The Curriculum Administration Model Under the "1+X" Certificate System in Nanning Higher Vocational College of Guangxi Province in People's Republic of China

Ren Chong,
Narumon Sakpakornkan and Siranee Chutopama
Buriram Rajabhat University, Thailand
Corresponding Author, E-mail: 640427090013@bru.ac.th

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Abstract

This research article were to 1) study the current states of curriculum administration under the "1+X" certificate system in Higher Vocational College, 2) develop the curriculum administration model under the "1+X" certificate system and 3) evaluate the curriculum administration model under the "1+X" certificate system. The research processes were divided into three phases. Phase 1: collected the data by using questionnaire with 50 school administrators and 215 teachers. Phase 2: proceeded a semi-structured interview with 11 experts in the curriculum. Phase 3: 10 experts used model evaluation form evaluated the accuracy, propriety, feasibility and utility of the model.

The research findings indicated that: 1) The overall and each aspect of the current states of curriculum administration under the "1+X" certificate system was at a moderate mean score. 2) The development of curriculum administration model under the "1+X" certificate system shown four aspects: teaching content, teaching staff, teaching methods and Integration of curriculum and certificates. 3) The evaluation found that in overall, the accuracy and propriety were at the high level, while the feasibility and utility were at the highest level. Furthermore, the accuracy, the propriety, the feasibility and the utility of the manual for the model in overall were at the highest level.

Keywords: Model; Curriculum Administration; "1+X" Certificate System; Higher Vocational College

Introduction

The People's Republic of China has placed immense emphasis on strengthening vocational education. The government has implemented comprehensive policies aimed at reforming and enhancing the quality of vocational education, fostering industry-education integration, nurturing creativity, innovation, and entrepreneurial skills, and promoting modern and diversified educational approaches (The State Council of the People's Republic of China, 2010). Furthermore, to align vocational education with industry skill demands, the government fosters collaboration between educational institutions and enterprises (The State Council of the People's Republic of China, 2014). Within the framework of a learning society, society increasingly values multifaceted expertise, moving away from prioritizing individuals with specialized skills. Recognizing this shift, the government has implemented the National Vocational Education Reform Plan, introducing a pilot program for the "1+X" certificate system. This program aims to equip vocational college students with diverse professional skills and award them diplomas while still enrolled, enhancing their employability (The State Council

* Received: May 22 2027; Revised: May 27 2024; Accepted: May 29 2024

of the People's Republic of China, 2019). “1” in this approach refers to an academic certificate and “X” refers to a vocational skill certificate. These certificates focus on specific practical skills relevant to a particular job or industry (Mao & Li, 2021).

The implementation of the "1+X" diploma system for education reform has not yet gained widespread acceptance, leading to a lack of adequate support for learners and a scarcity of resources, including both teaching personnel and knowledge resources. (Zhang, 2022) Additionally, a lack of collaboration with industry partners has resulted in unclear learning management guidelines, limited opportunities for practical training, and an assessment system that is not aligned with the "1+X" certificate system. Consequently, this system fails to provide comprehensive learner evaluation and lacks coherence with national standards and industry demands (Dai et al, 2021).

Therefore, this study aims to gather insights into curriculum administration model under the "1+X" certificate system in Nanning Higher Vocational College, Guangxi Province, People's Republic of China. The findings aim to serve as a valuable guide for vocational colleges and relevant stakeholders in implementing this management model effectively. By adopting this approach, educational institutions can enhance their planning, promotion, and development strategies, ensuring that their curriculum aligns with the demands of the labor market.

Research Objectives

1. To study the current states of curriculum administration under the “1+X” certificate system in Nanning Higher Vocational College, Guangxi Province, People's Republic of China.
2. To develop the curriculum administration model under the “1+X” certificate system in Nanning Higher Vocational College, Guangxi Province, People's Republic of China.
3. To evaluate the curriculum administration model under the “1+X” certificate system in Nanning Higher Vocational College, Guangxi Province, People's Republic of China.

Research Methodology

This research was conducted qualitatively and quantitatively and can be divided into 3 phases as follows.

1. Literature Review: This research commenced with a comprehensive literature review of curriculum administration practices within the "1+X" certificate system. The findings revealed that the scope of a curriculum should encompass the essence of course content, faculty expertise, teaching methodologies, and the integration of the curriculum with the certificate program (Gong, 2017 : 57-62) (Mao & Li, 2021 : 47-51).

