



A Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang

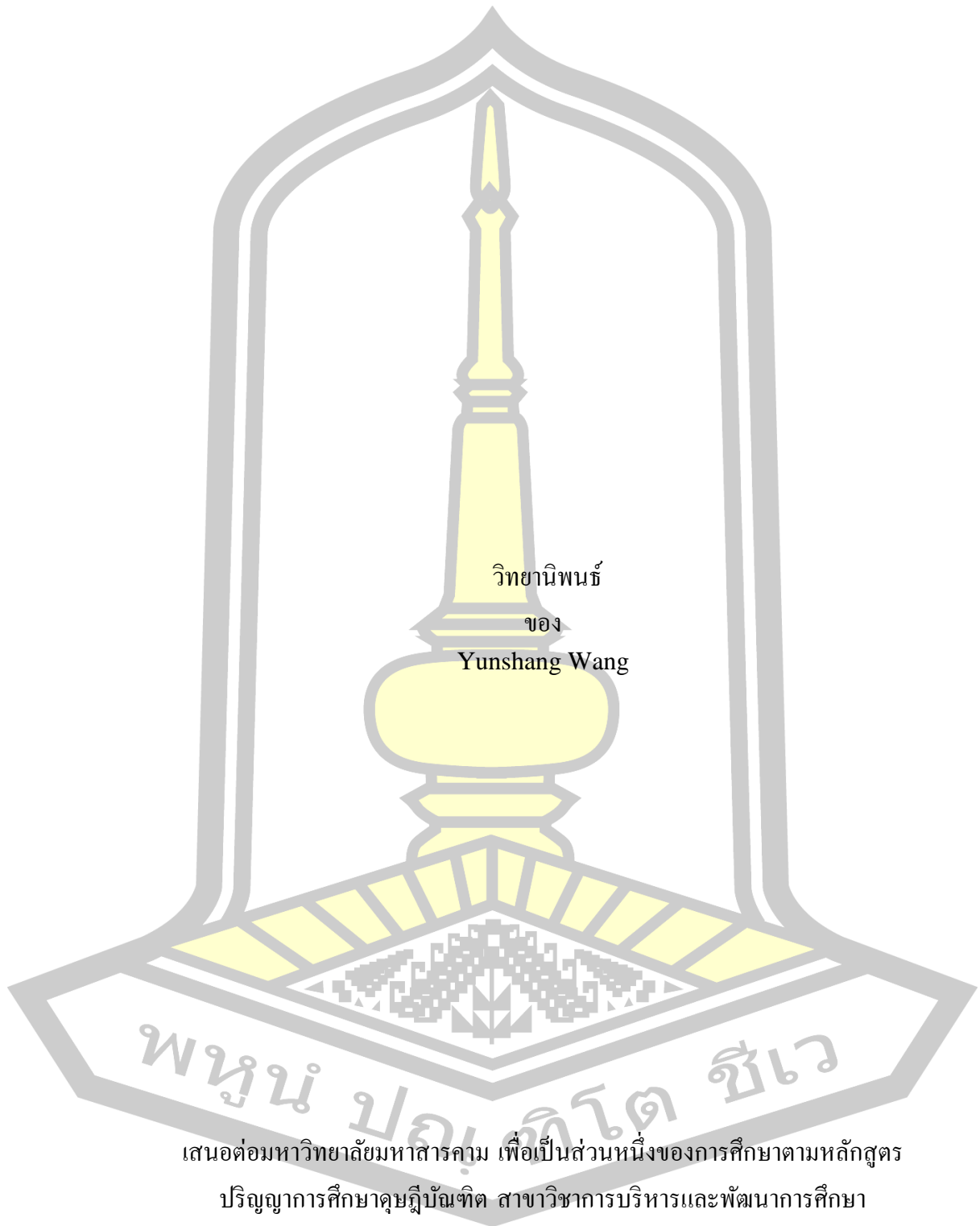
Yunshang Wang

A Thesis Submitted in Partial Fulfillment of Requirements for
degree of Doctor of Education in Educational Administration and Development

April 2025

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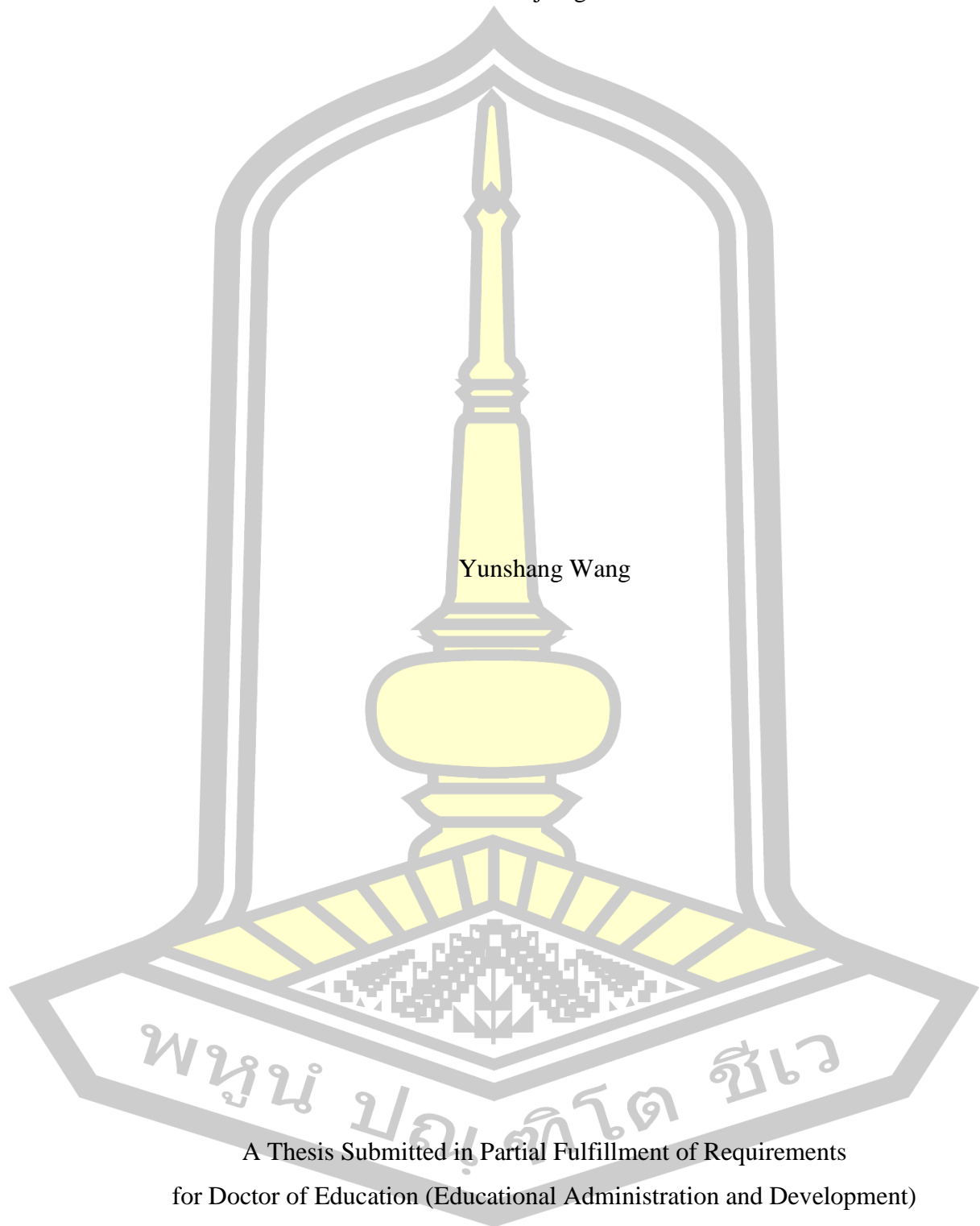
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A Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in
Zhejiang



Yunshang Wang

A Thesis Submitted in Partial Fulfillment of Requirements
for Doctor of Education (Educational Administration and Development)

April 2025

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ABSTRACT

This study aims to: 1) investigate the components of competence of art teachers in higher vocational colleges in Zhejiang; 2) explore the existent state, desired state, and priority needs of competence of art teachers in higher vocational colleges in Zhejiang; 3) develop a program to enhance competence of art teachers in higher vocational colleges in Zhejiang. The research was divided into three phases:

Phase 1): Investigating the components of competence of art teachers in higher vocational colleges in Zhejiang, and confirming the suitability of these components with 5 experts.

Phase 2): Exploring the existent state, desired state, and priority needs of competence of art teachers in higher vocational colleges in Zhejiang. The sample group for this phase included 5 higher vocational colleges in Zhejiang Province, with a total of 275 persons.

Phase 3): Developing a program to enhance competence of art teachers in higher vocational colleges in Zhejiang. This phase included in-depth interviews with 5 experts to study the principles and methods for developing art teachers competence, as well as evaluating the suitability and feasibility of the program. Research instrument included interview forms, questionnaires, and assessment forms. The statistical methods used in the research included percentage, mean, standard deviation, and content analysis.

