sustainability of resource investment, disconnection between assistance projects and the actual needs of rural schools, and structural shortage of rural teaching staff. To systematically solve the problems at the level of current assistance mechanisms, models, and motivations, it is urgent to build a long-term multi-party collaborative assistance mechanism of “GBA Universities - Government - Rural Schools” to break down policy and resource barriers; establish a hierarchical and classified precise empowerment system to promote the innovative upgrade of GBA universities’ assistance model from “blood transfusion” to “blood production”; strengthen the construction of digital technology and systematic training of teachers and students, so as to fundamentally stimulate and cultivate the endogenous motivation of rural basic education.

Keywords: Guangdong-Hong Kong-Macao Greater Bay Area; GBA universities; Rural basic education; Rural schools; Assistance paths

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1. Introduction

In response to the in-depth problems existing in rural basic education, exploring feasible ways for GBA universities to integrate high-quality educational resources and innovate assistance paths is of great significance

for deepening the reform of rural basic education. Based on this, against the background of the revitalization of rural basic education, this paper analyzes the strategic value and practical challenges of GBA universities in empowering rural education, and actively explores the practical paths and countermeasures for GBA universities to effectively assist rural basic education. It aims to extract replicable typical cases and basic experiences, providing a reference for promoting the high-quality development and overall efficiency improvement of rural basic education.

2. Strategic value: Distinctive advantages of GBA universities in empowering rural basic education revitalization

2.1. Policy-driven value: Continuous empowerment from policies in the GBA education highland

National policies guide GBA universities to carry out cross-border cooperative education and collaborative talent cultivation. The cooperative education and mutual establishment of institutions among Guangdong, Hong Kong, and Macao have achieved a qualitative change from “one-way flow” to “two-way commitment”^[1], which is of great significance for promoting the coordinated development of higher education in the GBA^[2]. The cluster of GBA universities centered on the Guangdong-Hong Kong-Macao University Alliance is powerful^[3]. According to the 2025-2026 Best Global Universities Rankings released by U.S. News, a total of 35 universities from Guangdong, Hong Kong, and Macao are included, with a global influence index ranking second in the world, second only to the New York Bay Area, fully demonstrating the strong strength and cluster effect of the Guangdong-Hong Kong-Macao International Education Demonstration Zone^[4]. GBA universities are rich in scientific and technological education resources, forming characteristics such as the “University +” innovation model, cross-border cooperation, and scientific and technological innovation cluster effects^[5], and have become a backbone force in promoting the balanced and high-quality development of rural basic education.

2.2. Resource radiation value: Two-way drive of technological innovation and talent aggregation

GBA universities possess advanced scientific and technological education resources and have the ability to empower rural basic education and serve the national rural revitalization strategy. Universities such as Sun Yat-sen University, South China University of Technology, and South China Normal University bring cutting-edge technologies such as artificial intelligence, programming, and embedded development to rural students, stimulating their scientific interest and innovative thinking^[6]. GBA universities carry out “blood-producing” assistance for rural basic education and actively implement the public-funded normal student program. Represented by South China Normal University, GBA universities actively participate in Guangdong Province’s public-funded targeted training program for primary and secondary school teachers in eastern, western, and northern Guangdong, cultivating high-level normal students for rural schools in economically underdeveloped and remote areas, making up for the shortage of local teacher resources and improving the quality of rural education. At the same time, GBA universities vigorously organize special job fairs for rural teaching and public-funded normal students, guiding normal school graduates to teach in rural frontlines through preferential introduction policies and supply-demand matching activities, and promoting the high-quality development of basic education in eastern, western, and northern Guangdong.

2.3. Model innovation value: A multi-party collaborative education assistance circle of GBA universities

Under the guidance of Guangdong Province's "Double Hundred Actions" and the rural revitalization strategy, GBA universities have formed distinct innovative models in assisting rural basic education. First, building a multi-party collaborative model. Universities provide teachers and scientific and technological resources, the government provides policy and coordination support, and rural schools provide feedback on needs and practical applications, achieving a win-win effect of transforming and utilizing university scientific and technological achievements, implementing national policies, and realizing the high-quality development of rural schools. Second, forming a cross-border public welfare ecological circle in the GBA. The cross-border public welfare ecological circle for GBA universities to assist rural schools is a system integrating multiple forces, such as GBA universities, the government, enterprises, public welfare organizations, and rural schools. Through resource integration, complementary advantages, and collaborative innovation, it aims to provide continuous, diversified, and efficient educational assistance for rural schools and promote exchanges among young people in Guangdong, Hong Kong, and Macao and regional educational equity.