2. Synthesis and curriculum development: This phrase aimed to synthesize a comprehensive framework for the design and development of curriculum administration models within the "1+X" certificate system at Nanning Vocational College, Guangxi Province, People's Republic of China.

3. Evaluation: Employing the evaluation framework developed by Madaus, Scriven, and Stufflebeam (2000: 390), examining its validity, propriety, feasibility, and utility.

Population and Sample:

Phrase 1: This research involved a population of administrators and instructors from 3 vocational colleges in Nanning, Guangxi Province, China. The total population included 104 administrators and 408 teachers. To determine the appropriate sample size, the Krejcie and

Morgan (1970: 607-610) sample size table was utilized, resulting in a sample of 50 school administrators and 215 teachers.

Phrase 2: 11 curriculum development experts were selected through purposive sampling.

Phrase 3: 10 key informants were engaged: 5 experts evaluated the model's validity and appropriateness, and 5 assessed its feasibility and utility.

Research Instrument:

A mixed-methods approach was used for data collection.

Phase 1: A questionnaire was distributed to assess the current state of curriculum administration for the "1+X" certificate system in Nanning Vocational Colleges. The questionnaire utilized a 5-point Likert scale and demonstrated strong internal consistency (α = 0.987) and item-objective congruence (IOC) values ranging from 0.80 to 1.00.

Phase 2: Semi-structured interviews were conducted with key informants to gather in-depth insights into the administration of the "1+X" certificate system in Nanning Vocational Colleges. The IOC values ranged from 0.80 to 1.00.

Phase 3: Experts evaluated the proposed curriculum administration model using a 5-point Likert scale questionnaire. The IOC values ranged from 0.80 to 1.00

Data Collection:

First, a questionnaire survey targeted administrators and teachers at Nanning Vocational Colleges in China. This phase involved obtaining permission from the Graduate School Buriram Rajabhat University and subsequently distributing the questionnaire electronically via www.wjx.cn.

The second phase involved semi-structured interviews with key informants. The interviews explored the administration of the "1+X" Certificate System in Nanning Vocational Colleges.

Finally, phase three involved expert evaluation of the proposed model. A 5-point Likert scale questionnaire was distributed to a panel of experts for their assessment.

Data Analysis:

Data analysis employed a mixed-methods approach, encompassing both quantitative and qualitative techniques.

Descriptive Statistics: Mean and standard deviation were calculated to summarize numerical data. (Phrase 1 and 3)

Content Analysis: Qualitative data was analyzed using content analysis to identify recurring themes, patterns, and meanings. (Phrase 2)

