A DEVELOPMENT MODEL FOR CONTINUING EDUCATION OF VOCATIONAL SCHOOL IN XINJIANG, CHINA

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Abstract

The objectives of this research were 1) to study the continuing education model of vocational schools and 2) to develop the continuing education model at vocational schools in Xinjiang Province, China. This research employed mixed methods. The sample group includes 15 administrators, 20 head teachers, and 300 vocational teachers. Research tools include interview forms and questionnaires. Data analysis used descriptive statistics and Structural Equation Modeling (SEM). The results of this research revealed that the continuing education model consisted of three components: (1) individual learning, (2) transferred credits, and (3) up-skill courses. The vocational education model comprised two components: (1) knowledge-based curriculum and (2) competency-based curriculum. The developed model included five components and 25 observed variables. The components of the model were: (1) basic knowledge courses (5 variables), (2) individual learning (5 variables), (3) industry learning effect (5 variables), (4) up-skill course (5 variables), and (5) transfer credits (5 variables).

Keywords: Continuing Education, Vocational School, Development Model

Introducation

The vocational education and training education system is changing in response to the ongoing industrial revolution. The ongoing industrial revolution presents new industry demands that vocational graduates must meet, equipped with the requisite skills, attitude, and knowledge.

These industry needs and demands determine the necessary academic achievements.

The vocational education is a by product of social development, human civilization development, and human self-development. and it is the result of evolution to a specific period. Society benefits from vocational education, and society can benefit from vocational education (Annick, 1999). The true essence and sacred duty of vocational education lie in fostering social development (Mocker & Spear, 1982). Individual employment demand is the goal of vocational education,

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as is the development of social productivity and the acceleration of the adjustment and transformation of the national industrial structure. Since the implementation of the outline in the eleventh five-year plan, China's vocational education system has undergone continuous refinement, accompanied by ongoing innovation in school operations. The employment rate has reached a new level and embarked on the fast lane of development. Learning is increasingly convenient and accessible, particularly with the continual advancement of Internet and artificial intelligence technologies. Individuals with learning goals only need a mobile terminal to access any amount of information they desire at any time. Everyone will have a new identity - learner - because of flexible learning, personality, and a diverse social environment, and learner identity will be the most important identity in the era of lifelong learning. in addition, when we look at our current school education, we can see that it always limits the realization of the vision of a continuing education society to some extent (Alfie, 2008). On the one hand, the school retains many of the characteristics of the big industrial era, and student cultivation is still based on a closed, fixed, and unified model. Furthermore, teacher teaching largely replaces students learning. Teachers dominate the discourse and execution of the entire teaching, and students' learning has gradually become routine. It is essential to actively seize the opportunities presented by the science and technology era, as well as to address the challenges posed by the personalized and diverse landscape of continuing education society (Guan & Blair, 2022). The key measure for school education is to encourage students' transformation from "students" to "learners" and to construct students' identities as learners. Learning in the PRC became systematically and conceptually known only after UNESCO released the forthcoming document, even though this has been done informally for a long time in the community. In China, private institutions are more supportive of the development of continuing education than the government (Global Education Monitoring Report, 2016).

Objectives

1. To study the continuing education model for vocational students in Xinjiang Province, China,
2. To develop the continuing education model at vocational schools in Xinjiang Province, China.

Literature Review

The Continuing Education Concept

Continuing education is commonly thought of as organized educational offerings for adults outside of formal schooling that include a teacher and one or more students. Many continuing education programs are available to the public, while others are tailored specifically to individuals in particular occupations or professions. Other types of continuing education are created on a contract basis for a specific client, company, or organization and are not open to the public.

Almost all non-credit courses are considered continuing education. Night classes, evening college, summer courses, graduate degrees, non-traditional degrees, and online courses may be considered continuing education by the college or university that offers them.

