

# The Study of the Enhancing Program on Double-Qualified Teachers Competency in Local Applied University

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## Abstract

Enhancing the competency of double-qualified teachers can significantly improve educational quality, adapt to industry demands, drive educational reform, and support teachers' personal career development and students' overall growth. This study aims to investigate and identify the components of double-qualified teachers' competency in local applied universities by distributing expert confirmation forms to experts in the field of educational management. Additionally, a survey will be conducted among 228 double-qualified teachers from Baise University to explore the current and desired states of their competencies. The PNI modified method will then be used to assess the key priority needs index of double-qualified teachers' competencies in local applied universities. Based on the survey feedback, a training program will be proposed to enhance the competency of double-qualified teachers. The results revealed that: Part 1 of the components of enhancing double-qualified teachers' competency include: i) Proper Ethics, ii) Practical ability, iii) Teaching ability, iv) Reflection and improvement, v) Teacher-student relationship. The suitability of these components was highly rated by experts. Part 2 in the study of the current, desired states, and priority needs of double-qualified teachers' competencies in local applied universities, the current state was generally at a medium level. In the desired state, the competencies of double-qualified teachers were at a very high level. Among the PNI rankings, "Proper ethics" was identified as having the highest priority need. Part 3 is to enhance the competency of double-qualified teachers in local applied universities, the project will use the 70:20:10 learning model. The program consists of 5 components: i) Principles, ii) Objectives, iii) Contents, iv) Development Processes, and v) Measurement and Evaluation. The suitability and feasibility of the program were evaluated by 5 experts. The results indicated that both the suitability and feasibility of the program were at the highest level. This study is significant for enhancing the competency of double-qualified teachers in local applied universities, as it can provide a reference framework for the training of double-qualified teachers' competencies.

**Keywords:** Program to enhance teacher, double-qualified teachers, competency, local applied universities.

## 1. Introduction

The research and practice of teacher-industry integration in western countries started earlier, and many creative results have been achieved in both theoretical research and application practice, which is also representative (Petri Kettunen, 2022). China has gradually paid attention to the role of the integration of production and education in the field of education, but it still has certain limitations. From the perspective of research theory, most of the research on Double-Qualified teachers mainly focuses on the deep cultivation of the construction of Double-Qualified teachers in colleges and universities from the perspective of school development; From the perspective of research methods, previous scholars have mainly adopted comparative research, but neglected to demonstrate the construction of Double-Qualified teachers in Chinese universities from an empirical point of view (Xu Zhiwang, 2020).

Oriented by the development of service industry and the needs of regional economic development, local applied colleges and universities cultivate high-quality applied talents. Learners' practical ability, entrepreneurial ability and employment quality are the core criteria to evaluate their educational quality (Li Jinmei, Wang Zhijian, 2021). The Ministry of Education of China encourages large enterprises, universities and research institutes to open up innovation resources, and encourages local applied universities to carry out multi-form, multi-level and multi-directional integration of industry and education (Chen Qian, Xu Liqing, 2022). As the main force to train applied talents, local applied colleges and universities must rely on a group of Double-Qualified teachers with high quality and strong competence, and the quantity and quality of Double-Qualified teachers directly determine the overall level of higher education personnel training (Zhang Jingfang, Zhang Lijuan, 2015).

In recent years, with the transformation of China from a manufacturing country to a manufacturing power, the gap of applied talents has been expanding, and the call for improving the training quality of applied talents has become increasingly high. Training a group of high-quality applied talents has become imminent. As the main force to train applied talents, local applied colleges and universities must rely on a group of Double-Qualified teachers with high quality and strong competence, and the quantity and quality of Double-Qualified teachers directly determine the overall level of higher education personnel training (Li Zheng, 2021). Double-Qualified teachers should adopt the combination of theory teaching and practice teaching in teaching methods. In terms of knowledge specifications, it is required to have the theoretical knowledge and application theory foundation of the relevant specialty; In terms of ability specifications, both the ability of combining theory with practice and the ability of self-study are required. In terms of service, it serves regional economic and social development. Therefore, Double-Qualified teachers in local applied colleges and universities should not only have a solid "theoretical foundation" and rich subject knowledge, but also have senior "practical experience" and strong "teaching ability" (Wang Zhiqiang, Xiong Shunshun, Long Zhehai, 2021).

