
Research on the Innovation and Practice of Internationalized Education Mode of Private Colleges in Hainan Free Trade Port under the Digital Empowerment

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Abstract: The rapid advancement of digital technologies has provided fundamental support for the internationalization transformation of higher education, while the policy dividends of Hainan Free Trade Port development have created new opportunities for private universities to expand their global presence. Currently, private universities in Hainan face challenges such as weak resource integration capabilities, limited collaborative models, and prominent regional barriers in international education. Digital empowerment has emerged as a critical pathway to break through these developmental bottlenecks and achieve innovative models. This paper adopts a digital empowerment perspective, combining the policy context of Hainan Free Trade Port development with the practical realities of private universities. It defines the core connotation of digital empowerment in international education, analyzes its practical value and existing challenges, and explores the construction of a new international education model characterized by “digital-driven initiatives, resource integration, innovative approaches, and industry-education collaboration.” Specific implementation paths are proposed from dimensions including digital resource development, restructuring of educational models, faculty capacity enhancement, and improvement of support systems. The study aims to provide theoretical references and practical paradigms for private universities in Hainan Free Trade Port to achieve high-quality international education development through digital technologies and deliver precise services for the free trade port construction.

Keywords: digital empowerment; Hainan Free Trade Port; private universities; international education; model innovation; implementation pathways

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1. Introduction

The “Master Plan for the Hainan Free Trade Port” explicitly proposes building an “International Education Innovation Island for Science, Engineering, Agriculture, and Medicine,” aiming to promote the opening-up and internationalization of higher education. This initiative presents significant policy opportunities for private universities in Hainan to overcome operational limitations and achieve global transformation. As a vital component of Hainans higher education system,

private universities have become key platforms for cultivating international talent in the free trade port, leveraging their flexible operational mechanisms and market-oriented program offerings. However, constrained by geographical location, resource availability, and funding, the internationalization of private universities in Hainan remains at a superficial stage. Challenges include limited collaboration models, poor integration of international resources, narrow educational coverage, and misalignment with the free trade ports industrial demands, making it difficult to meet the regions need for versatile, globally competent professionals^[1].

The iterative advancement of digital technologies has provided technical support for breaking down spatiotemporal barriers and integrating global resources in higher education internationalization. The application of digital tools such as cloud computing, big data, artificial intelligence, and cross-border online education platforms has driven the transformation of higher education internationalization from “offline physical collaboration” to “online-offline integration”. Against the backdrop of Hainan Free Trade Port accelerating the construction of a digital port, empowering private universities with digitalization to innovate international education models by integrating digital technologies into the entire process of resource integration, talent cultivation, and collaborative exchanges represents both a practical choice for private universities to overcome resource bottlenecks and geographical constraints in international education, and an inevitable path to align with the digital economy development trend of the free trade port and achieve distinctive international education. Under this context, researching the innovation and practical approaches of international education models for private universities in Hainan Free Trade Port empowered by digitalization holds significant practical implications for promoting high-quality development of international education in Hainans private universities and supporting the construction of the Free Trade Ports International Education Innovation Island and Digital Port.

2. The core connotation and practical value of internationalized education in private universities in hainan free trade port under the empowerment of digitalization

2.1. Core connotation

The digital empowerment of international education in private universities within Hainan Free Trade Port is guided by the policy requirements and industrial demands of the Free Trade Port development. With digital technologies as the core support, it integrates cloud computing, big data, artificial intelligence, and cross-border online education platforms into the entire process of international education. This approach breaks down barriers of time, space, and geography, consolidates global high-quality educational resources with local industrial resources of the Free Trade Port, and constructs an international education system characterized by “digital-driven, resource integration, online-offline synergy, and industry-education collaboration.” At its core, it leverages digital technologies to achieve efficient alignment of international educational resources, reconstruct international talent cultivation models, and deepen cross-border educational cooperation. This transformation drives private universities to evolve from “superficial exchanges” to “deep collaborative education,” and from “homogeneous development” to “distinctive innovation.” Ultimately, it cultivates compound talents with digital literacy, global vision, professional competence, and understanding of Free Trade Port industries, achieving mutual empowerment and synchronized resonance between international education in private universities and the development of Hainan Free Trade Port^[2].