Donald and George (1982) in the concept of continuing learning, it encompasses various forms and stages of learning. Similarly, countries like Germany, Australia, the United Kingdom, and other industrialized nations actively support the growth of vocational education globally. Germany pioneered the internationalization reform of vocational education, transforming it through modifications to the degree system, establishment of a credit system, and framework for continuing education qualifications under the influence of politics, the economy, society, culture, and academics (Judith, 2002). Continuing education consists of the following components (Donald & George, 1982).

- Individual Learning: Providing personalized learning support and resources based on the different learning needs and styles of learners to maximize learning effectiveness.

- Transfer Credit: Transferring credits obtained to a new learning field to reduce redundant learning and improve learning efficiency.

- Up Skills Course: In addition to professional knowledge and skills, emphasis is also placed on improving learners' generic skills, such as communication skills, teamwork abilities, etc., to enhance overall competitiveness.

The Vocational Education Concept

Vocational and technical education in China has a history of over 5000 years, stemming from early human labor activities. The original form of vocational education is a type of educational activity of productive work, which is the earliest form of vocational education today (Lu et al., 2016). However, vocational education has traditionally been viewed as a second-class education that has not been given the respect it deserves, and there is no specific school for vocational education (Benfa & xianju, 1999). For a long time, it has been impossible to inherit technology through "teacher leading apprentice" and "father son passing on" since vocational education occurs in folk and families in an implicit in modern times, China began to establish and develop new education, science and technology began to gradually enter the hall of elegance, enter the modern school education system, and keep pace with the traditional study of economics and history, driven by the role of the industrial revolution, the development of capitalist economy, and the theory of "saving the country through education" (Keawsuta, 2021). Following practical education throughout the Ming and Qing dynasties, scientific and technological education during the Westernization Movement, and vocational education during the Republic of China, China's modern vocational and technical education has advanced significantly.

Vocational Education consists of the following components (Donald & George, 1982).

- Knowledge-Based Curriculum: This part involves the knowledge foundation of the curriculum, including theoretical knowledge, practical experience, etc. aiming to help learners master relevant knowledge in a specific field.

- Competence-Based Curriculum: This part focuses on the abilities and skills required by learners in a specific field, emphasizing the cultivation of practical operations and problem-solving abilities.

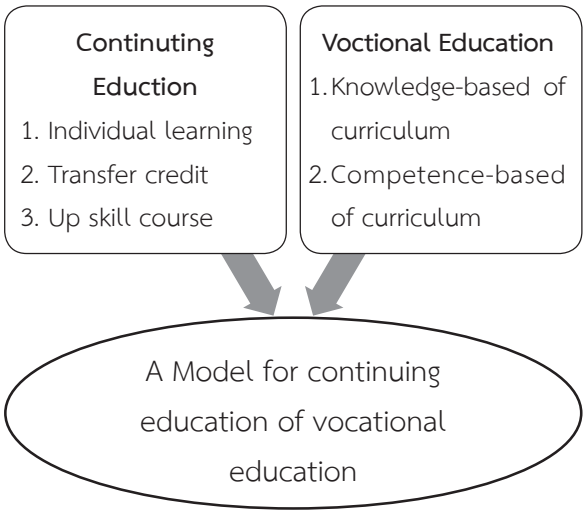

Figure 1 Conceptual Framework

Methodology

This research applied mixed method research; to study the continuing education model of vocational school. The researcher discovered the development management model on continuing education. The researcher discovered a development management model for continuous education. The study utilized mixed methods, incorporating questionnaires and interviews. The interviews were conducted with head teachers to explore the continuing education model. The study adopted quantitative methods to survey the continuing education model from teachers. The research utilized both a questionnaire and an interview. Prior to conducting the study, approval documentation was required from the principal of the vocational school in Xinjiang, China. The population in this study consisted of 300 teachers in vocational colleges in Xinjiang province. The population encompassed teachers from all majors. The part of questionnaire randomly selected vocational teachers. For the interview portion, 20 head teachers and 15 administrators will be selected. The interview questions will be designed based on a literature review related to developing a model for continuing education:

Research Instruments

This research instruments consist of an interview form and a questionnaire.