The research findings are as follows:

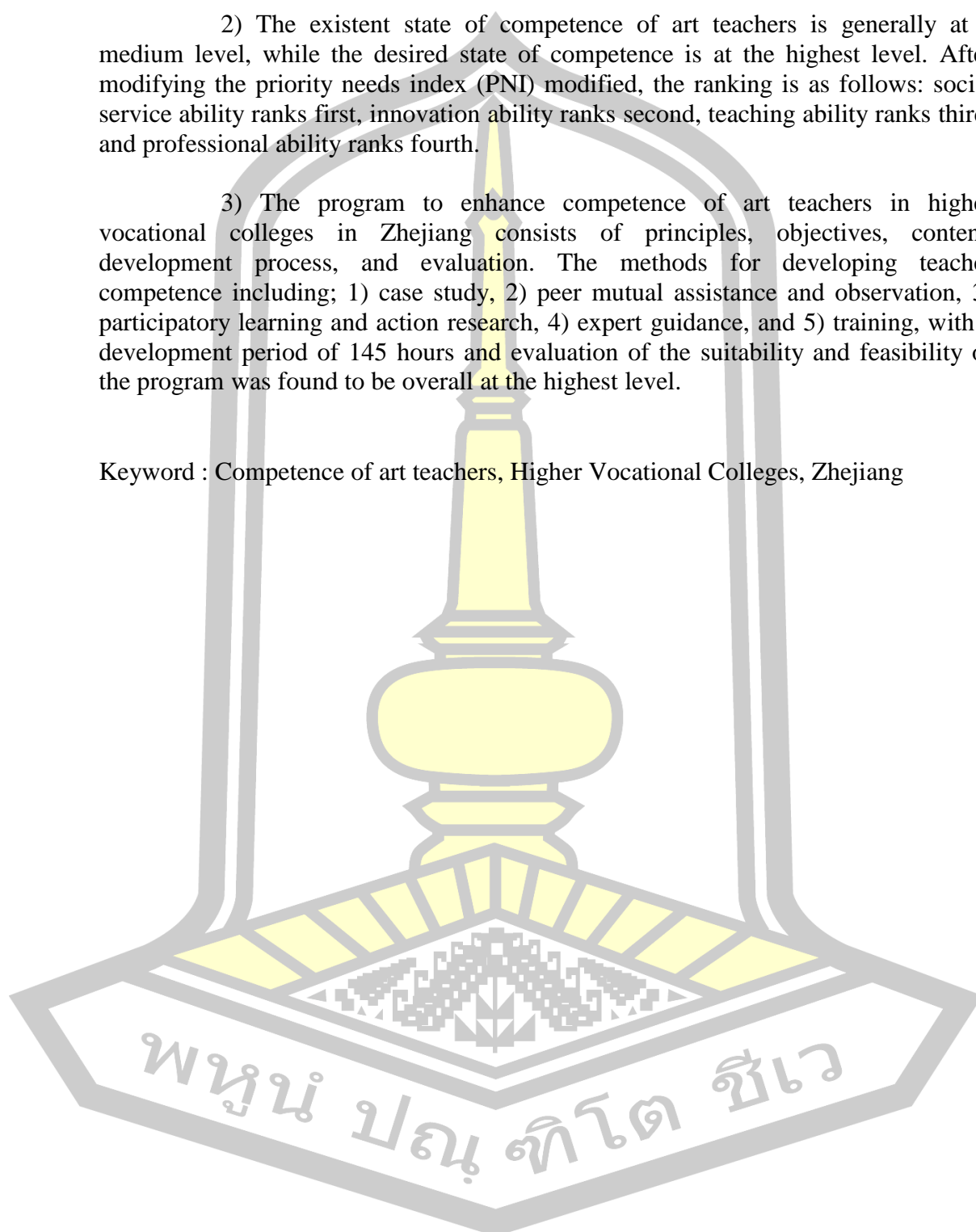
1) There are 4 components of competence of art teachers in higher vocational colleges in Zhejiang including; 1) Teaching ability, 2) Innovation ability, 3) Social service ability, 4) Professional ability, and those of which are overall at the

highest of applicability.

2) The existent state of competence of art teachers is generally at a medium level, while the desired state of competence is at the highest level. After modifying the priority needs index (PNI) modified, the ranking is as follows: social service ability ranks first, innovation ability ranks second, teaching ability ranks third, and professional ability ranks fourth.

3) The program to enhance competence of art teachers in higher vocational colleges in Zhejiang consists of principles, objectives, content, development process, and evaluation. The methods for developing teacher competence including; 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training, with a development period of 145 hours and evaluation of the suitability and feasibility of the program was found to be overall at the highest level.

Keyword : Competence of art teachers, Higher Vocational Colleges, Zhejiang



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The value and benefits of this thesis are dedicated to my father, mother, and all the teachers who have imparted wisdom and moral guidance, helping me to achieve success in life.

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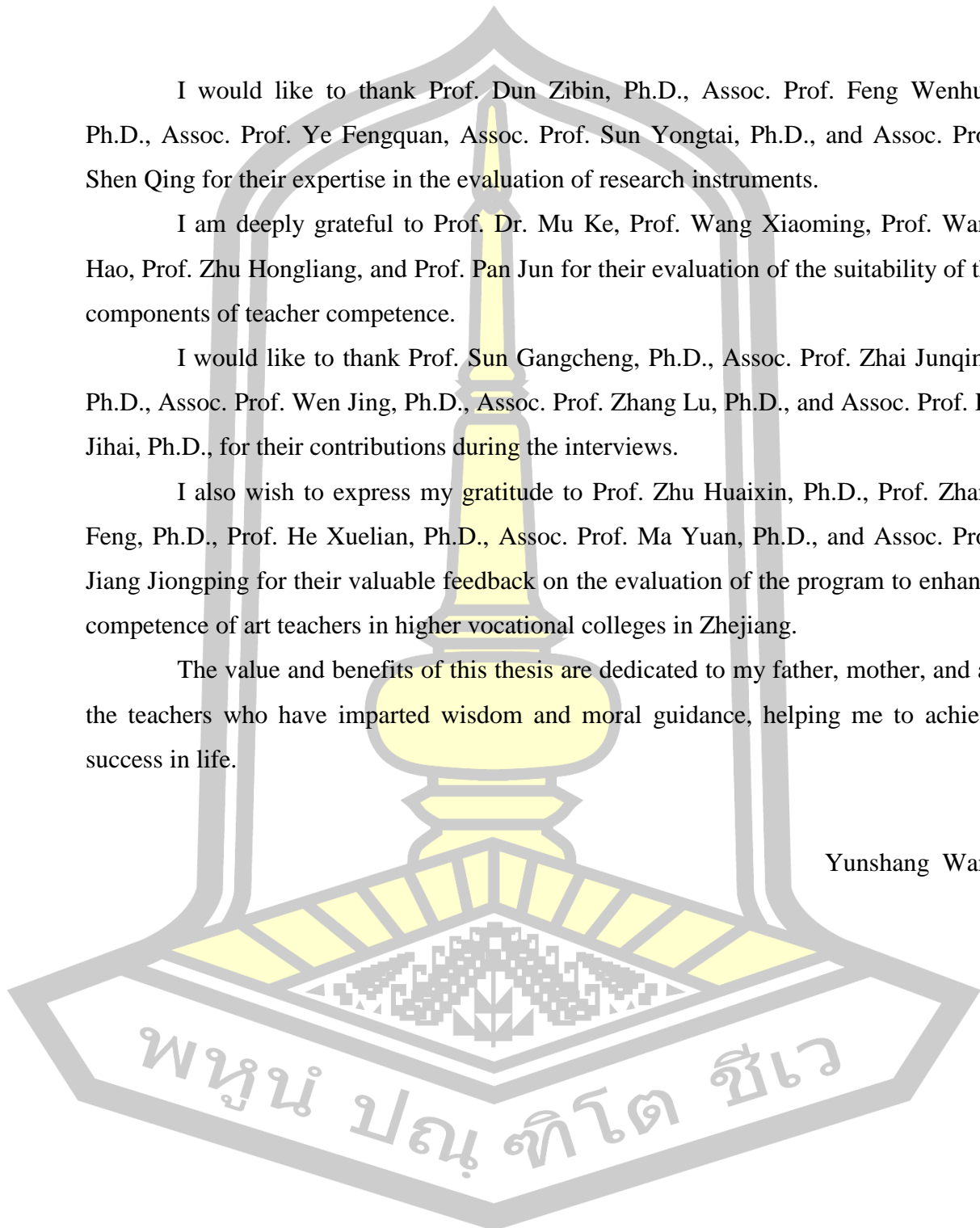