2.2. Real value

Breaking resource barriers and expanding international resource channels: Digital technologies can overcome geographical and temporal constraints, enabling private universities in Hainan to transcend offline collaboration limitations. Through cross-border online education platforms and digital resource repositories, they can access high-quality overseas educational resources—including international premium courses, bilingual teaching materials, and foreign faculty—effectively addressing the shortage of international resources in private universities. Innovating educational models to achieve online-offline integration: Digital empowerment drives private universities to transition from traditional offline models like “Sino-

foreign joint training” and “short-term faculty-student exchanges” to integrated online-offline approaches featuring “mutual course selection, credit recognition, cross-border cloud-based training, and remote collaborative teaching.” This diversifies educational formats and enhances the reach and effectiveness of international education.

To meet the needs of the free trade port, Hainan Free Trade Port is accelerating the development of digital industries such as the digital economy, cross-border e-commerce, and digital trade, creating an urgent demand for interdisciplinary talents with both digital literacy and international capabilities. The digital empowerment of international education integrates digital literacy cultivation throughout the talent development process, aligning with the talent requirements of the free trade ports digital industries and enhancing the compatibility between talent cultivation and industrial development. Reducing operational costs and improving the efficiency of private universities: Compared to the high capital and time costs of offline international exchanges and cooperation, digital tools can effectively lower the expenses for private universities in hiring international faculty, overseas collaborations, and introducing international curricula. Meanwhile, through the sharing and reuse of digital resources, the utilization efficiency of educational resources is improved, addressing the reality of relatively limited funding in private universities^[3].

3. The existing difficulties of internationalized education in private universities in hainan free trade port under the empowerment of digitalization

3.1. Weak digital infrastructure and insufficient digital support for international education

Some private universities in Hainan have insufficient investment in digital infrastructure development, resulting in underdeveloped digital facilities. They lack core components for international education, including cross-border online teaching platforms, multilingual digital resource libraries, and cloud-based training systems. These deficiencies hinder the implementation of digital internationalization initiatives such as cross-course selection, global distance learning, and collaborative cloud-based training. Additionally, unstable cross-border campus network access and inadequate compatibility of digital teaching equipment with international standards have become fundamental bottlenecks in leveraging digital technologies to enhance global education.

3.2. The development of digital resources lags behind, and the capacity for integrating and transforming international resources is weak.

Private universities in Hainan face a shortage of international digital resources, including systematic bilingual courses, fully English-digital courses, and international vocational education standard resources. Most existing digital resources are merely online versions of basic offline courses, lacking targeted internationalization and digital transformation, which fails to meet the demands of global education. Additionally, these institutions demonstrate weak capabilities in integrating high-quality overseas digital educational resources. They have failed to leverage digital platforms to connect with international universities and industry associations, nor have they effectively converted free trade port industrial resources into global digital teaching materials. The integration of resources remains insufficient in both scope and depth.

3.3. Insufficient innovation in educational models, with low integration of digitalization and internationalization

Currently, the internationalization of private higher education institutions in Hainan remains predominantly reliant on traditional offline models. Digital technologies are only superficially applied, limited to basic functions like “live-streamed online lectures” and “digital communication,” failing to achieve deep integration between digitalization and international education. Most institutions have yet to develop distinctive “digital + international” models, such as cross-border cloud-based industry-education collaboration, digital credit recognition, or joint cultivation of international digital talents.

Consequently, the potential of digitalization to enhance international education remains underutilized^[4].

3.4. Insufficient digital literacy among faculty members and lack of international digital teaching capabilities

The dual deficiency in digital and international teaching competencies among faculty in private higher education institutions has become a key constraint on digital empowerment in global education. Some teachers lack expertise in cross-border online teaching, digital course design, and multilingual instruction, making it difficult to implement blended online-offline international education. Additionally, insufficient understanding of international education standards and the digital transformation needs of free trade port industries prevents effective integration of digital literacy, global awareness, and professional teaching, ultimately compromising the quality of talent development.

3.5. Inadequate safeguard mechanisms hinder the smooth operation of digital and internationalized education.

Hainans private higher education institutions have yet to establish a comprehensive support system for digital and internationalized education. The absence of well-developed management systems for digital resource development, cross-border online credit recognition mechanisms, and digital teaching evaluation frameworks has resulted in a lack of institutional norms for digital internationalization. Additionally, the lack of dedicated funding and professional operational teams for digital internationalization makes it difficult to ensure the continuous updating of digital resources, the stable operation of cross-border teaching platforms, and the long-term advancement of internationalized education.