1. Interview form by issue about: Insights from expert interviews, application gaps, Identified areas for improvement, implications and recommendations and mediating role of transfer credits.

2. The questionnaire was administered first to teachers in vocational schools, with questions classified into three areas: internal and external factors, including individual attitudes, teaching methods, and school management systems. The study instruments were validated by five experts, including one from Xinjiang Economic Vocational College of China, a professor from Xinjiang University of China, an expert from Wuhan University of China, a head teacher from a vocational

college in Xinjiang, China, and a head teacher from Xinjiang Normal Vocational School. As outlined by Stephen (2014), the first step in validation is to specify the intended uses and interpretations of test scores, and then gather validity evidence based on the test content. Thus, to evaluate the interpretation of test scores, it is necessary to use "Subject Matter Experts" (SMEs) to review and rate all the items on a test (Charis, n.d). Additionally, Item-Objective Congruence (IOC) of the instrument were calculated to ensure that items align with learning objectives. The results from experts were used to assess a set of items, with a value typically ranging between 0.75 and 1.00. The item was considered valid when the index in the IOC ranges from 0.75 to 1.00 and unacceptable range is below 0.75 to -1 (Zenisky & Crotts, 2010). 2) The interview was conducted with vocational teachers and administrators, as they possess a comprehensive understanding of the factors influencing the development management model for students' continuing education.

Data Collection Procedures and Data Analysis

1. Collect data from interview 20 head teachers and 15 administrators of vocational school in Xinjiang, China, by acquisition of an approval document from the principal of the vocational school. The interview was recorded, audiotaped, transcribed, translated, analyzed, and summarized by the researcher.

2. Collect data from the questionnaire was given to 300 participants to survey basic information of this model. The study gathered data have been to statistics data, students' continuous learning and adopt AMOS (Analysis of Moment Structures) software. Structural Equation Modeling (SEM) encompasses such diverse statistical techniques as path analysis, Confirmatory Factor Analysis, causal modeling with latent variables, and even analysis of variance and multiple linear regression (Structural Equation Modeling Using AMOS, 2012).

Results

The results of this research were to study the development model for continuing education and evaluate the model for vocational school continuing education in Xinjiang Province, China.

Part 1 The result of interviews about the continuing education model, the development of a model for continuing education.

Table 1 The Interview Results Table

Topic	Findings
Insights from Expert Interviews	- Rise of online training models - National education policy reforms
Application Gaps	- Uncertainty in credit exchange mechanisms
Identified Areas for Improvement	- Addressing skill assessment challenges - Refining training methods - Establishing clear credit exchange mechanisms - Streamlining tuition payment processes
Implications and Recommendations	- Enhancing effectiveness and accessibility of training programs
Mediating Role of Transfer Credits	- Positive mediating role between basic knowledge course instruction and industry learning outcomes

Part 2 The result of the development model for continuing education

Table 2 Model Fitting Index

Index	Value
CMIN/DF	2.845
IFI	0.937
NNFI	0.905
CFI	0.936
GFI	0.873
AGFI	0.845
RMSEA	0.069

The model fitting index is evaluating the fit between observed data and the constructed confirmatory factor analysis model. These indices serve to assess the model's suitability in describing and explaining the empirical data. Firstly, the value of CMIN/DF (Chi-square value/degrees of freedom) is 2.845. It is indicating a better fit of the model to the observed data. Additionally, the IFI (incremental fit index), NNFI (normalized fit index), and CFI (comparative fit index) are 0.937, 0.905, and 0.936 respectively. These values, all exceeding 0.9, indicate a strong fit between the model and the observed data. In terms of GFI (Generalized Fit Index) and AGFI (Adjusted Generalized Fit Index), the values are 0.873 and 0.845 respectively. These indices fall within the 0 to 1 range, with higher values suggesting a better fit of the model to the observed data. Lastly, the RMSEA (root mean square error of approximation) has a value of 0.069. The closer this value is to 0.1, the better the model fits the observed data. In conclusion, based on the index values provided in Table 2, it can be inferred that the confirmatory factor analysis model exhibits a good fit to the actual data.