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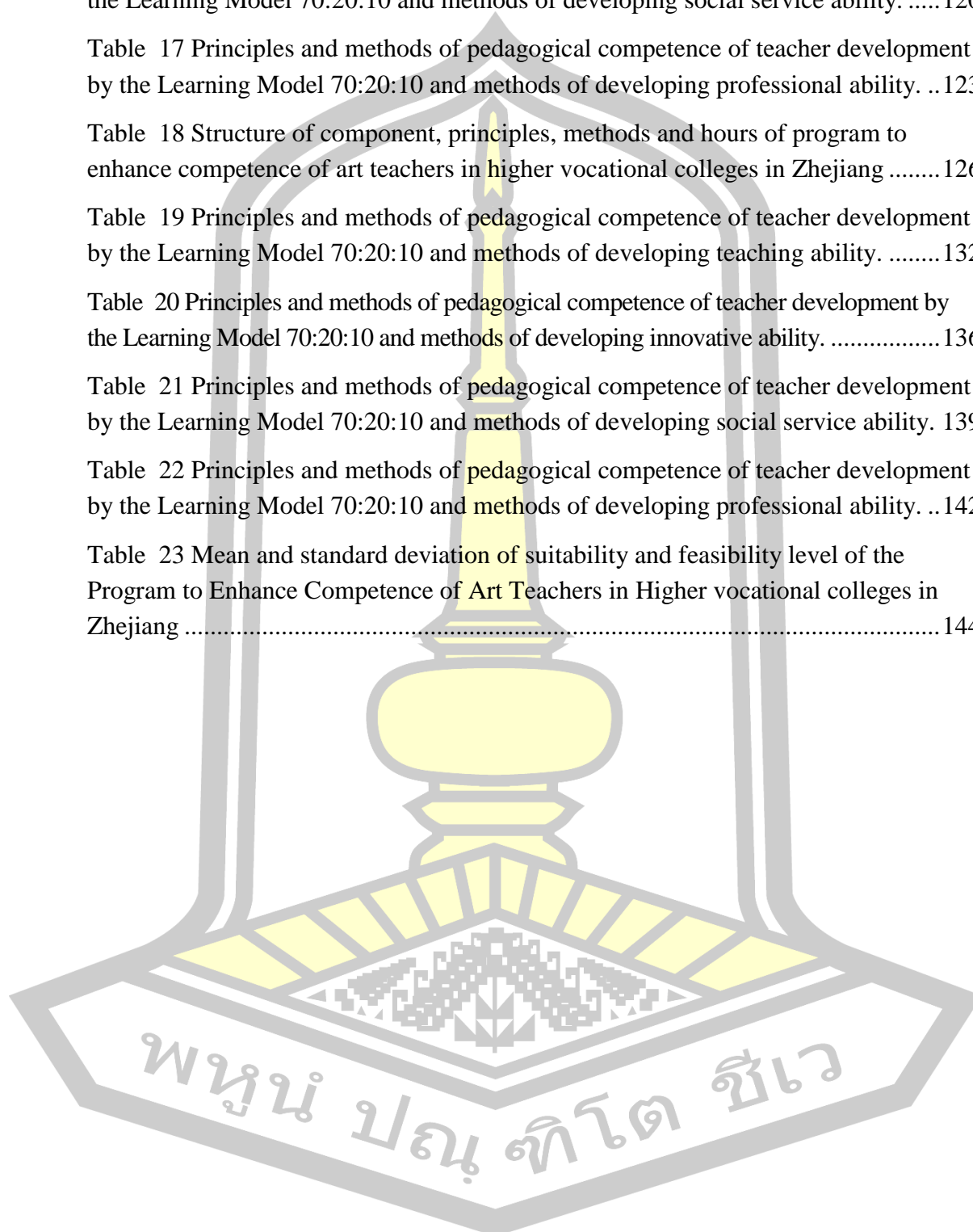
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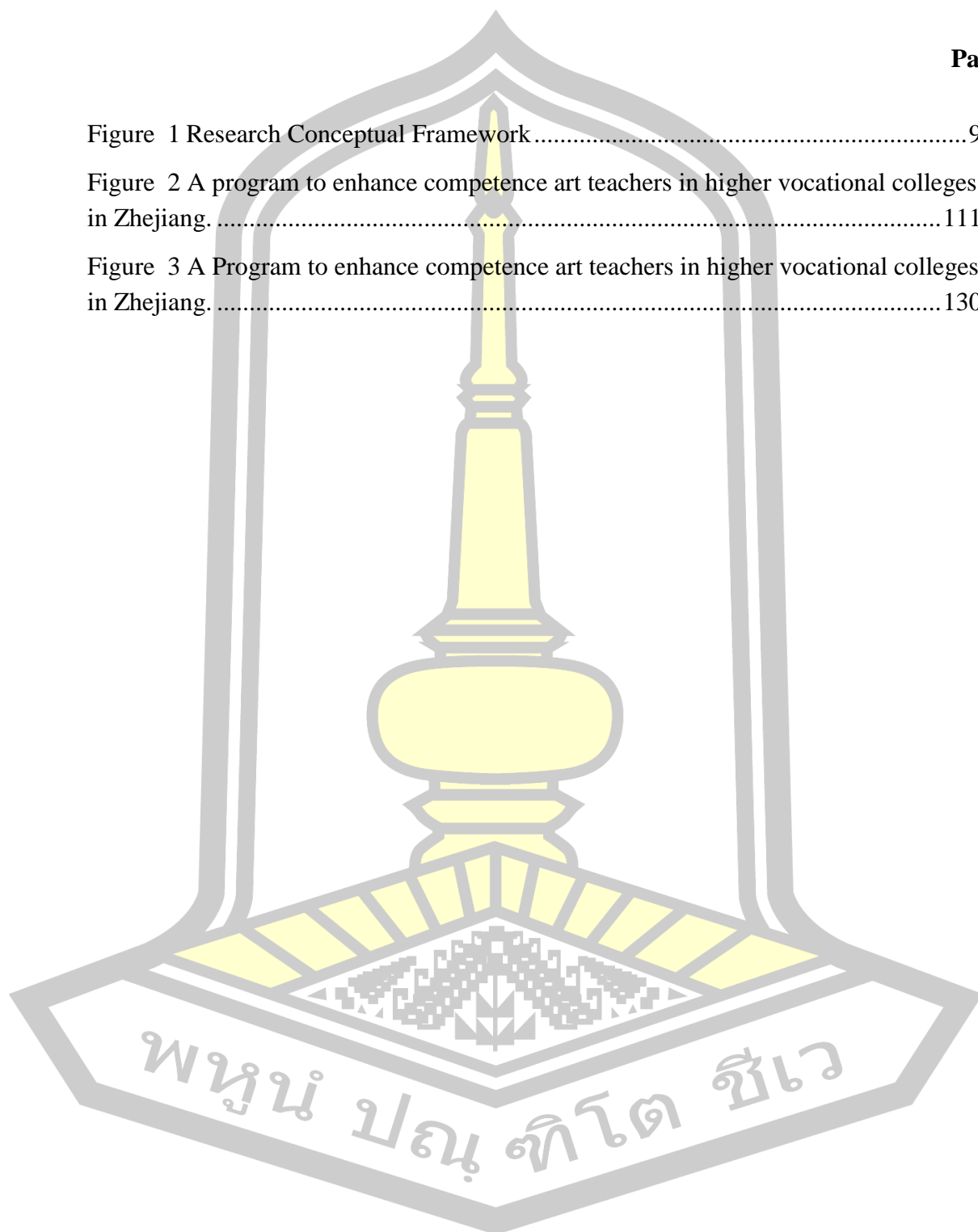
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CHAPTER I

INTRODUCTION

Background

China in the new era is under rapid development, especially in the field of education, and higher education, as the vanguard of the country's development, undertakes the important responsibility of promoting social progress and cultural inheritance. Teachers in higher education are entrusted with significant social responsibilities in this process, and are the core force in promoting the high-quality development of education. The report of the 20th National Congress of the Communist Party of China (CPC), which was held in China in 2022, planned the path of building a modern socialist country in a comprehensive manner, made important arrangements for the construction of a strong educational, scientific and technological, and human resources country, and regarded teachers as the first resource for the promotion of high-quality development of education, the key support for scientific and technological self-reliance, and an important guarantee for the cultivation of human resources, pointing out that the implementation of the 20th National Congress of the CPC requires the following It was pointed out that the implementation of the spirit of the Twentieth Party Congress required the creation of a high-quality teaching force for the new era, and that this was one of the effective ways to achieve the goal of modernising education in 2035. A series of policies have also been introduced for the development of China's higher vocational colleges and universities, proposing that the construction of a high-level dual-teacher team is an important task for high-level higher vocational colleges and universities and professions with Chinese characteristics. For the important position of vocational education in the national education system, it puts forward higher requirements for the high-quality development of higher vocational education, as well as higher requirements for higher vocational teachers. (National Vocational Education Reform Implementation Programme 2019 and National Vocational College Teachers' Teaching Innovation Team Construction Programme 2022).

For the professional development of art teachers, China has also introduced a series of policies and requirements.²⁰²³ In order to further study and implement the 20th Spirit of the Party, further strengthen the work of aesthetic education in schools, and reinforce the educational function of aesthetic education in schools, China's Ministry of Education decided to comprehensively implement the Campaign for the Penetration of Aesthetic Education in Schools. The Regulations allow aesthetic education to permeate students and teachers. By 2027, the teaching quality of aesthetic education programmes will be comprehensively improved, and professional training for key art teachers will be widely conducted. Monitoring of the quality and competence of art teachers will be carried out to improve their teaching ability and professional competence. It can be seen that in the era of flourishing aesthetic education, the professional development of art teachers will be a very important research topic. As the country continues to pay attention to aesthetic education and higher vocational education, art teachers are shouldering greater responsibility and mission. How to improve the professional development ability of art teachers to build a team of higher vocational teachers with high morality and high teaching ability has become a key part of the overall quality improvement of higher education.

Art education in higher vocational colleges and universities has the important responsibility and function of inheriting and developing excellent culture, and it is also an important base for China to cultivate art talents with innovative spirit and practical ability. With the development of social era and the change of art patterns, art education in higher vocational colleges and universities is facing new challenges and opportunities. In order to adapt to the innovative development trend of art education in higher vocational colleges and universities, art teachers in higher vocational colleges and universities need to continuously improve their professional quality to meet the new requirements of the flourishing development of cultural industry for the cultivation of specialised art talents. As the 13th independent academic discipline in 2011, the history of development of art is still short, and the professional education system of art has not yet been fully deepened in the field of higher vocational colleges and universities, and there is still insufficient understanding of its function and status, which makes the degree of attention to art education in higher vocational colleges and universities and the effect is not satisfactory. Art education is in a disadvantaged

position in the education policy environment of higher vocational colleges and universities, and the overall development of art teachers in higher vocational colleges and universities lacks sufficient support in actual construction, which affects the introduction and retention of strong talents, leading to the shortage of the total number of teachers, the lack of the ratio of students to teachers, the insufficiency of teachers with senior titles and high academic qualifications, and the problems of high mobility and poor stability of the team, and the schools tend to ‘focus on using, not on cultivating’ the art teachers. Schools tend to ‘focus on the use but not on the cultivation’ of art teachers, and these limitations have a negative impact on the professional development of art teachers in higher vocational education, further inhibiting the sustainability and effectiveness of art teacher development. At the same time, in view of the urgent need for the rapid development of the domestic cultural industry, art education has become more and more popular, and both professional art colleges and universities have continued to expand their art programmes year by year. However, the expansion of the scale of art education and the improvement of quality have not been synchronised, coupled with the rising cost of education, which has led to a certain degree of decline in the quality of education. In this process, the marketisation and industrialisation of art education in higher vocational colleges and universities has become increasingly obvious, which poses a challenge to their social reputation. In the face of the above challenges and development bottlenecks, the establishment of a high-quality and high-level art teacher team is the fundamental guarantee for art education in higher vocational colleges to cultivate excellent art talents, carry out artistic creation, academic research and serve the social and cultural industries, and achieve innovative development. At the same time, the promotion of art teachers in colleges and universities to enrich the professional qualities needed in the workplace is a booster for the upward mobility of talents, especially in the era of lifelong learning, and will play an important role in promoting the development and improvement of the quality of art education in higher education.

