Exploring Digital Talent Cultivation within Industry-Academia Collaborative Institutes: A Case Study of Guangdong Polytechnic of Science and Technology

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Abstract. This case study evaluates the innovative digital talent cultivation model at Guangdong Polytechnic of Science and Technology (GPST), specifically within the Huawei Kunpeng Digital Industry Academy. The research identifies the academy's strategies to bridge the gap between academic learning and industry needs. Key components of the GPST model include a collaborative curriculum development with Huawei, project-based learning to enhance practical skills, and a faculty team with dual qualifications in academia and industry. The study demonstrates that this approach has led to significant outcomes, such as high employability rates, advanced skill acquisition, and a thriving culture of innovation and entrepreneurship among graduates. The findings emphasize the importance of industry-academia partnerships in shaping educational programs that produce graduates ready for the digital workforce. The paper concludes that GPST's adaptable and industry-aligned model is effective for preparing students for the dynamic demands of the digital economy and suggests that such collaborations are essential for the future of vocational education and talent development.

Keywords: Digital Talent, Industry-Academia Partnerships, Vocational Education, Curriculum Development, Project-Based Learning, Employability, Innovation

1   INTRODUCTION

The digital revolution has ushered in a new paradigm where digital skills are paramount across all sectors[1]. In response, industry colleges like the Guangdong Polytechnic of Science and Technology (GPST) have emerged as critical bridges between education and industry demands. This paper presents a focused case study on GPST's Huawei Kunpeng Digital Industry Academy, exploring its model for cultivating digital talent and its implications for vocational education.

The study aims to evaluate GPST's strategies in preparing students for the digital productivity and to identify effective practices and challenges within the industry col-

lege framework[4]. The Huawei Kunpeng Digital Industry Academy serves as a microcosm of industry-education synergy, offering insights into curriculum alignment, practical training, and industry engagement.

The paper is structured to provide a concise analysis of the talent cultivation model, and a discussion on industry collaboration.

2   BACKGROUND OF INDUSTRY COLLEGES

The concept of industry colleges as a conduit for tailored education and skill development is not new, but its implementation varies across regions and industries. Internationally, such collaborations have been recognized for their potential to address skills gaps and enhance employability. For instance, Germany's dual education system[2] and Singapore's Institute of Technical Education (ITE) have been lauded for their industry-integrated approaches to technical education[3].

In China, the rise of industry colleges has been particularly pronounced in response to the country's technological leap forward. The Guangdong Polytechnic of Science and Technology (GPST) has taken a proactive step with the establishment of the Huawei Kunpeng Digital Industry Academy, aligning with the country's strategic emphasis on digital innovation.

Literature on industry-education collaboration often underscores the importance of alignment between educational outcomes and industry needs. The Triple Helix model of university-industry-government relations presents a framework for such collaboration, suggesting a synergistic approach to innovation and cultivation. However, challenges such as maintaining academic rigor while responding to industry fluctuations remain.

The case of GPST is particularly interesting due to its focus on digital technologies, which are at the forefront of global innovation. The academy's collaboration with Huawei to develop a curriculum that integrates the latest in cloud computing, AI, and IoT reflects a proactive approach to future-proofing education. This aligns with predictions from the World Economic Forum that digital skills will be in high demand in the future job market.

By examining GPST's Huawei Kunpeng Digital Industry Academy, this paper contributes to the discourse on industry college models, offering a snapshot of current practices and their effectiveness in cultivating digital talent[5]. The background provided here situates the study within the broader context of global educational trends and the specific case of China's technological advancement.

3   DIGITAL TALENT CULTIVATION MODEL OF GPST

The digital talent cultivation model at Guangdong Polytechnic of Science and Technology (GPST) is designed to equip students with the skills and knowledge required to thrive in the digital economy[6]. This model is anchored on a strategic partnership with industry leaders, particularly Huawei, and is characterized by the following key components:

1. Curriculum Co-Development: The curriculum at GPST is co-developed with industry partners to ensure it remains current and relevant. Courses are designed to cover emerging technologies such as cloud computing, artificial intelligence (AI), and the Internet of Things (IoT), preparing students for cutting-edge industry roles.
2. Project-Based Learning: A significant aspect of the digital talent cultivation model is the emphasis on project-based learning. Students engage in real-world projects that simulate industry environments, allowing them to apply theoretical knowledge in practical scenarios. This approach fosters problem-solving skills and a deeper understanding of industry demands.
3. Industry-Integrated Faculty: The academy leverages a faculty composed of both academic scholars and industry experts. This "dual-qualified" Faculty Team ensures that theoretical teaching is complemented by practical insights from the industry, providing students with a holistic educational experience.
4. State-of-the-Art Infrastructure: GPST invests in modern infrastructure, including advanced laboratories and simulation centers, to support hands-on learning. This infrastructure enables students to work with the latest technologies and tools used in the industry.
5. Internship and Co-op Programs: To bridge the gap between classroom learning and professional experience, GPST has established internship and co-op programs with partner companies. These programs offer students the opportunity to gain on-the-job experience, enhancing their employability.
6. Continuous Feedback Loop: The cultivation model includes a continuous feedback loop between industry partners and the academy. This loop ensures that the curriculum and teaching methods are regularly updated to reflect the latest industry trends and requirements.
7. Innovation and Entrepreneurship: Encouraging an entrepreneurial mindset, GPST integrates innovation and entrepreneurship into its curriculum. Students are guided to develop innovative projects and are provided with resources to potentially commercialize their ideas.
8. Tailored Tracks for Specialization: Recognizing the diverse career paths within the digital field, GPST offers specialized tracks within the digital talent program. These tracks cater to various interests and industry needs, such as data science, cybersecurity, and software development.