The model includes the following latent variable: Basic knowledge course, Individual learning, Industry learning effect, Skill course, and Transfer credits. From the table 3, all the factor loadings between the observed variables and their corresponding latent variables are above 0.7. This indicates a strong correlation between these observed variables and the latent variables, suggesting that they effectively measure these latent variables. Next, we analyze the AVE (Average Variance Extracted) and CR (Composite Reliability). AVE is used to measure the proportion of variance explained by the latent variables, while CR reflects the internal consistency of the latent variables. According to the data in the table, the AVE values for each latent variable are above 0.6, indicating that the latent variables effectively explain the variation in the observed variables. Additionally, the CR values for each latent variable are above 0.89, suggesting a good level of internal consistency. In conclusion, based on these findings, it can be inferred that this confirmatory factor analysis model has good validity, indicating that the scales have good validity.

Table 3 Confirmatory Factor Analysis Results

Latent Variables	Observed Variables	Estimate	AVE	CR
Basic Knowledge Course	BK1	0.840	0.640	0.898
	BK2	0.857		
	BK3	0.841		
	BK4	0.742		
	BK5	0.709		
Individual Learning	IL1	0.826	0.719	0.928
	IL2	0.877		
	IL3	0.852		
	IL4	0.825		
	IL5	0.859		
Industry Learning Effect	LE1	0.858	0.736	0.933
	LE2	0.865		
	LE3	0.852		
	LE4	0.873		
	LE5	0.841		

Table 3 Confirmatory Factor Analysis Results (Cont.)

Latent Variables	Observed Variables	Estimate	AVE	CR
Upskilling Course	SC1	0.847	0.664	0.907
	SC2	0.712		
	SC3	0.910		
	SC4	0.717		
	SC5	0.867		
Transfer Credits	TC1	0.817	0.724	0.929
	TC2	0.928		
	TC3	0.804		
	TC4	0.916		
	TC5	0.777		

Structural Equation Model Based on the research hypotheses in this paper, a structural equation model is constructed to test the hypotheses, as shown in Figure 2.