3. Practical challenges: In-depth barriers to GBA universities' assistance for rural basic education

3.1. Mechanism obstacles: Policy fragmentation and resource mismatch

Hong Kong and Macao universities face difficulties in assisting rural basic education, such as inadequate supporting policies and special regulations, a lack of cross-border coordination mechanisms, and an unsmooth flow of key factors. Assistance projects of Hong Kong and Macao universities involve multiple functional departments such as education, science and technology, finance, entry-exit, and human resources and social security, requiring the submission of a large number of applications and certification materials for layer-by-layer review, resulting in high time costs. At the same time, the cross-border cooperation of higher education in Guangdong, Hong Kong, and Macao lacks an effective overall coordination mechanism, which is prone to "multiple management and confused responsibilities", increasing the difficulty and complexity of project promotion. In addition, Hong Kong and Macao university assistance teams face problems such as restricted visas and stay time when going to rural schools in the mainland to carry out assistance, a lack of green channels for donated public welfare funds and teaching equipment, and difficulties in the flow of human resource factors.

3.2. Practical bottlenecks: Sustainability challenges and cultural adaptation difficulties

The assistance of GBA universities for rural basic education is continuously affected by factors such as time, resources, and culture. First, the short-term and fragmented nature of GBA university assistance projects. Most of the assistance provided by GBA universities to rural basic education is in the form of short-term summer practices and special thematic training, lacking systematic long-term planning and sustainable support mechanisms, and the comprehensiveness, follow-up, and feedback of assistance are insufficient, making it difficult to consolidate and sustain the effects. Second, GBA universities lack sustainable resource investment. Generally, assistance projects have sufficient funds and platform support in the early stage, but the subsequent resource investment, equipment operation and maintenance, and upgrading costs are often unsustainable, especially the maintenance of digital equipment and the continuous development of high-quality curriculum resources lack stable financial guarantees. Third, cultural differences lead to identity connection difficulties. Groups such as Cantonese,

Chaoshan, and Hakka, as well as ethnic minorities such as Zhuang, Yao, and She, gather in Guangdong, Hong Kong, and Macao, each with different customs, values, and cultural taboos. If the assistance team fails to adapt to local conditions, the effect of educational assistance will be reduced.

3.3. Capacity shortcomings: Assistance limitations of GBA universities and rural schools

GBA universities have problems such as a lack of specialized institutional teams, low interdisciplinary collaboration efficiency, and a mismatch between assistance content and needs. First, GBA universities lack specialized “Rural Revitalization Colleges” and rely heavily on short-term, temporarily formed, project-based teacher-student practice teams, resulting in a lack of depth and continuity in the assistance work of GBA universities. Second, the assistance work of GBA universities is often led by a single disciplinary team, and an interdisciplinary collaboration mechanism has not yet been formed. Third, the teaching concepts, content, methods, and technologies provided by GBA universities are mismatched with the actual needs of rural basic education, leading to the assistance work failing to truly “connect with the ground”. In addition, rural basic education is facing severe challenges such as a shortage of professional teaching staff, a lack of advanced educational concepts, and backward digital education.

4. Solutions: Building an assistance education community of “GBA universities - government - rural schools”

4.1. Mechanism innovation: Opening up policy and resource channels for GBA universities’ assistance

For GBA universities to effectively assist the development of rural basic education, the primary task is to strengthen top-level design and establish a coordinated mechanism with precise positioning, clear powers and responsibilities, efficient operation, and continuous empowerment^[7]. First, establishing a regular cross-border coordination institution. Governments of Guangdong-Hong Kong and Guangdong-Macao should establish a special education coordination and assistance office or group at the government level to provide “one-stop” policy consulting services and simplify the application and approval process of assistance projects. Second, opening up a green channel for educational assistance. Green channels can be provided for universities with a good assistance reputation and outstanding achievements, offering convenient services such as advanced project filing, simplified filing materials, and shortened approval time. Third, building a digital management platform. Establish an online application, approval, and supervision platform for assistance projects, promote the interconnection and sharing of various data and a full-process paperless office, and improve administrative efficiency. At the same time, strengthen the continuous follow-up and intelligent analysis of assistance projects through the digital management platform, realize precise supervision and scientific evaluation, and provide timely feedback and improvement suggestions.