With the increasing emphasis on art education in Zhejiang Province, the role of art education in cultivating students' creative ability and aesthetic literacy is more and more prominent, which puts forward higher requirements for art teachers in higher vocational colleges and universities. At present, art teachers in Zhejiang higher

vocational colleges and universities not only need to have solid professional knowledge and skills, but also need to improve educational literacy, teaching ability, social service ability and other competences, in order to adapt to the needs of the local economic and cultural development, and to cultivate high-quality talents with the spirit of innovation and practical ability.

The development of art education in Zhejiang's higher vocational colleges and universities faces some challenges, such as weak faculty, insufficiently clear paths for teachers' professional development, and limited teaching resources, all of which urgently need to be tackled and solved through the enhancement of teachers' competence. In Zhejiang higher vocational colleges and universities, intrinsic drive is the core motivation for the improvement of teachers' professional competence. However, because the art discipline is a niche discipline, it has not been given much attention for a long time, which has led to a series of dilemmas in the professional development of art teachers, such as the lack of a more mature professional enhancement pathway, and the relative weakness of teacher training and scientific research. Art teachers lack clear career planning and goals, internal drive for professional development, and government policy support and professional training opportunities. Against the background of this combination of internal and external drives, the need to improve the professional competence of art teachers in higher vocational colleges and universities in Zhejiang is particularly urgent and important. Education departments and higher vocational colleges in Zhejiang Province should increase their efforts to train art teachers and provide more learning and development opportunities. Only by continuously improving the professional competence of teachers and cultivating high-quality talents with innovative ability and cultural literacy can we promote the healthy development of local art education. Therefore, art teachers in higher vocational colleges and universities in Zhejiang need to continuously improve their professional competence with a high sense of professional responsibility and mission, adapt to the new requirements of educational reform and development, and contribute to the realisation of high-quality art education.

Research Questions

1. What are the components of competence of art teachers in Zhejiang higher vocational colleges?
2. Which level are the existent state, desired state, and priority needs of competence of art teachers in higher vocational colleges in Zhejiang?
3. What kind of a Programme to enhance competence of art teachers in higher vocational colleges in Zhejiang is like?

Research Objectives

1. To investigate the components of competence of art teachers in higher vocational colleges in Zhejiang.
2. To explore existent state and desired state and priority needs of competence of art teachers in higher vocational colleges in Zhejiang.
3. To develop a Program to enhance competence of art teachers in higher vocational colleges.

Research Significances

1. The results of this study are particularly helpful in improving competence of art teachers. That shows how to improve teacher competence put forward more possibilities, which provide opportunities and challenges to art teachers, at the same time, to improve art teachers professional development program, to improve competence of art teachers to better achieve the education goals.
2. This study aims at improve the ability of higher vocational art teachers, which is a very urgent and important work to better serve the professional development of higher vocational teachers, improve the ability of higher vocational teachers and realize the high-quality development of higher vocational education. This research is based on the developmental evaluation concept, build the higher vocational colleges art teachers ability evaluation index system, established the art teachers in higher vocational colleges, to improve the higher vocational college art teachers ability evaluation theory and evaluation method has important theoretical significance, to promote higher vocational teachers ability, has important practical significance.

Scope of Research

1.Scope of contents

1.1 Components of higher vocational art teachers competence consist of 4 aspects including:

- 1.1.1 Teaching ability
- 1.1.2 Innovation ability
- 1.1.3 Social service ability
- 1.1.4 Professional ability

1.2 Principles and methods of teachers development are 3 important learning principles including:

1.2.1 70% experiential learning : Development methods include participatory learning and action research and expert guidance.

1.2.2 20% Learning from others: Development methods include case study and peer mutual assistance and observation.

1.2.3 10% learning through formal curriculum, Development methods include training.

1.3 Components of the program include:

- 1.3.1 Principles
- 1.3.2 Objectives
- 1.3.3 Content
- 1.3.4 Development process
- 1.3.5 Evaluation

1.4 The procedures of the program Development to enhance teachers competences with the following steps;

- 1.4.1 Study the need to develop the program.
- 1.4.2 Study the existent state and desired state for the development of the competence of higher vocational art teachers
- 1.4.3 Developing program.
- 1.4.4 Evaluate the suitability and feasibility of the program.

2. Scope of population and sample

Phase 1: The study of components of the competences of art teachers in higher vocational colleges.

There are assessments of the confirmations from five experts, including academicians, educators, and educational administrators.

Phase 2: The existent state, desired state, and prioritised needs of competence of art teachers in higher vocational colleges in Zhejiang.

1) The population consists of art teachers from higher vocational colleges in Zhejiang province with a total of 37 higher vocational colleges in Zhejiang Province with a total of 885 Art Teachers.

2) The sample group in this study consists of art teachers from higher vocational colleges in Zhejiang. Selected based on the criteria of the number of art teachers, geographic location, and institutional level. These institutions include Zhejiang Vocational Academy of Art, Jinhua Vocational and Technical University, Wenzhou Polytechnic, Hangzhou Vocational & Technical College, and Ningbo Polytechnic, with a total of 275 art teachers.

Phase 3: The development of a program to improve competence of art teachers in higher vocational colleges in Zhejiang Province.

1) 5 experts consisting of academics, educators, and educational administrators. Provide the principles and methods of improving art teacher competence through in-depth interviews.

2) 5 experts consisting of academics, educators, and educational administrators evaluate the appropriateness and feasibility of the program to art teacher's competence.

Conceptual Framework

1. Conceptual framework for the components of Art Teachers Competences

The study and synthesis of documents by academicians, including Song Jie, Zhang Tingting, Wang Dan (2016); Liu Jingyi, Wu Xiulin (2022); Li Donglan (2013); Wang Qiang, Lv Yang (2022); Xu Weiming, Deng Guoqiong, Jiang Ruijie (2023); Liu Guangping (2017); Wu Haibin, Zhang Zhuo (2016); Wang Qiang (2021); and Pan Zhuochao (2018), summarized the competences of art teachers in higher vocational colleges and universities into four key aspects: 1) Teaching ability, 2) Innovation ability, 3) Social service ability, 4) Professional ability.

2. The principle to Improve the competence of higher vocational art teachers :

The study and synthesis of documents from academicians and educators elaborate on the concept of 70:20:10 learning. Robert W. Eichinger and Michael M. Lombardo (2000); Peter Senge (2018); Robert Cain (2019); Joanna Parsons (2022); Emily Collins (2021); James MacDonald (2023); and Eichinger and Lombardo (2011) discuss its application. This model consists of three important learning principles: 1) 70% learning from experience, 2) 20% learning from others, and 3) 10% learning through formal curriculum.

3.Methods of teacher development

The study, conceptualized from Shulman (1986); Mishra and Koehler (2005); Kazemier Elles M. (2021), allows the researcher to conclude that the principles used to improve competence of art teachers come in five forms: 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training.

4. Process of developing a program to enhance competence of art teachers

The researcher studied documents from Darling-Hammond (2017); Guskey (2000); Timperley et al. (2007); Gu Lingyuan (2010); Wang Qiang (2018); Zhu Xudong (2015); Shulman (1986); Mishra and Koehler (2005); Fullan (2001); Kirkpatrick (1994) and concluded that processes of the development of program are 3 steps:1) studying the components, and guidelines for capacity building, 2) creating and developing the program, and 3) evaluation of program.

5. Components of program to enhance competence of art teachers

The researcher studied documents from Gagné (1985), Richey & Klein (2014), Taylor (1942), Stufflebeam (1976), Molenda (2003), Brown (2009), Hughes, Ginnett, and Curphy (2009).In conclusion, the program has the following elements : 1) Principles 2) Objectives 3) Content 4) Development process 5) Evaluation.