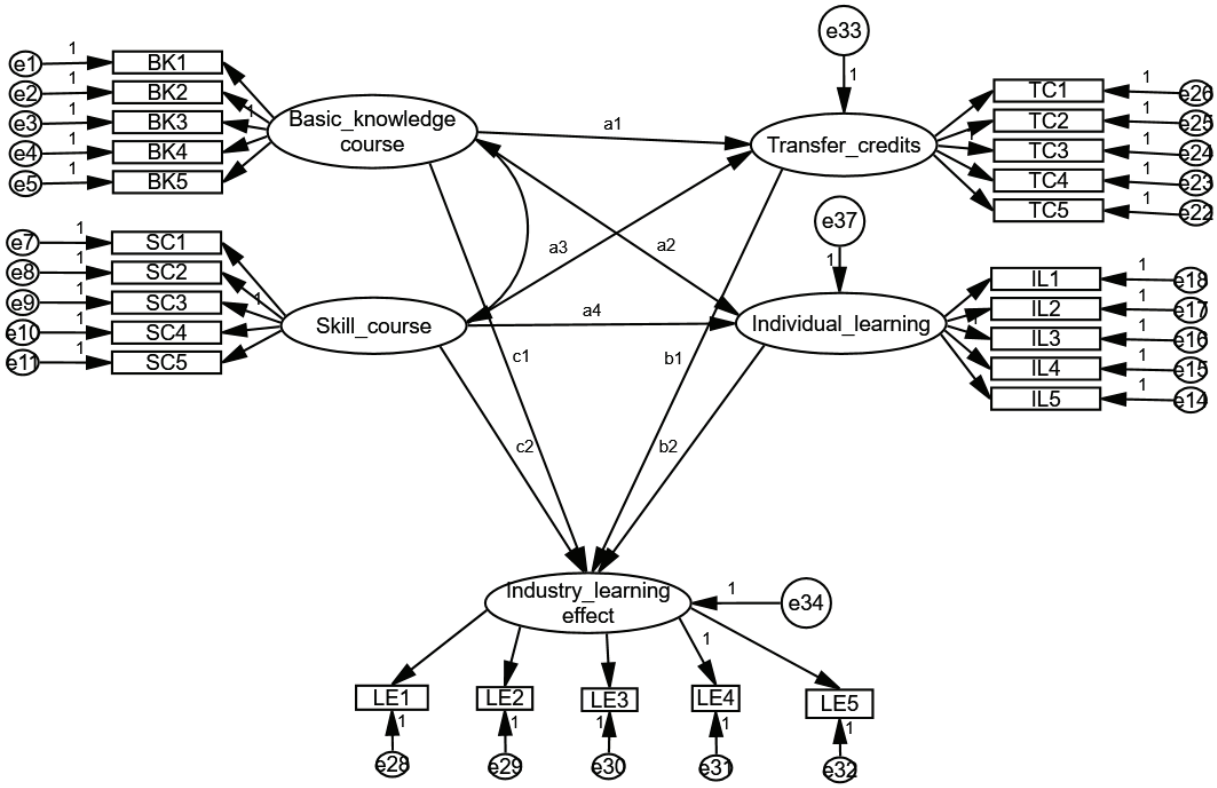

Figure 2 Structural Equation Model

The coefficients for each pathway were labeled and the corresponding values were obtained, as presented in the table below. Firstly, participation in skill courses has a significantly positive influence on individual learning (Estimate = 0.218). This indicates that engaging in skill-oriented courses positively contributes to individual learning improvement. The results suggest that skill-based courses help individuals in acquiring more transfer credits. To summarize the relationships among variables, the acquisition of transfer credits is influenced by both basic knowledge courses and skill courses. Individual learning, on the other hand, is affected by skill courses and basic knowledge courses. Lastly, the effect of industry learning is influenced by basic knowledge courses, skill courses, transfer credits, and individual learning.

In a recent interview, valuable insights were gathered from expert and management personnel regarding training programs, particularly in the context of the rise of online training models and ongoing national education policy reforms. The expert highlighted the emergence of online training models post the COVID-19 pandemic. National education policies have been reformed, with open universities now focusing on degree-related continuing education, and various universities taking charge of diverse training programs, such as digital skills, apprenticeships, and on-the-job training. This signifies a proactive adaptation to changing circumstances and demands within educational institutions. Management identified a key challenge in accurately assessing skill demands in front-end training programs. This points to potential difficulties in understanding the actual skill needs of employees during the planning phase of training initiatives.

A notable observation was made regarding the incomplete application of training methods based on skill capabilities. This may encompass issues related to the selection and implementation of training methods, as well as potential mismatches between training content and practical skill requirements. The interview revealed a concern about tuition payment for students after transferring. This issue may involve challenges related to fee structures for transfer students and the payment process. Resolving this concern is essential to enhance the overall experience for students and foster motivation for participation in training.

Discussion

In terms of curriculum planning, it is necessary to offer phased and continuous courses, enabling students to choose courses based on their needs at different times. Some courses can also facilitate credit reduction, course conversion, and alignment with university degrees. They provide students with certificates, diplomas, or industrial skills training, and offer multifunctional education and training systems. This provides students with a robust platform for continuous learning (Chantragatrawi & Prasongporn, 2021). Almost all curriculum knowledge-based points are dispersed in the vocational education model,

and the standards for curriculum evaluation are complexing. Many curriculum knowledge points are dispersed and the standards for curriculum evaluation are complicated with the Business and Technology Education Council (BTEC) model used in the UK. The professional basic theory curriculum has some issues. The study highlighted the importance of addressing challenges such as skill assessment, credit exchange mechanisms, and tuition payment for transfer students in vocational education. It emphasized the need for adapting education systems to changing circumstances and the proactive role of institutions in addressing challenges.