The demand for Double-Qualified teachers in local applied colleges and universities is increasing day by day, and students' requirements for Double-Qualified teachers are getting higher and higher. However, due to the lack of unified identification standards for Double-Qualified teachers, the self-development orientation and development goals of Double-Qualified teachers are not clear, and they cannot be well qualified for their own posts (Xu Bingmei, 2019). Colleges

and universities have been unable to improve the competence of Double-Qualified teachers in a targeted way, and the training efficiency is low. In this paper, the Double-Qualified teachers competency model formed by the transformation plays a guiding and normative role in the development of Double-Qualified teachers and uses empirical methods to investigate the shortcomings and causes of Double-Qualified teacher competency in local applied colleges and universities, which can be more targeted to improve the Double-Qualified teachers' competency (Peng Mingrong, 2016).

According to the relevant provisions of the Measures for the Construction of Double-Qualified teachers in Baise University, Double-Qualified teachers refer to those who become intermediate teachers in our school and have any of the following conditions. Technical title or qualification certificate issued by the state for related work (such as accountant, network engineer, statistician, auditor, economist, etc.).

In the past five years, there are two or more years (can be calculated cumulatively) in the front line of enterprises and institutions engaged in the professional practical work experience, can comprehensively guide students' professional practice and training activities; Or two or more years in the last five years (can be calculated cumulatively) to guide students in professional practice experience (Baise University, 2019).

Therefore, for applied undergraduate colleges, the core of the Double-Qualified standard is practical work ability. Practical work, practical work experience, applied technology research and practical teaching facilities construction are all proofs of teachers' practical work ability (Li Jieliang, Xie Xiaoxue, Zhang Feng, 2019).

The researcher is engaged in education management in Baise University, mainly responsible for the training and identification of Double-Qualified teachers and the construction of teachers. During the actual work, the researchers found that there are three main problems of Double-Qualified teachers:

In terms of teachers' professional quality, Double-Qualified teachers lack a sense of professional identity, their professional knowledge is derailed from the forefront of the industry, and their learning consciousness is not strong.

In terms of teachers' professional practice ability, Double-Qualified teachers have the problems of lack of practical experience in enterprises and lack of practice-oriented horizontal research.

In terms of teachers' teaching ability and accomplishment, Double-Qualified teachers have problems such as insufficient classroom interaction ability, outdated teaching methods, and insufficient combination of theory and practice teaching.

The construction of Double-Qualified teachers and the improvement of teachers' ability are very important for schools as applied universities. The researcher study on the Double-Qualified teachers' ability improvement plan of local applied universities is to provide theoretical support and a replicable realistic model for the construction of Double-Qualified teachers in other local undergraduate universities.

2. Methodology

i) Population and sample

To obtain the sample for this study, the researcher used random sampling technique to extract the study sample. The population was 526, and the Yamane formula (1973) was used to obtain the sample.

Formula

$$n = \frac{N}{1 + Ne^2}$$

The meanings are

- n = sample size
- N = research population size
- e = confidence level (95%)

Then the result of sample size is shown in table 1.

Table 1: Sample size

Baise University Double-Qualified teachers'	Total	Sample size	Sample Method
School leader	26	12	Radom Sampling
Professor	53	25	
Associate professor	127	65	
Assistant professor	320	126	Taro Yamane
Total	526	228	

The researchers selected the double-qualified teachers of Baise university. Among them, there are 26 School leaders, 53 professors, 127 Associate professors and 320 Assistant professors. The university has a total of 526 double-qualified teachers, and according to the Yamane Taro formula, the number of participants is 228.

ii. Data Sources and Collection

Memo to the Faculty of Education Mahasarakham University Issue a letter asking for cooperation in answering the questionnaire asking for the assistance of collecting data from the specified sample group.

The researcher submitted the letter to the Baise Education Office, Baise State to get permission to do research in Baise, Guangxi. After getting the permission letter, the researcher distributed the questionnaire to the participating schools. Finally, the researcher collected questionnaires within four weeks. The researcher is a Double-Qualified teacher, the researcher distributed questionnaire for 228 people.