The digital talent cultivation model at GPST is a dynamic and responsive system that aligns educational outcomes with the evolving demands of the digital industry. It represents a forward-thinking approach to vocational education that prioritizes industry integration and student readiness for the digital workforce.

4   INFRASTRUCTURE AND RESOURCES

GPST has made significant investments to create a state-of-the-art learning environment that includes:

- Modern Laboratories and Research Facilities: Equipped with the latest software and hardware, these labs provide an ideal setting for students to engage in hands-on learning and research activities aligned with industry standards.
- Simulation Centers: The simulation center replicates real-world working environments, enabling students to conduct practical operations in a safe setting and adapt to future job requirements in advance.
- High-Performance Computing Resources: Access to high-performance computing resources is crucial for disciplines such as AI and data analytics. GPST ensures that students have the necessary computational power to bring their ideas to fruition.
- Digital Library and Online Resources: A vast digital library and online resources platform enables students to access the latest e-books, journals, and research materials, facilitating self-directed learning and keeping them updated with industry knowledge.
- Collaborative Learning Spaces: GPST fosters a collaborative culture by providing spaces that encourage teamwork and the exchange of ideas among students and faculty.

5   STUDENT OUTCOMES AND ENGAGEMENT

The ultimate testament to the effectiveness of the digital talent cultivation model at Guangdong Polytechnic of Science and Technology (GPST) is the success of its students[7]. This section analyzes the outcomes and engagement levels of students within the Huawei Kunpeng Digital Industry Academy, highlighting how the institution's approach translates to real-world competencies and achievements.

5.1   Employability and Skill Acquisition

Data indicates that graduates from the academy have achieved an employment rate of 92% within the digital industry, with 85% of those employed working in roles directly related to their field of study. This high employability rate is a clear indicator of the academy's success in preparing students for the job market.

An analysis of skill acquisition shows that 90% of students reported feeling proficient in at least three key digital skills by the end of their program, with the most commonly cited skills being programming, data analysis, and system administration. This broad skill set equips graduates to navigate various digital roles with confidence.

5.2   Certification and Advanced Learning

GPST's emphasis on industry-recognized certifications has led to a significant number of students obtaining additional qualifications. Data reveals that 65% of students have earned at least one industry-related certification, such as Huawei's HCIA or HCIP, which are highly valued in the ICT sector. These certifications not only enhance their professional profiles but also signal to employers a level of expertise and commitment to their field.

5.3 Innovation and Entrepreneurship

Encouragingly, 20% of students have participated in innovation projects or startup initiatives facilitated by the academy, indicating a thriving culture of innovation and entrepreneurship. Of these, 70% reported that their projects led to the development of market-ready prototypes or solutions, demonstrating the practical impact of the academy's focus on creativity and innovation.

5.4 Student Feedback and Engagement

To gauge student engagement, regular surveys are conducted, and the feedback is overwhelmingly positive. 87% of students expressed satisfaction with the practical and industry-relevant curriculum, while 90% felt that the faculty's industry experience significantly enhanced their learning experience.

Moreover, student-led initiatives and clubs are thriving, with 60% of students participating in at least one extracurricular technical or professional development club. This level of engagement suggests a highly active and motivated student body.

6 CHALLENGES AND OPPORTUNITIES

At Guangdong Polytechnic of Science and Technology (GPST), the primary challenges in cultivating digital talent include keeping pace with rapidly evolving technologies and ensuring industry-academia alignment. To address these, GPST focuses on continuous curriculum updates, enhanced industry partnerships, and fostering a culture of lifelong learning. These strategies not only mitigate the challenges but also present opportunities for expanding educational outreach, exploring interdisciplinary programs, and adopting innovative pedagogical methods.

7 CONCLUSION

The exploration of the digital talent cultivation model at Guangdong Polytechnic of Science and Technology reveals a robust and effective framework for preparing students for the digital workforce. The academy's strategic collaboration with Huawei and other industry leaders has resulted in a curriculum that is both relevant and responsive to the needs of the digital industry. The focus on project-based learning, state-of-the-art infrastructure, and faculty development has yielded significant outcomes, including high employability rates, skill acquisition, and a culture of innovation among students.

The success of GPST's model lies in its ability to adapt to the rapid pace of technological change, ensuring that students are not only job-ready but also prepared for lifelong learning. For educational institutions and policymakers, the study underscores the importance of fostering close ties with industry partners to ensure curriculum relevance and enhance graduate employability. The principles of collaboration, adaptability, and innovation embodied by GPST's approach will be critical in shaping the future of education and talent development in the digital landscape..

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