Conclusion

In conclusion, this research not only contributes to study of continuous education model but also emphasizes the importance of development continuous education model. The findings underscore the need for adapting education systems to changing circumstances and the proactive role of institutions in addressing challenges. As vocational education evolves in the face of technological advancements and societal changes, continuous research and adaptation remain imperative to ensure effective learning outcomes and prepare individuals for the demands of the modern workforce.

This lack of clarity could hinder the flexibility of employees in transferring credits between different training courses, impacting the overall effectiveness of training plans. The interview revealed a concern about tuition payment for students after transferring. This issue may involve challenges related to fee structures for transfer students and the payment process. Resolving this concern is essential to enhance the overall experience for students and foster motivation for participation in training. Additionally, the transferability, transfer credit, comparability, and universality of the vocational education systems, The Technical and Further Education (TAFE) model from Australia presents a talent training model that combines localization and internationalization, including localization of courses, top-notch teaching tools, integration of courses and certifications, and many options for work and further study, TAFE courses can be personalized to different age groups and industries, providing the skills and knowledge required for social and occupational reform.

Recommendation

Expanding upon the outcomes of the current study, other directions for Further research might be pursued to enhance our understanding of career education and training. Here are some suggestions for additional research: Longitudinal Analysis: It would be beneficial to carry out longitudinal research to the long-term effects of vocational education on people's careers and industry adaption. This can entail keeping track of people for a long time to see how their abilities, career paths, and industry contributions develop. Technology Integration: Look at how new technology, including virtual reality and artificial intelligence, can be incorporated into

vocational education. Testing how well these technologies improve industry preparedness and skill learning can help create more sophisticated and specialized training programs (Haloeikai et al., 2022). International Comparative Studies: Evaluate the results and systems of vocational education in other nations or areas. Comprehending the ways in which diverse cultural, economic, and educational elements impact the efficacy of vocational education can aid in the creation of more internationally applicable models.

Impact of Online Learning Models: With the popularity of online training models growing, it would be helpful to do a thorough investigation of the advantages and disadvantages of online vocational education. This entails looking at learner engagement, the flexibility of online learning environments, and how online learning affects the development of new skills. Examine methods to accommodate the requirements of various learner populations and increase the inclusivity of vocational education. This might entail looking into the efficacy of adaptive learning technology, allowing for different learning styles, and encouraging diversity in the creation of training curricula (Viphoouparakhot, 2021). This can help with curriculum design modifications that ensure curriculum alignment with industry expectations and improve graduates' employability.

Policy Impact Assessment: Determine how policy modifications will affect systems of vocational education. Examining the effects of changes made to educational policies can give decision-makers insightful information that will help them make better decisions in the future to maximize the benefits of vocational education. Examine how vocational education might support the development of soft skills including problem-solving, cooperation, and communication. knowledge of the effects of vocational programs on the growth of hard and soft skills can help create a more comprehensive knowledge of workforce preparedness. Integration of entrepreneurial Education: Examine how entrepreneurial education may be incorporated into programs for vocational training. Evaluating how entrepreneurship education affects graduates' capacity for innovation and economic development contributions may prove to be a useful field of research.

International Cooperation: Promote joint research projects between government agencies, businesses, and academic institutions. Working together can lead to creativity and progress by offering a more complete view of the possibilities and difficulties in vocational education. Scholars and practitioners can ensure that vocational education and training remains relevant, successful, and has a beneficial influence on individuals and industries in the ever-evolving global landscape by tackling these themes in future study.

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