The researcher conducted a study and summarized it into a conceptual framework.as shown in Figure 1:

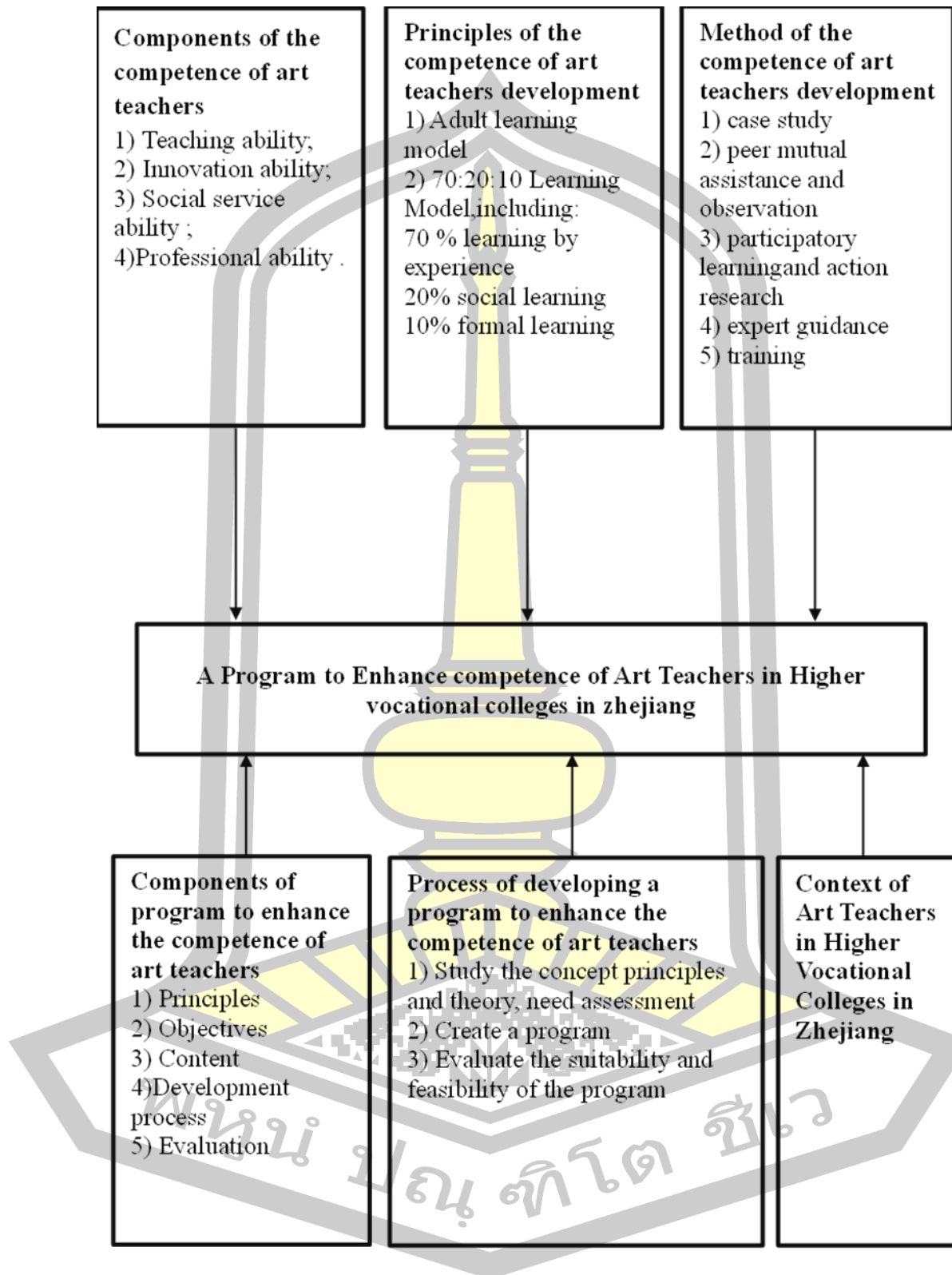


Figure 1 Research Conceptual Framework

Definition of terms

1. Art teacher competence refers to the comprehensive ability and professionalism of art teachers in their teaching practice, covering teaching ability, creativity, professionalism and social service. Together, these components form the core of art teacher competence, enabling them to perform all kinds of art education and teaching tasks, and promoting the overall development of students' artistic literacy and creativity. which has 4 components:

1.1 Teaching ability refers to competence of art teachers in higher vocational education to scientifically design and effectively implement teaching activities based on educational objectives and student needs. It includes a solid theoretical foundation and practical teaching skills, classroom management ability, the capability to utilize information technology to enhance teaching effectiveness, and continuous reflection and improvement of teaching practices. Additionally, teaching ability encompasses possessing correct values, a positive professional attitude, and strong professional ethics. Teachers should lead by example, guide students in establishing the right professional outlook, and inspire their learning enthusiasm and practical abilities.

1.2 Innovative ability refers to competence of art teachers to value academic research skills, regularly write or publish academic papers, apply for research projects in the field of teaching or academia, and apply for patents for the translational application of their academic achievements. It also includes having a creative mind, being good at coming up with new ideas and approaches in work and artistic creation, developing students' innovative thinking, guiding students to apply innovative thinking in their learning, developing new teaching methods, and being courageous in making teaching reforms.

1.3 Social service ability refers to the capacity of art teachers to collaborate with industries, enterprises, and the broader community to provide professional services. This includes working with companies on curriculum development and instructional design, regularly declaring corporate research projects, conducting research visits to companies, undertaking and completing university-enterprise cooperation projects, providing professional consulting and diagnostic services to companies, participating in R&D or management innovation projects,

actively engaging in corporate training to help companies develop talent, conducting regular training for the community, and participating in and contributing to educational and cultural activities in the community.

1.4 Professional ability refers to the expertise, practical skills, and continuous learning capacity of art teachers in the field of arts. This includes having a high level of professional research interest in the arts, possessing high general artistic qualities, having expertise in an artistic discipline, maintaining practical skills in the arts, consistently engaging in creative artistic work outside of teaching, actively participating in competitions or exhibitions in their field of artistic specialization, demonstrating a high level of concentration and artistic insight, regularly participating in academic exchange activities organized by industry associations, proactively seeking out opportunities for professional learning and exchange training, keeping up with the latest knowledge in their profession, and regularly discussing academic professional issues with colleagues.

2. A program to enhance the competence of art teachers in higher vocational colleges in Zhejiang refers to a set of modules related to enhance teaching ability, professional ability, innovation ability and social service ability of art teachers in higher vocational colleges and universities in Zhejiang Province in order to achieve art teacher competence enhancement. The elements of the programme include principles, objectives, content, development process and evaluation.

3. Existent state refers to the level of action in the current situation that shows the need of enhancement of competence of art teachers for vocational colleges in Zhejiang.

4. Desired state refers to refers to the level of expectations of enhancement of competence of art teachers for vocational colleges in Zhejiang.

5. Priority needs refer to the order of priority in the development needs for enhancing competence of art teachers in higher vocational colleges in Zhejiang.

6. Principle of Art Teacher Development refers to the 70:20:10 principle, an empirical model for adult learning and professional development, which emphasizes that 70% of learning comes from experiential learning, 20% from learning from others, and 10% from learning through the curriculum. This principle is widely applied in organizational learning and career development, aiming to promote

personal skill development and career growth through the integration of experiential, social, and formal learning. In this study, the 70:20:10 principle will be used to guide the enhancement of art teachers' competencies, optimizing their professional development paths through experiential learning (case study, participatory learning and action research), social learning (peer mutual assistance and observation and expert guidance), and formal learning (training), thereby improving their competence. The following sections will detail the methods for implementing this principle.

6.1 Case Study refers to analyzing specific teaching and art creation cases to help teachers improve their teaching ability, innovation ability, and professional ability.

6.2 Participatory Learning and Action Research refers to actively participating in teaching, innovation research, art creation, and social service projects, which helps teachers strengthen their teaching ability, innovation ability, and social service ability, particularly in addressing practical teaching and art creation problems.

6.3 Peer Mutual Assistance and Observation refers to mutual assistance and observation among teachers, promoting the improvement of their teaching ability, innovation ability, and social service ability, especially through communication and feedback, enhancing art teachers' competencies.

6.4 Expert Guidance refers to the targeted advice and feedback provided by experts, helping teachers improve their teaching ability, innovation ability, and professional ability in art creation and professional fields.

6.5 Training refers to systematic training that provides teachers with opportunities to enhance their teaching ability, innovation ability, and professional ability, especially in professional knowledge, teaching methods, and social service.

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CHAPTER II

LITERATURE REVIEW

The researcher examined the literature available in both books and research studies related to the enhancement program for improving competence of art teachers in Zhejiang Province and presented the following themes:

1. Competence of Art Teachers
 - 1.1 Definition of competence of art teachers
 - 1.2 Theoretical Concepts of competence of art teachers
 - 1.3 Component of the Competence of Art Teacher
2. Concept and Theory's of Art Teacher Development
 - 2.1 Adult Learning model
 - 2.2 Definition of Art Teacher Development
 - 2.3 Principle of Art Teacher Developmet
 - 2.4 Methods to Art Teacher Developmet
3. Concept and Theory' s of Program and Program development
 - 3.1 Definition of the program
 - 3.2 Developing program
 - 3.3 Components of program to enhance competence of teacher
 - 3.4 Evaluation of program effectiveness
4. Development Background of Zhejiang Higher Vocational Colleges
 - 4.1 Definition of Higher Vocational Colleges
 - 4.2 The Background of Zhejiang Higher Vocational Colleges
 - 4.3 Background of Art Programs and Faculty in Zhejiang Higher Vocational Colleges
5. Related research
 - 5.1 Domestic research
 - 5.2 Foreign research

Competence of Art Teachers

1. Definition of competence of art teachers

Eisner (2002) pointed out that competence of art teachers not only includes the mastery of artistic skills but also involves the cultivation of students' creativity, aesthetic ability, and critical thinking. He emphasized that art teachers should possess the ability to integrate art with other disciplines to promote students' holistic development.

Burton (2001) argued that competence of art teachers is reflected in their deep understanding of art education and their keen insight into students' individual differences. She proposed that art teachers should be able to design diverse teaching strategies based on students' backgrounds and needs to support their personalized development.

Parsons (2004) stated that competence of art teachers includes a profound understanding of art history, art theory, and art criticism. He believed that art teachers should be able to integrate these theoretical knowledge into teaching to help students develop critical thinking and art appreciation skills.

Zimmerman (2009) emphasized that competence of art teachers should also include the mastery of technical skills, especially in the application of digital art and multimedia art. She suggested that modern art teachers need to adapt to technological trends and incorporate new technologies into art education.

Li Lijia (2010) proposed that competence of art teachers not only encompasses artistic skills and teaching abilities but also requires a deep understanding of students' psychological development. He believed that art teachers should be able to promote students' emotional expression and mental health through art education.