4.2. Model upgrade: Constructing a hierarchical and classified precise empowerment system

Build a long-term multi-party collaborative mechanism with GBA universities as the core engine, the government as the institutional resource guarantee, and recipient schools as participating subjects. Establish a trinity collaborative education development platform of “University + Government + Recipient School”, construct a linkage mechanism of “high-level coordination - demand docking - dynamic management”, innovate the

“multi-county and multi-school” paired assistance model, and accurately match “what universities can provide” with “what rural areas need”. According to the core challenges faced by township central schools, remote rural schools, and ethnic minority area schools and the key focus of assistance strategies, formulate hierarchical and classified precise assistance plans of “one county, one policy” and “one school, one characteristic”, as shown in **Table 1**.

Table 1. Educational challenges and assistance strategies for different types of rural schools

Types of Schools	Core Challenges	Key Focus of Assistance Strategies
Remote Rural Schools	Severe shortage of teachers; lack of educational resources; issues of left-behind children	Digital empowerment; resource support; emotional care
Township Central Schools	Imbalanced educational resources; insufficient high-quality teachers; low teaching quality	Resource support; strengthening teachers; building characteristics
Ethnic Minority Area Schools	Strong cultural diversity, shortage of educational resources, and complex social structure	Cultural integration; characteristic co-construction; teacher-student exchanges

GBA universities should effectively use digital technology to promote the reform and innovation of rural basic education models and achieve leapfrog development^[8]. Implement the “lead teacher + teaching assistant” distance teaching model with the help of AI platforms to improve teaching efficiency and interest^[9]; use the new “Internet +” education model to promote the high-quality development of rural basic education and set a good example for educational modernization^[10].

4.3. Capacity improvement: Activating the endogenous motivation of rural basic education

In addition to resource input, the precise assistance of GBA universities to rural schools is more importantly to stimulate the endogenous motivation of rural basic education through a high-quality teacher and student training system. Accurately grasp the assistance needs of recipient rural schools and carry out effective teacher training. Before assistance, accurately locate the development difficulties of rural teachers through questionnaires, in-depth interviews, and other methods. Conduct systematic rural teacher training in a regular “cultivation” method, customize content through research targeting the pain points of regional teacher development, and adopt a “theory + practice” dual empowerment model to significantly improve teachers’ teaching abilities. At the same time, actively promote the special improvement plan for backbone teachers, focus on specific disciplines or teacher groups, and achieve in-depth empowerment and radiation leadership of education through a progressive path and a famous teacher studio mechanism. GBA universities should actively use information technology to expand the breadth and depth of training, focus on promoting “AI teaching assistant” application training, and consolidate the digital foundation of educational assistance. In addition, implement a long-term incentive mechanism for outstanding teachers, provide long-term funding and recognition for excellent rural teachers, and give play their demonstration and leading roles.

5. Conclusion

The assistance of GBA universities to rural basic education is not limited to simple resource input, but a strategic project related to educational equity, regional coordination, and national development. In the process of rural basic education revitalization and the construction of a strong education country, GBA universities

play multiple roles: they are both providers of high-quality educational resources and key engines for activating rural endogenous motivation through “two-way empowerment”. Only by building a cross-border collaborative governance community, establishing a hierarchical and classified precise empowerment system, and strengthening digital technology empowerment and systematic teacher training can GBA universities break through the multiple constraints at the current assistance mechanism, guarantee, and talent levels, and fundamentally realize the transformation from an exogenous, low-quality “blood transfusion” assistance path to a long-term, precise, and endogenous “blood production” assistance path.

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Disclosure statement

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