4. Innovation of internationalized education model of private universities in hainan free trade port under the empowerment of digitalization

Building upon the policy framework of Hainan Free Trade Port development, the operational realities of private universities, and digital technology trends, this initiative establishes a new digital empowerment model for international education. Guided by the core principles of “digital innovation, resource integration, industry-education collaboration, and Free Trade Port adaptation,” it implements a “one-core, three-motors, five-dimensional integration” framework. This model achieves deep integration between digital technologies and global education practices, driving high-quality development of international education in private higher education institutions.

4.1. One core: free trade port internationalization digital talent training as the core

The core objective of our educational model is to cultivate interdisciplinary talents with digital literacy, global vision, professional expertise, and deep understanding of the free trade ports industries. All digital and internationalized educational components are designed around this core, ensuring precise alignment between the program and the free trade ports talent demands, thereby achieving synchronized growth in talent development and industrial advancement.

4.2. Three drives: technology driven, resource driven, demand driven

Technology-driven, supported by digital technologies such as cloud computing, big data, artificial intelligence, and cross-border online education platforms, it breaks down barriers of time and space, reconstructs international educational scenarios in teaching, collaboration, and exchange, and provides technical support for innovation in educational models. Resource-driven, leveraging global high-quality digital educational resources and local digital resources of the free trade port, it achieves integration, sharing, and transformation of resources through digital platforms, offering resource support for international education. Demand-driven, guided by the international talent needs of Hainan Free Trade Ports digital and key industries, it dynamically adjusts the content and forms of digital international education to ensure targeted and

adaptive talent cultivation.

4.3. Five-dimensional integration: integration of digital technology with international education, online and offline integration, international resources with local resources, digital literacy with professional competence, industry-education collaboration with international talent cultivation

Integration of Digital Technology with International Education: Incorporate digital technologies throughout the entire process of international education development, including resource construction, teaching implementation, collaborative exchanges, and evaluation assessments, to reconstruct the international education system through digital means. **Blending Online and Offline:** Establish an integrated model combining “online course learning + offline practical training, cross-border online exchanges + offline joint cultivation, cloud-based online training + offline industry practice” to enhance educational effectiveness. **Fusion of International and Local Resources:** Utilize digital platforms to consolidate high-quality overseas educational resources while transforming free trade port industrial resources and local cultural resources into international digital teaching materials, achieving complementary advantages between global and domestic resources. **Integration of Digital Literacy with Professional Competence:** Embed the cultivation of digital skills, digital thinking, and cross-border digital platform operations into professional teaching and international education processes to nurture digitally skilled international talents. **Synergy of Industry-Education Collaboration and International Talent Development:** Partner with foreign-related digital enterprises and multinational corporations in free trade ports to conduct cross-border cloud-based industry-education integration and international project practices through digital platforms, achieving deep integration of industry-education collaboration and international talent development.

5. The practice path of internationalized education in private universities in hainan free trade port under the empowerment of digitalization

5.1. Strengthening digital infrastructure and building an international digital platform for education

Private higher education institutions should prioritize digital infrastructure development to strengthen foundational support for digital empowerment. First, they should establish digital infrastructure tailored for international education, including upgraded cross-border campus networks, multilingual digital teaching devices, and cloud-based training terminals to ensure stable and seamless cross-border teaching. Second, an integrated cross-border digital education platform should be developed, combining online teaching, resource sharing, credit recognition, international exchanges, and cloud-based training to achieve technical integration with overseas institutions and global education platforms. Third, leveraging the policy benefits of Hainan Free Trade Ports Digital Port initiative, institutions should connect with provincial higher education digital resource platforms and the digital platform of the Lingshui Li an International Education Innovation Pilot Zone to enable seamless interoperability of digital resources.

5.2. Building a distinctive digital resource repository to integrate global and local resources

Guided by the industrial demands of the Free Trade Port, we will establish an international digital resource repository through a “global sourcing + local adaptation” model to achieve resource integration and transformation. First, we will strategically import high-quality overseas digital educational resources—including international premium courses, vocational education standards, and bilingual teaching materials—while adapting them to local needs by aligning with the professional strengths of private universities. Second, we will develop distinctive international digital resources tailored to the Free Trade Ports key industries such as tourism and wellness, cross-border e-commerce, and digital economy, creating fully English and bilingual digital courses that convert industrial projects and cross-border enterprise cases into teaching materials. Third, we will build a multilingual digital resource sharing platform to enable categorized storage, search, and

sharing of digital resources, thereby enhancing resource utilization efficiency.