In summary, competence of art teachers is a comprehensive concept that includes artistic skills, creativity cultivation, aesthetic education, interdisciplinary integration, insight into students' individual differences, deep understanding of art theory and history, application of technical skills, and attention to students' psychological development. Art teachers need to continuously improve their abilities in these areas to meet the diverse demands of modern art education.

2. Theoretical Concepts of competence of art teachers

Gardner (1999) pointed out that the Theoretical Concepts of competence of art teachers should be based on the theory of multiple intelligences, emphasizing the unique role of art education in developing students' multiple intelligences (such as spatial, musical, and bodily-kinesthetic intelligences). He argued that the theoretical framework for art teachers needs to incorporate the theory of multiple intelligences to design diverse teaching strategies that meet students' varied learning needs.

Freedman (2003) suggested that the Theoretical Concepts of competence of art teachers should include a deep understanding of visual culture. She proposed that the theoretical framework for art teachers needs to address the influence of contemporary visual culture, helping students critically analyze and level visual information while developing their visual literacy.

Hetland et al. (2007) stated that the Theoretical Concepts of competence of art teachers should be grounded in the "Studio Thinking" framework, emphasizing cognitive processes and practical skills in art learning. They argued that the theoretical framework for art teachers needs to integrate core artistic practices such as observation, exploration, expression, and reflection to support students' deep learning.

Duncum (2010) emphasized that the Theoretical Concepts of competence of art teachers should incorporate a multimodal learning perspective, especially in digital media and interdisciplinary art education. He proposed that the theoretical framework for art teachers needs to combine multimodal learning theory to help students express themselves through various media (such as visual, auditory, and tactile).

Anderson and Milbrandt (2005) proposed that the Theoretical Concepts of competence of art teachers should include a social justice education perspective. They argued that the theoretical framework for art teachers needs to address social justice issues, promoting students' social awareness and critical engagement through art education.

Runco (2014) pointed out that the Theoretical Concepts of competence of art teachers should specifically focus on fostering creative thinking. He argued that the theoretical framework for art teachers needs to incorporate theories of creative thinking (such as divergent and convergent thinking) and use open-ended questions,

brainstorming, and creative tasks to help students develop problem-solving skills through creativity.

Bisschoff (1998) referred to a two-dimensional model of teacher competences, including organizational leadership, collaboration, pedagogical foundations, productivity, discipline, reflection, and professional commitment. This model provides a foundational understanding of the multifaceted nature of teacher competence.

Hay-McBer (2000) identified five competence clusters of high-performing teachers: professionalism, leadership, thinking, setting expectations, and relationships with others, further subdivided into 16 specific competence components. This framework highlights the behavioral and attitudinal dimensions of teacher competence.

Yao Rong (2008) concluded that the competence model for college teachers includes dimensions such as teaching attitudes, teaching skills, professional skills, personality traits, developmental traits, concern for students, and interpersonal interactions. This model emphasizes the comprehensive abilities required for effective teaching.

Bao Guangde (2009) proposed a competence model that included professionalism, personal traits, responsibility, self-drivenness, concern for students, information gathering, leadership and management, respect for others, and business supportiveness. This model underscores the integration of professional and personal qualities in teacher competence.

DFG (2013) referred to the Teacher Competence Framework model, which focuses on theoretical knowledge, personal beliefs, self-limitations, and personal values. This model highlights the importance of both theoretical and personal dimensions in teacher competence.

Tang Shujun (2010) summarized that the qualities of university teacher competence include teaching level, research ability, charisma, and student orientation. In this model, charisma serves as the foundation, teaching level and research ability are the two pillars, and student orientation is the ultimate outcome.

Hu Yanqin (2008) extracted 40 competence components of "dual-teacher" teachers in six aspects: teaching quality, teamwork, scientific research ability,

development awareness, good mentality, and teaching management ability, constructing a general competence model for "dual-teacher" teachers in higher vocational colleges.

Xiang Xiang Yang (2011) constructed a six-dimension model of professional teacher competence, including self-management, scientific and technological literacy, teaching ability, work attitude, practical ability, and professionalism.

Liu Jing et al. (2013) built a competence model for teachers in higher vocational colleges, including teaching literacy, practical literacy, professional literacy, personality traits, and interpersonal management.

Zhao Xiaofang (2016) constructed a title evaluation system for higher vocational teachers based on the competence model, dividing the evaluation into teaching, experimental teaching, scientific research, and service.

Hao Yonglin (2015) developed a theoretical model of teaching competence for teachers in research universities, consisting of academic support ability, teaching transformation ability, and teacher personality attitude.

Qi Yanchao (2013) referred to the components of university teachers' competence, including personal charisma, teaching level, research ability, and interpersonal ability.

Huang Yangjie (2020) constructed a three-dimensional model of competence for entrepreneurship teachers in colleges and universities, including entrepreneurial skills competence, traditional academic competence, and entrepreneurial attitude competence.

In summary, the Theoretical Concepts of competence of art teachers is a multidimensional framework that encompasses the theory of multiple intelligences, visual culture understanding, studio thinking, multimodal learning, social justice education, creative thinking development, organizational leadership, professionalism, teaching skills, research ability, personal traits, and interpersonal interactions. These theoretical concepts provide comprehensive support for the development of, competence of art teachers helping them inspire students' creative thinking, adapt to the complex demands of modern art education, and foster holistic student development.

3. Component of Competence of Art Teacher

Through the search of domestic and international literature, the researcher found that, compared with other teacher groups, the current research on the competence of college art teacher groups lacks a systematic competence model construction. On this basis, the researcher mainly studies two types of literature, one is the domestic and international research on the competence composition of art teachers in higher vocational colleges and universities; the other is the research and analysis of policies related to art teachers in higher vocational colleges and universities, which are their characteristics.

3.1 Policy Texts-Based Component of competence of art teachers in Higher Vocational Colleges

The Opinions of the Central Committee of the Communist Party of China and the State Council on Comprehensively Deepening the Reform of the Construction of the Teaching Staff in the New Era (2018) refers to focus on improving the ideological and political quality of teachers, comprehensively strengthening the construction of teachers' morality and ethical conduct, and substantially improving the comprehensive quality, specialisation level and innovation ability of teachers, and establishing a skilled, specialised and part-time combination of a dual-teacher (which refers to a teacher who possesses both basic professional knowledge and professional practical skills) teacher team, continuously improve practical teaching ability, and fully reflect the assessment and evaluation of teachers' skill level and professional teaching ability.

The Implementation Program for Deepening the Reform of the Construction of the "Dual-Teacher" Teacher Team in Vocational Education in the New Era (2019) refers to the need to establish a multiple-participation "dual-teacher" teacher evaluation and assessment system that incorporates the teacher's morality, craftsmanship, and level of technical skills, The evaluation system will include teacher ethics, craftsmanship, technical skill level, education and teaching performance and professional teaching ability in the appraisal system.

The Opinions on Promoting the High-Quality Development of Modern Vocational Education(2021) refers to the need to strengthen the construction of a "dual-teacher" teaching force, strengthen the construction of teacher ethics and teacher morals, comprehensively improve the quality of teachers, and implement the provisions for teachers to practice in enterprises on a regular basis.

The Opinions on Deepening the Reform of the Construction of a Modern Vocational Education System (2022) refers to the need to strengthen the construction of a "dual-teacher" teaching force, and to enhance the ideological and political quality of teachers, their professional ethics, their academic degree level and their teaching ability.

Opinions on Strengthening and Improving the Work of Aesthetic Education in Schools (2015) refers to: This document emphasises the important position of aesthetic education in school education, and the section dealing with art teachers puts forward requirements for strengthening the development of the art teacher team and improving the educational and teaching abilities of art teachers.

Opinions on Comprehensively Strengthening and Improving the Work of Aesthetic Education in Schools in the New Era (2020) refers to The document further emphasises the importance of aesthetic education in schools in the new era, puts forward the requirement of accelerating the innovative development of the arts discipline, and puts forward higher educational and pedagogical requirements for arts teachers, including the innovation of teaching methods and the enhancement of artistic qualities.

Circular of the Ministry of Education on the Comprehensive Implementation of the Action of Immersion in Aesthetic Education in Schools (2023) refers to the extensive professional training of key teachers in the arts. Carry out monitoring of the quality and competence of teachers of art subjects to enhance teaching and professional ability.

Table 1 Analysis of Teacher Competence Requirements in Policy Texts

| Policy text | Requirements for teachers' competence |
|--|--|
| The Opinions of the Central Committee of the Communist Party of China and the State Council on Comprehensively Deepening the Reform of the Construction of the Teaching Staff in the New Era(2018) | Dual-teacher teacher team (a faculty team with both theoretical knowledge and practical skills), Teachers' morality and ethical conduct, Professional ability , Innovation ability , Practical teaching ability ,Comprehensive quality |
| The Implementation Program for Deepening the Reform of the Construction of the "Dual-Teacher" Teacher Team in Vocational Education in the New Era (2019) | Dual-teacher teacher team (a faculty team with both theoretical knowledge and practical skills), Teacher morality, Technical skill level, Professional ability |

Table 1 (Continued)

| Policy text | Requirements for teachers' competence |
|---|--|
| The Opinions on Promoting the High-Quality Development of Modern Vocational Education(2021) | Dual-teacher teacher team (a faculty team with both theoretical knowledge and practical skills), Construction of teacher ethics and morals, Teachers' enterprise practice |
| The Opinions on Deepening the Reform of the Construction of a Modern Vocational Education System (2022) | Dual-teacher teacher team (a faculty team with both theoretical knowledge and practical skills), Ideological and political quality of teachers,Professional ethics, Teaching ability, |
| Opinions on Strengthening and Improving the Work of Aesthetic Education in Schools (2015) | Important position of aesthetic education, Art teacher team development, Educational and teaching abilities of art teachers |
| Opinions on Comprehensively Strengthening and Improving the Work of Aesthetic Education in Schools in the New Era (2020) | Importance of aesthetic education,Innovative development of the arts discipline, Higher educational and pedagogical requirements for arts teachers,Innovation of teaching methods,Enhancement of artistic qualities. |
| Circular of the Ministry of Education on the Comprehensive Implementation of the Action of Immersion in Aesthetic Education in Schools (2023) | Extensive professional training for key arts teachers, Monitoring of teacher quality and competence, Enhancing teaching and professional ability |

In summary, from table 1, analyze and summarize the policy texts on the competence of vocational college teachers or art teachers, serving as a common research foundation for competence of art teachers in vocational colleges. Higher vocational art teachers in the new era should have comprehensive competence components, which are not only the core of professional development of higher vocational art teachers, but also the key to improve the quality of higher vocational art education and teaching. They should have noble professional moral quality, excellent teaching ability, solid practical skills, social service ability,outstanding innovation ability and professional art literacy. These components of competence together constitute the professional development framework for higher vocational art teachers in the context of the new era, reflecting the high standards and strict requirements of

the Ministry of Education of the People's Republic of China for higher vocational art education teachers.