### iii. Data Manipulation and analysis

a. The suitability of the competencies of double-qualified teachers in local applied universities was analyzed using the SPSS program, which provided the average scores and standard deviations for each component of the teaching competencies.

b. SPSS was utilized to analyze the questionnaire data, yielding the average scores and standard deviations for the current and ideal states of teaching competencies among double-qualified teachers in local applied universities.

c. Based on the calculated average values and standard deviations of teaching competencies for double-qualified teachers in local applied universities, the Modified Priority Needs Index (PNI modified) was employed to assess the results of key priority needs.

## 3. Results

Through an investigation of literature, concepts, theories, and related studies, this research identifies the components and indicators for enhancing the competency of double-qualified teachers in local applied universities. The results indicate that the competency of double-qualified teachers comprises 5 components, as shown in Table 2.

Table 2: The components of the double-qualified teachers in local applied universities

Items	Components of double-qualified teachers
1.	Proper ethics
2.	Practical ability
3.	Teaching ability
4.	Reflection and improvement
5.	Teacher-student relationship

The evaluation results of all components of double-qualified teacher competency in local applied universities have reached the highest level, indicating that the experts unanimously agree that the following 5 items are suitable as components of double-qualified teacher competency and can be used in subsequent questionnaires. This is shown in Table 3.

Table 3: Mean and standard deviation of the components of double-qualified teachers' competencies.

Items	Components of Double-Qualified teachers	$\bar{X}$	STD	Level of Suitability
1.	Proper ethics	4.60	0.49	Very High
2.	Practical ability	4.80	0.45	Very High
3.	Teaching ability	4.80	0.48	Very High
4.	Reflection and improvement	4.60	0.46	Very High
5.	Teacher-student relationship	4.80	0.45	Very High
Total		4.77	0.19	Very High

The survey revealed the mean, standard deviation, current state, desired state, and priority needs index of the competency of double-qualified teachers in local applied universities. Overall, the current state of Double-Qualified teacher competency in these universities is at a medium level. The current state scores high on: 1) Teaching ability , 2) Reflection and improvement, 3)

Teacher-student relationship , and low on Proper ethics . The overall desired state of double-qualified teachers’ ability was at a very high level. In the desired, the highest scores were: 1) Practical ability, 2) Teaching ability, 3) Teacher-student relationship, and the lowest scores were: Reflection and improvement. The results of the researchers’ analysis of the current average and desired average of double-qualified teachers to determine the Improvement Need Index (PNI). The results show that the demands for double-qualified teachers’ ability were as follows: 1) Proper ethics, 2) Practical ability, 3) Teacher-student relationship, 4) Reflection and improvement, 5) Teaching ability. This is shown in Table 4.

Table 4: The results of Current, Desired and PNI of double-qualified teachers

Component and Indicator	Current (n=228)			Desired (n=228)			PNI	Rank
	$\bar{X}$	S.D.	Level of ability	$\bar{X}$	S.D.	Level of ability		
1.Proper ethics	2.69	0.64	Medium	4.85	0.26	Very High	0.80	1
2.Practical ability	2.78	0.70	Medium	4.88	0.34	Very High	0.76	2
3.Teaching ability	2.95	0.61	Medium	4.87	0.35	Very High	0.65	5
4.Reflection and improvement	2.88	0.65	Medium	4.81	0.38	Very High	0.67	4
5.Teacher-student relationship	2.81	0.64	Medium	4.86	0.35	Very High	0.73	3
Total	2.82	0.65	Medium	4.85	0.34	Very High	0.72	/

After determining the direction for enhancing the competency of double-qualified teachers in local applied universities, a training program was developed based on the research findings to improve the competency of these teachers. The training program includes: 1) Principles, 2) Objectives, 3) Contents, 4) Development Processes, and 5) Measurement and Evaluation. As shown in Figure 1.