Research Conceptual Framework

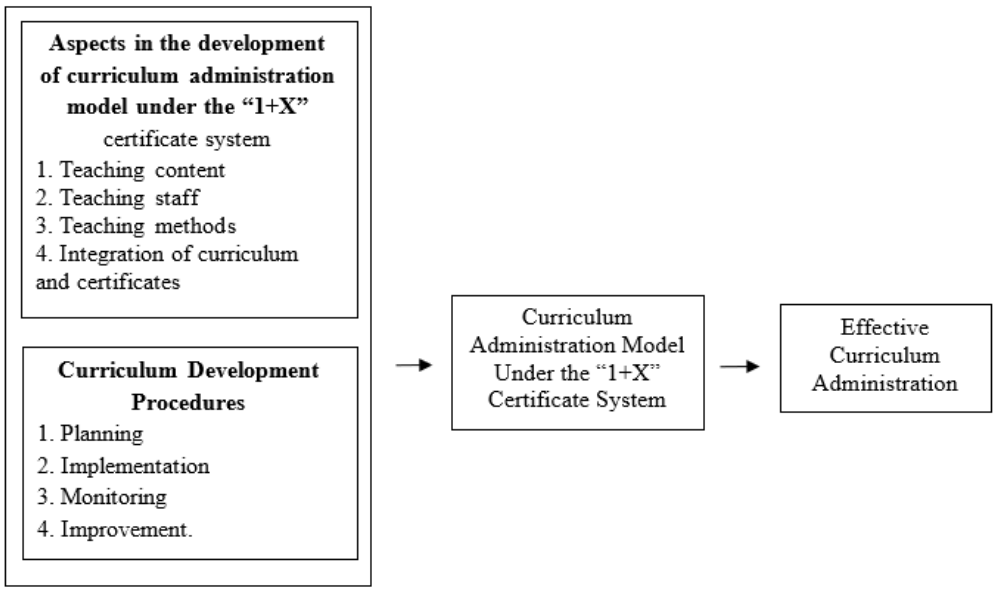

Figure 1 Research Conceptual Framework
Source: Constructed by the researchers

Research Results

1. As shown in Table 1, the overall results of the survey indicated that the perception of curriculum administration among administrators and instructors at Nanning Vocational College was moderate ($\bar{X}$= 3.36). A further breakdown of the results revealed that all four aspects of curriculum administration fell within the moderate range. Curriculum content and curriculum-certificate integration received the highest average scores ($\bar{X}$ = 3.37). Teaching methods received a slightly lower average score ($\bar{X}$= 3.35). The lowest average score was for teaching staff ($\bar{X}$= 3.34).

Table 1 Analysis of Questionnaire Results on Curriculum Administration

No.	Aspects	$\bar{X}$	S.D.	Interpretation	Ranking
1.	Teaching content	3.37	0.69	Moderate	1
2.	Teaching staff	3.34	0.68	Moderate	4
3.	Teaching methods	3.35	0.67	Moderate	3
4.	Integration	3.37	0.69	Moderate	1
	Total	**3.36**	**0.67**	**Moderate**	

2. The development of curriculum administration model under the "1+X" certificate system shown four aspects: teaching content, teaching staff, teaching methods and integration of curriculum and certificates. The findings suggest areas for improvement across four key aspects. First, curriculum content should be closely aligned with the certificate competencies, utilize innovative assessment methods, and seamlessly integrate certificate training. Second,

teacher development programs are needed to enhance expertise, encourage project-based learning with industry collaboration, and revise evaluation systems to incentivize effective teaching. Third, teaching methods should prioritize project-based learning, interdisciplinary approaches, practical training, and support for online and personalized learning. Finally, curriculum-certificate integration requires development of specialized vocational courses, industry expert involvement, strong industry collaboration, utilization of multimedia technologies and innovative learning approaches, and expanded internship opportunities.

The implementation of the aforementioned measures empowers colleges to effectively integrate diploma programs into their curriculum management practices. The curriculum management process encompasses four distinct phases: planning, implementation, monitoring, and improvement. These phases work in conjunction to ensure the efficient execution of curriculum management initiatives. The culmination of these efforts can be summarized in the form of the "1+X Certificate System Curriculum Administration Model," as illustrated in Figure 2.