3.2 Research on the components of Art teacher competence

Song Jie, Zhang Tingting and Wang Dan (2016) refers to the study of bilingual teachers' competence in art majors in which, in view of the characteristics of art majors' students and the problems existing in teachers' bilingual teaching, it is proposed that the main components of improving bilingual teachers' competence including: teachers' teaching ability, teaching identity, professional competence, scientific research ability.

1). Teaching ability: Teachers' teaching competence is closely related to the innovation and profundity of the content they teach, the accuracy and fluency of their expression, and their own academic level.

2). Teaching identity: Teaching identity refers to the positive attitude and behavioural intention towards the new curriculum. Teachers' perceptions of the curriculum, their knowledge of their own abilities, their involvement in teaching the curriculum, and the teaching environment (macro- and micro-environments) all have an impact on teachers' sense of identity.

3). Professional ability: Professional competence and expressive competence is a way for teachers with a professional background in language to supplement their professional subject knowledge, and for teachers with a solid professional subject to train their language skills. Both skills are indispensable. However, professional competence should be the focus of this, and art teachers should be proficient in professional competence first, followed by language competence.

4). Scientific research : the teaching ability and scientific research ability of the course is to continuously innovate and improve the ability of "teaching" and "research". Continuous innovation of teaching and research methods, improve course design and organisational skills. In the process of teaching, they form research teams and develop and produce their own teaching materials.

Liu Jingyi and Wu Xiulin (2022) in "Reflections and Explorations on the Training and Enhancement of Public Art Teacher Competence in Colleges and Universities under the Perspective of Aesthetic Education" explored public art teacher competence in colleges and universities through the method of literature analysis to

enhance professional competence as a focus for the development of thinking and exploration of how to enhance the competence of colleges and universities' teachers in the field of aesthetic education in order to achieve the enhancement of aesthetic and humanistic qualities of the students in a more efficient manner, and put forward the cultivation of colleges and universities' art teachers' competence countermeasures, mainly for the:

1). Integration ability of teaching resources: improve the integration ability of the five education disciplines, promote the physical and mental development of students, cultivate socialist builders and successors who are all-rounded in morality, intelligence, physicality, aesthetics, and labour, and Program for the construction of a high-quality and specialised teaching team; improve the integration ability of aesthetic education resources, improve the students' personality cultivation, and think about the logical main lines and content directions of the five education disciplines in art teaching. Logical main line as well as content pointing, connecting with students' life reality, mobilising students' learning enthusiasm.

2). Planning ability of art practice: improve the management and construction ability of the art group, promote the spiritual civilisation construction of the school, take the development of the art group and the quality development of the students as the basic goal of the work, insist on teaching by example and dedication to promote the spiritual civilisation construction of the school; improve the ability of planning art activities on the school campus, inspire the enthusiasm of students to learn art, set the theme of the activities based on the hotspots of current affairs in their lives, prepare the activity programme, and inventively organise and carry out the art activities. activity programmes, inventively organise and carry out campus art activities, and be able to give artistic guidance to programmes in art activities in order to improve the effect of the programmes.

3). Academic ability of art discipline: to have lifelong learning consciousness and improve academic research ability, lifelong learning is the intrinsic demand of education development in the new era, and it is an important foundation for teachers to keep abreast of the times and teach cutting-edge knowledge of the times; to have academic innovation power of the discipline and to promote the construction of public art courses, the academic innovation power of the discipline of

art teachers in colleges and universities can effectively carry out reexploration and re-creating of the knowledge of public art, and it can also promote the Comprehensive development of talent cultivation.

Li Donglan (2013) in "Research on Competence of Bilingual Teachers of Art Majors Based on Psychological Capital Intervention Model" takes the positive psychological capital of art majors as the basis, explores the bilingual teaching attitudes of art teachers as well as the bilingual teaching approach to build competence of art teachers, and proposes that the teacher's teaching identity and the teaching approach are the main structures of the art teacher's competence.

1). Teaching identity: Teaching identity refers to the positive attitude and behavioural intention that teachers show towards the new curriculum. Influence on art teachers' concern for bilingual teaching is affected by a variety of factors. Art teachers' feelings about the bilingual programme, their perception of their own competence, as well as the degree of teachers' participation in bilingual teaching, and the environment of the programme all affect teachers' identification with bilingual teaching.

2). Teaching Methods: To improve the effectiveness of teaching through changes in teaching methods, adding the introduction and integration of culture, so that students can understand the western culture based on a more systematic mastery of the background of knowledge generation.

Wang Qiang and Lv Yang (2022) in the "Competence-based Research on Hierarchical Appointment Criteria and Multiple Evaluation Mechanisms for Art and Design "Two-Teacher" Teachers", combined with the characteristics of art and design teachers, put forward the evaluation mode of teaching competence driven by the quality of technical skills and practice and innovation, and constructed an evaluation index system for the quality of art teachers, which consists of two first-level indexes, four second-level indexes and 23 third-level indexes, as follows:

1). Teaching ability refers to the teaching ability of professional knowledge and technical skills, including theoretical knowledge teaching ability and practical skills guidance ability. With theoretical knowledge teaching ability, can well carry out the teaching of art and design-related subject knowledge; with practical

skills guidance ability, can skilfully guide students and art and design-related technical skills training and practice;

2). Innovation ability refers to the innovation of professional knowledge and technical skills, including teaching innovation ability and practice innovation ability. With the quality of teaching innovation, able to carry out art and design teaching innovation, professional construction and teaching reform, etc., and transform the latest knowledge and technical skills into educational and teaching resources; with the ability of practical innovation, able to carry out art and design innovation, technical skills innovation and industry-education integration practice, and promote the updating of knowledge and technical skills.

Xu Weiming and Deng Guoqiong and Jiang Ruijie (2023) in *The Construction and Application of the Multiple Evaluation System for Teachers in Art Higher Vocational Colleges and Universities* argue that the evaluation of art teachers in higher vocational colleges should focus on multiple dimensions to ensure the high-quality development of education. Their proposed evaluation system consists of the following five components:

1).Teacher Ethics and Morality refers to the evaluation of teacher ethics and morality is paramount, and a "one-vote veto" system is established for misconduct. Teacher ethics are assessed qualitatively, based on the "Ten Guidelines for the Professional Behavior of Teachers in Colleges and Universities." These guidelines cover teachers' political quality, professional attitude, and ideological character.

2).Teaching Ability refers to teaching is the core responsibility of teachers. The evaluation should focus not only on teaching workload but also on the quality of teaching, teaching reforms, and achievements. In art education, the emphasis is on practical teaching, such as guiding students in performances, exhibitions, and competitions. Practical teaching activities should be integrated into the evaluation system.

3).Research ability refers to art colleges and universities also play an important role in scientific research and cultural innovation. Therefore, the evaluation of teachers should include their research capabilities, artistic creation, and

contributions to meeting the cultural needs of society. Teachers who are involved in art performance or creation should be assessed for their achievements in these areas.

4).Social Service ability refers to art teachers also serve society through on-campus and off-campus activities. On-campus services include roles like career guidance, counseling, and administrative positions. Off-campus services involve part-time work, such as serving as judges in competitions, participating in vocational training, and other public welfare services. These contributions should also be part of the evaluation.

5).Professional Development: Teachers' professional development is essential. This includes enhancing their academic qualifications, acquiring vocational certifications, and participating in practical training, internships, and international study visits. Teachers' engagement in continuous professional development should be integrated into their performance evaluation.

Liu Guangping (2017) analysed the problems of art design teachers in higher vocational colleges and universities in "Research on the Evaluation Components of Quality and Ability of Dual-Teacher Teachers of Higher Vocational Art and Design Majors", put forward the evaluation components of the quality and ability of dual-teacher teachers of higher vocational colleges and universities of art and design majors, and concluded that the innovation ability of teachers as well as the practical ability is the composition of competence of art teachers in colleges and universities.

Wu Haibin,Zhang Zhuo (2016) in "Research on Evaluation System of Teachers in Art Colleges and Universities" based on the theory of evaluation index system of teachers in colleges and universities, in-depth study of evaluation system of teachers in art colleges and universities, constructed three first-level indexes are teaching ability, research ability, social service ability.

Wang Qiang (2021) in the "Study on the Reform of Comprehensive Quality Evaluation of Art Teachers in Colleges and Universities in the Context of "Breaking the Five Onlys", argues that in the context of deepening the reform of the title system of teachers in higher education institutions, On the basis of comprehensive consideration of relevant factors, it builds a classification and stratification evaluation index system for art teachers, and deepens and improves the

"representative achievement evaluation system" and "peer expert evaluation system".