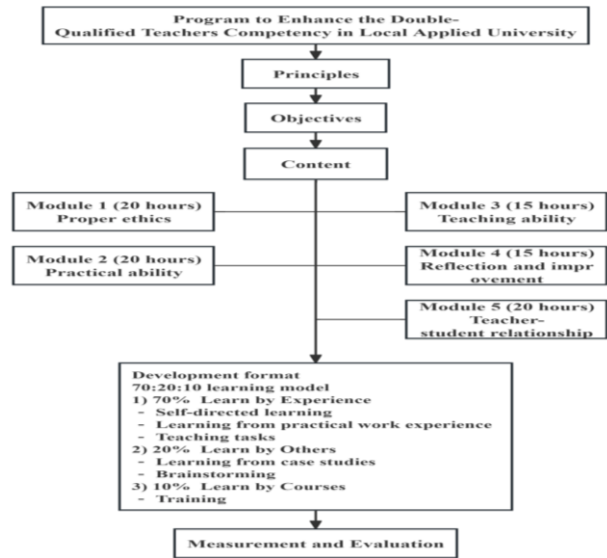


Figure 1: Program for Enhance Capacity of Double-Qualified Teachers in Local Applied Universities

Finally, 5 experts were invited to evaluate the suitability and feasibility of the training program. The evaluation results were very high. As shown in Table 5.

Table 5: Suitability and feasibility of the program to enhance Dual-Qualified teacher competency

Evaluation List	Suitability			Feasibility		
	$\bar{X}$	SD.	Interpret	$\bar{X}$	SD.	Interpret
1. Principles	4.75	0.41	Very High	4.82	0.33	Very High
2. Objectives	4.68	0.34	Very High	4.65	0.41	Very High
3. Contents						
3.1 Module 1: Proper ethics	4.62	0.52	Very High	4.81	0.34	Very High
3.2 Module 2: Practical ability	4.81	0.43	Very High	4.73	0.34	Very High
3.3 Module 3: Teaching ability	4.71	0.44	Very High	4.76	0.42	Very High
3.4 Module 4: Reflection and Improvement	4.74	0.38	Very High	4.71	0.35	Very High
3.5 Module 5: Teacher-student relationship	4.83	0.35	Very High	4.74	0.43	Very High
4. Development Processes						
4.1 Self-directed learning	4.76	0.45	Very High	4.68	0.38	Very High
4.2 Training	4.69	0.51	Very High	4.75	0.45	Very High
4.3 Learning from case studies	4.77	0.42	Very High	4.69	0.51	Very High
4.4 Brainstorming	4.73	0.45	Very High	4.83	0.36	Very High
4.5 Learning from practical work experience	4.82	0.37	Very High	4.77	0.42	Very High
4.6 Teaching tasks	4.65	0.47	Very High	4.75	0.38	Very High
5. Measurement and Evaluation						
5.1 Pre-development assessment	4.64	0.36	Very High	4.84	0.41	Very High
5.2 Mid-development assessment	4.72	0.42	Very High	4.68	0.45	Very High
5.3 post-development assessment	4.66	0.43	Very High	4.73	0.37	Very High
Total	4.72	0.42	Very High	4.75	0.40	Very High

From Table 5, the program designed to enhance the competency of double-qualified teachers in local applied universities has achieved the highest levels of suitability and feasibility. Specifically, it includes the following aspects: 1) Principles, 2) Objectives, 3) Contents, 4) Development Processes, and 5) Measurement and Evaluation. Overall, the program is highly suitable for promoting the improvement of double-qualified teacher competency in local applied universities. The average scores for suitability and feasibility are 4.72 and 4.75, respectively, both of which are at very high levels.

#### 4. Discussion

The research results indicate that the competency of double-qualified teachers at local applied universities is at a medium level. However, respondents expressed the highest satisfaction with the desired state of double-qualified teacher competencies. While there is relative agreement among respondents on the components of double-qualified teacher competencies, there are slight

variations in priorities. The top three areas identified for improvement are: i) Proper ethics; ii) Practical ability; iii) Teacher-student relationship.

To enhance the competency of double-qualified teachers at local applied universities, the following recommendations are proposed:

a) It is suggested that local applied universities comprehensively improve the competency of double-qualified teachers. This includes focusing on i) Proper Ethics, ii) Practical ability, iii) Teaching ability, iv) Reflection and improvement, v) Teacher-student relationship, ensuring that each aspect is thoroughly addressed and developed.

b) The program for enhancing double-qualified teacher competency at local applied universities is generally very suitable. This program covers not only the basic aspects but also includes objectives, development activities, development processes, and evaluations. Therefore, double-qualified teachers should utilize this program to enhance their individual competencies. The program may need to be tailored to fit the specific context of each school.

c) School administrators should recognize the importance of double-qualified teacher competencies and provide effective training for university teachers.

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