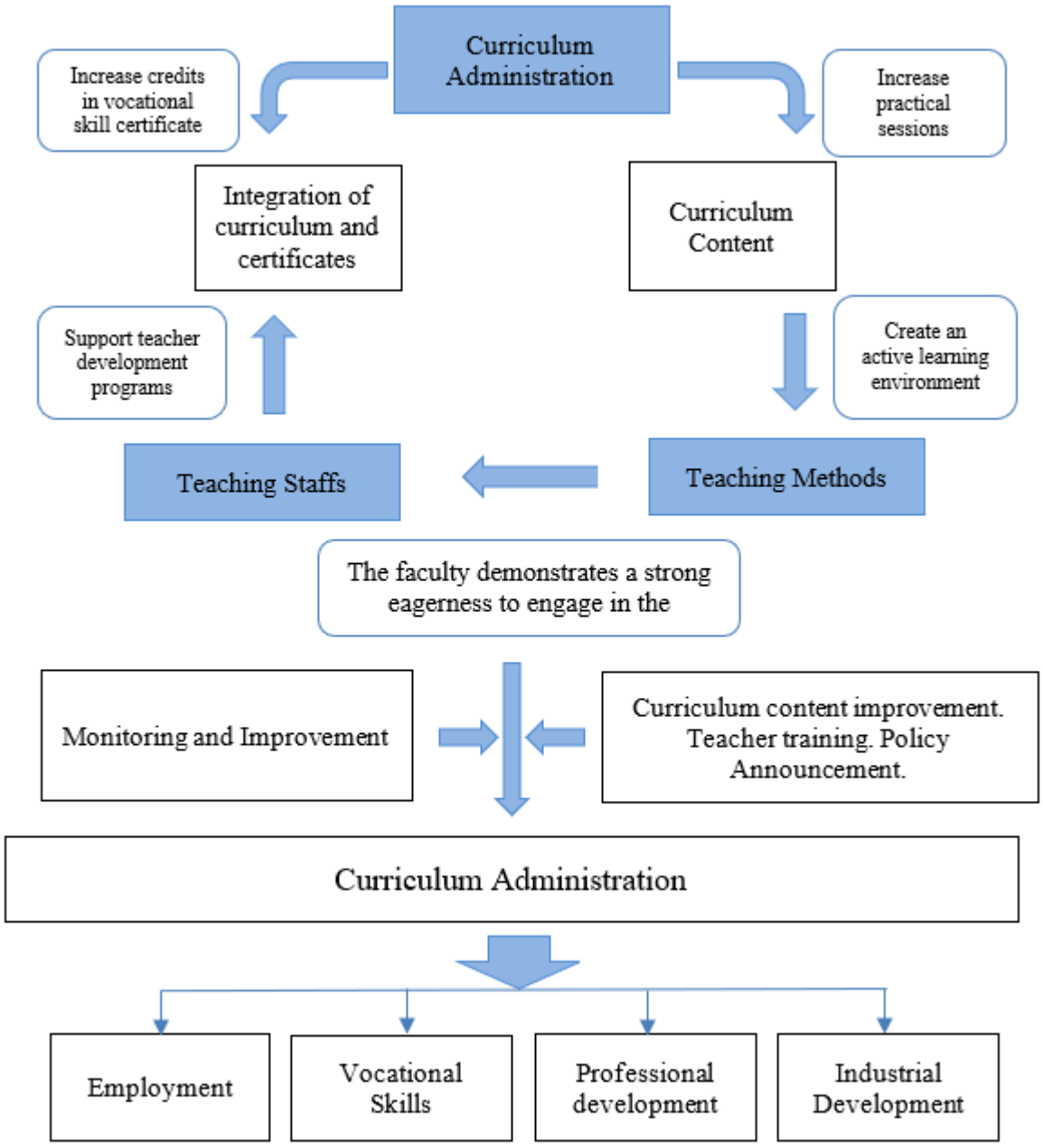

Figure 2 Curriculum Administration Model Under the "1+X" Certificate System
Source: Constructed by the researchers

3. An evaluation of the "1+X" certificate system at Nanning Vocational College in Guangxi, China, revealed overall validity and appropriateness. Individual aspects were mostly rated highly, with curriculum integration with the diploma being the highest-rated, followed by curriculum content and teaching methods. Personnel was the lowest-rated aspect.

The feasibility and practicality of the curriculum management model were also evaluated, with overall results indicating high feasibility and practicality. Individual aspects were again highly rated, with curriculum integration with the diploma being the highest-rated, followed by personnel and curriculum content. Teaching methods was the lowest-rated aspect.

Finally, the evaluation of the user manual for the "1+X" certificate system found overall validity, appropriateness, feasibility, and practicality.

Discussion

1. Perceptions of curriculum management in the "1+X" certificate system at Nanning Vocational College, China, were generally moderate across all aspects. This may be attributed to delays in curriculum development, inflexible curriculum content that fails to adapt to societal demands, and a lack of comprehensive integration across subjects. Additionally, limited evaluation methods focus solely on exam results, disregarding the cultivation of well-rounded abilities. These findings align with Tang's (2019) finding that vocational education differs from general education in terms of target groups, training objectives, system structure, management approaches, training models, and assessment methods. Vocational education is characterized by its interdisciplinary nature, integrating educational and industry needs, promoting collaboration between institutions and enterprises, and emphasizing personal and professional development. Furthermore, the findings resonate with Qi and Dong's (2015) emphasis on the integration and connection of various elements in modern vocational education, including linkages between vocational education and society, industry and general education, higher vocational education, general education, and lifelong learning.