5.3. Innovating digital education models to deepen online-offline integration

To transcend the limitations of traditional offline education models, we are pioneering diversified and distinctive digital internationalization approaches. First, we implement the “cross-border course selection + credit recognition” model, collaborating with overseas applied universities through digital platforms to enable mutual course selection and credit transfer, thereby reducing students overseas exchange costs. Second, we establish a “cross-border cloud-based joint teaching” framework, partnering with international faculty to deliver bilingual and full-English instruction that blends online and offline learning, achieving global faculty and curriculum integration. Third, we develop a “digital cloud-based practical training” platform, collaborating with foreign enterprises in the free trade zone and overseas partner institutions to create cross-border digital training ecosystems, enabling students to engage in cross-border digital industry projects and enhance practical skills. Fourth, we explore the “digital + vocational education globalization” model, leveraging digital platforms to export distinctive digital courses and teaching standards from private universities to neighboring regions like Southeast Asia, building an internationalized brand for private higher education institutions in the free trade zone.

5.4. Enhancing faculty's digital and international competence to build a multidisciplinary teaching team

The faculty team serves as the cornerstone of digital and internationalized education, requiring enhanced digital and global teaching competencies through a “recruitment and cultivation integration” approach. First, specialized training programs should be implemented, organizing teachers to participate in cross-border online teaching, digital course design, international education standards, and digital transformation of free trade port industries, thereby elevating their comprehensive professional capabilities. Second, multidisciplinary talents should be recruited, specifically targeting overseas instructors and industry experts with digital teaching expertise and international teaching experience to strengthen the faculty. Third, a faculty exchange mechanism should be established, facilitating remote collaboration with overseas institutions through digital platforms, enabling teachers to engage in digital teaching practices abroad and enhance their pedagogical skills. Fourth, cross-institutional and cross-border digital teaching teams should be formed, comprising faculty members, overseas educators, and free trade port industry experts, to jointly develop digital courses, conduct cross-border teaching, and drive innovative research.

5.5. Improving the digital support system to ensure the long-term operation of the educational model

To establish a systematic support framework for the implementation and sustainable operation of digital international education models, the following measures are implemented: (1) Systematic Institutional Support: Develop management regulations for digital resource development, detailed rules for cross-border online credit recognition, and a digital international teaching evaluation system to standardize educational practices. (2) Financial Support: Establish a dedicated fund for digital international education to finance infrastructure development, resource creation, faculty training, and global collaboration. (3) Professional Operations Team: Assemble a specialized team comprising digital platform operators, international resource coordinators, and curriculum developers to ensure stable cross-border platform operations and continuous resource updates. (5) Collaborative Partnerships: Strengthen university-local and university-enterprise partnerships by engaging with Hainan Free Trade Ports education and technology authorities to secure policy and funding support. Jointly collaborate with foreign digital enterprises in the Free Trade Port to achieve industry-education synergy in digital international education.

6. Conclusion

Digital empowerment serves as the pivotal pathway for private universities in Hainan Free Trade Port to overcome

resource constraints in international education and achieve innovative models. It also represents an inevitable choice for these institutions to align with the Free Trade Ports digital development and provide targeted services. Leveraging the policy incentives of Hainan Free Trade Port, private universities should focus on cultivating globally competent digital talents. By harnessing digital technologies to break down barriers of time, space, and resources, they can establish a new model of digital empowerment for international education, characterized by “one core, three drivers, and five-dimensional integration.”

Private universities in Hainan should advance the deep integration of digital technology and international education through concrete measures: strengthening digital infrastructure, developing specialized digital resource libraries, innovating blended online-offline teaching models, building interdisciplinary faculty teams, and improving digital support systems. This transformation will shift from “superficial internationalization” to “deep internationalization” and from “homogeneous development” to “distinctive development”. By leveraging digital empowerment, these institutions can not only integrate global high-quality educational resources at low cost but also convert local industrial resources in the Free Trade Port into competitive advantages for international education. Ultimately, this will cultivate digitally skilled, interdisciplinary international talents tailored to the Free Trade Ports development needs. Such efforts will enhance their own educational quality and core competitiveness while providing solid talent support for Hainan Free Trade Ports construction as an International Education Innovation Island and Digital Port, achieving mutual empowerment and shared development between private universities internationalization and the Free Trade Ports progress.

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