The findings of this study align with Zhang's (2021) research on the innovative value, normative dimensions, and strategic adjustments for vocational colleges in implementing the "1+X" certificate system. Zhang (2021) highlights that the "1+X" certificate system not only reflects the unique characteristics of vocational education but also promotes societal engagement in vocational education development, transforms outdated assessment and personnel training models, and fosters a learning society and establishes a national qualification framework. As vocational colleges are the pioneers and primary implementers of the "1+X" certificate system, they should have a deep understanding of its significance and innovative value. To ensure effective implementation, vocational colleges should revitalize their educational goals, enhance the efficiency of their teaching and learning management systems, strengthen industry integration, and promote school-enterprise cooperation, ultimately enabling the "1+X" certificate system to truly deliver its intended value to learners and society.

2. The development of the curriculum management framework "1+X" at Nanning Vocational College, Guangxi Province, People's Republic of China, encompasses four dimensions: subject content, personnel, teaching methods, and curriculum integration with certification. Researchers have produced a manual to ensure proper implementation, comprising instructions, objectives, significance, details of the management framework, roles of administrators, faculty, and students, as stakeholders in its execution. Additionally, the manual includes performance evaluation criteria aligned with the policies and regulations of the Ministry of Education for the "1+X" certificate system. This manual serves as a crucial factor in the college's curriculum management, necessitating adjustments and enhancements to meet policy requirements and achieve the goal that learning aligns with market demands. Consequently, the college must refine its curriculum content to meet the needs of both the job

market and learners, and ensure instructors possess relevant industry background and teaching experience to effectively integrate contemporary theory and practical knowledge.

Furthermore, this research aligns with the findings of Yang, Liu, and Jia (2023: 216-219), indicating that the "1+X" certificate system facilitates smooth educational attainment while concurrently enhancing vocational skills, thus enabling learners to obtain relevant professional certification. This aids learners in transitioning into the job market. For effective implementation of the "1+X" certificate system, curriculum reform, instructional management restructuring, specialized training plans, competent teaching teams, and integration of certification requirements into curriculum standards are recommended. Additionally, designing learning scenarios to foster knowledge and relevant technical integration, utilizing learning management tools and both internal and external curriculum resources, employing efficient learning management methods and strategies, fostering innovation to promote skill integration between skill standards and curriculum, and enhancing the quality of professional skill training for learners are crucial.

3. The evaluation results of the curriculum management framework indicate high levels of accuracy, appropriateness, feasibility, and utility. Additionally, the assessment of the management framework usage manual reveals similarly high levels of accuracy, appropriateness, feasibility, and utility. These findings may be attributed to the influence and significant roles of subject content, personnel, teaching methods, and curriculum integration with certification in the "1+X" certificate system management at vocational colleges. These reasons align with the perspectives of Zhou and Deng (2023: 3-8) emphasizing the alignment of vocational education curricula with industry requirements, integration of theoretical and practical components, and industry involvement in curriculum design. Similarly, they resonate with Ren's (2022: 59-61) emphasis on the importance of teacher training and collaboration between vocational colleges and industry to foster teacher development in new directions.

Moreover, this research aligns with the findings of Zhang and Zhao (2023: 61-66), stressing the importance of collaborative education management between schools and businesses. They advocate for reforms starting from practical and innovative learning management, prioritizing collaboration between educational institutions and businesses, jointly improving curriculum content to stay contemporary and meet industry standards. Such initiatives are believed to promote educational development and standards in learning management.

Recommendations

1. Academic Recommendations

Vocational education must adapt to the dynamic landscape of industry by continuously updating its curriculum and instructional methods. To achieve this, it is essential to engage in ongoing research that aligns with industry trends, market demands, and evolving standards. Additionally, interdisciplinary research initiatives should be fostered to equip vocational learners with the diverse knowledge and skills required for success in the modern workforce.

2. Policy Recommendations

To ensure the effectiveness of vocational education, curriculum leaders must remain informed about industry trends and actively participate in curriculum development. Additionally, instructors should receive comprehensive training on the 1+X Certificate System's requirements and instructional methodologies. Moreover, assessment practices and

resource management strategies should be aligned with the 1+X Certificate System to ensure quality education and efficient resource utilization.

3. Practical Recommendations

To ensure the successful implementation of the 1+X Diploma System, a comprehensive curriculum management system must be established. This includes clearly defining the curriculum framework, learning objectives, and learning outcomes, as well as designing appropriate course content and instructional methodologies. Additionally, a robust faculty development program should be implemented to enhance the professional qualifications and instructional skills of the teaching team, enabling them to effectively deliver high-quality vocational education and adapt to the system's requirements.

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