Three first-level components were constructed, namely:

1). Teaching ability refers to it mainly includes the evaluation of art teachers' ethics and the evaluation of art teachers' teaching ability. Teaching ability of art teachers generally includes art theory teaching ability, art technique teaching ability, art training management ability, art creation guidance ability and so on.

2). Practical ability refers to it includes the evaluation of art teachers' artistic ethics and the evaluation of art teachers' practical ability. The evaluation of art teachers is limited by the uncertainty of the results of art practice, the diversity of standards, cultural differences, cognitive subjectivity and other factors, and the evaluation of art practice has become one of the evaluation indexes that can be easily questioned. The only way to gain the trust and support of participating teachers is to improve the openness, fairness and scientificity of the evaluation process.

3). Research ability refers to it includes the evaluation of art teachers' academic ethics and the evaluation of art teachers' research ability. Art research ability is reflected in the art teacher's research theoretical quality on the one hand, such as the teacher's cognitive ability of art research scope; on the other hand, it is reflected in the applied research ability of education, such as the art teacher's ability to find and solve the major art and cultural needs of the party and the people.

Pan Zhuochao (2018) in "Research on the Construction of Evaluation Components for Teachers in Art Colleges and Universities Taking Beijing Film Academy as an Example" focuses on solving two problems in the construction of the evaluation indicator system of teachers in art colleges and universities, i.e., the lack of evaluation components for artistic creation and the lack of a quantitative evaluation system. By selecting the teacher evaluation indexes of American art colleges and domestic first-class colleges and universities, and combining with the Delphi method, four levels of indexes are established. They are:

1). Teaching ability refers to teaching, whether it is a role or a contractual relationship, explicitly includes both teaching and learning, so the evaluation should also be made from both sides, and also needs to have the method and critical thinking.

2). Innovation ability refers to research is the process of creating and discovering knowledge. Research and innovation activities can be defined as activities related to the field of specialisation of university teachers, including the discovery, development and creation of new knowledge, as well as the transformation of knowledge and information into products or services of value to society.

3).Service society ability refers to service refers to the work of university teachers in bringing benefits to professional organisations and communities through their knowledge and skills. Teachers are expected to participate effectively in the development of national, regional, university and college policies. They serve their communities, states, and nations through their abilities, both as academics and otherwise.

4). practical ability refers to artistic creation is a key characteristic of colleges and universities of the arts, and therefore the evaluation criteria should reflect their individual characteristics. Arts faculty contribute original knowledge to the field through the work they produce and through their involvement in innovation activities and research, in addition to teaching.

From the perspective of the academicians mentioned above the researcher has analyzed the important components of art teacher competence. As shown in Table 2:

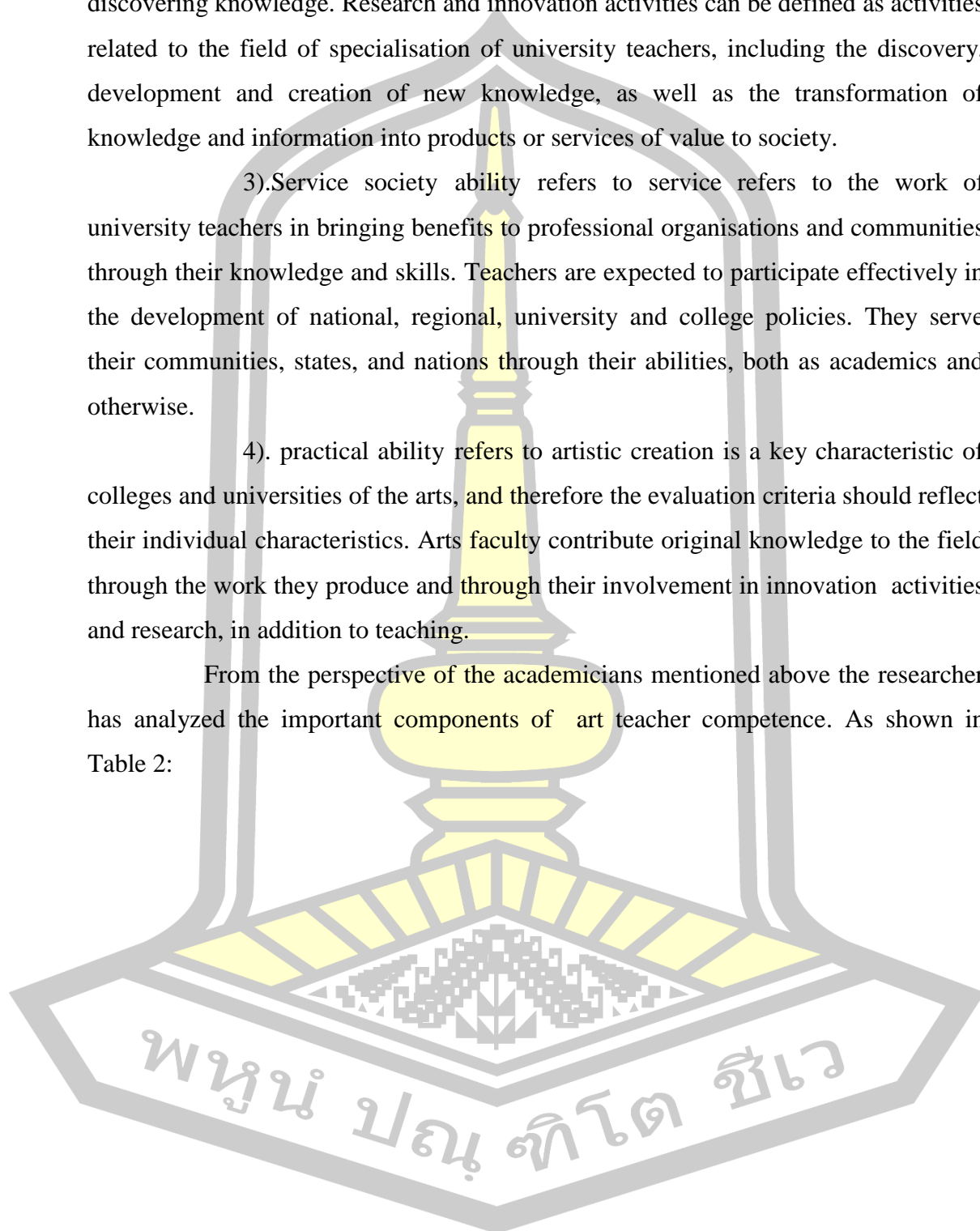


Table 2 Analyzes of the components of competence of art teachers

| | The components of Competence of art teachers | Song Jie, Zhang Tingting and Wang Dan)2016(| Liu Jingyi, Wu Xiulin)2022(| Li Donglan)2013(| Wang Qiang, Lv Yang)2022(| Xu Weiming, Deng Guoqiong and Jiang Ruijie (2023) | Liu Guangping)2017(| Wu Haibin, Zhang Zhuo)2016(| Wang Qiang)2021(| Pan Zhuochao)2018(| total |
|----|--|--|------------------------------|-------------------|----------------------------|---|----------------------|------------------------------|-------------------|---------------------|-------|
| 1 | Teaching ability | √ | | | √ | √ | | √ | √ | √ | 6 |
| 2 | Teaching identity | √ | | √ | | | | | | | 2 |
| 3 | Professional ability | √ | | | | | | | | | 1 |
| 4 | Scientific research | √ | | | | | | | | | 1 |
| 5 | Integration ability of teaching resources | | √ | | | | | | | | 1 |
| 6 | Planning ability of art practice | | √ | | | | | | | | 1 |
| 7 | Academic ability of art discipline | | √ | | | | | | | | 1 |
| 8 | Research ability | | | | | √ | | √ | √ | | 3 |
| 9 | Teaching method | | | √ | | | | | | | 1 |
| 10 | Innovation ability | | | | √ | | √ | | | √ | 3 |
| 11 | Teacher ethics and morality | | | | | √ | | | | | 1 |
| 12 | Social Service ability | | | | | √ | | √ | | √ | 3 |
| 13 | Professional Development | | | | | √ | | | | | 1 |
| 14 | practical ability | | | | | | √ | √ | √ | √ | 3 |
| | total | 4 | 3 | 2 | 2 | 5 | 2 | 3 | 3 | 4 | 28 |

From Table 2, the researcher analyzes the components of competence of art teachers in higher vocational colleges as identified by different academics. In Table 3, these components are categorized and summarized.

Table 3 Synthesis the components of competence of art teachers

| Component | Academics | Details of component |
|------------------------|--|--|
| Teaching ability | Song Jie, Zhang Tingting and Wang Dan (2016) Liu Jingyi, Wu Xiulin (2022) Li Donglan (2013) Xu Weiming, Deng Guoqiong and Jiang Ruijie (2023) | Teaching identity; Integration ability of teaching resources; Teaching method Teacher ethics and morality |
| Innovative ability | Song Jie, Zhang Tingting and Wang Dan (2016) Liu Jingyi, Wu Xiulin (2022) Xu Weiming, Deng Guoqiong and Jiang Ruijie (2023) Wu Haibin, Zhang Zhuo (2016) Wang Qiang (2021) | Scientific research Academic ability of art discipline Research ability |
| social service ability | Xu Weiming, Deng Guoqiong and Jiang Ruijie (2023) Wu Haibin, Zhang Zhuo (2016) Pan Zhuochao (2018) | Social Service ability |

Table 2 (Continued)

| Component | Academics | Details of component |
|----------------------|---|--|
| professional ability | Song Jie, Zhang Tingting and Wang Dan (2016) | Planning ability of art practice |
| | Xu Weiming, Deng Guoqiong and Jiang Ruijie (2023) | Professional Development practical ability |
| | Liu Guangping (2017) | |
| | Wang Qiang (2021) | |
| | Pan Zhuochao (2018) | |

From the table 3 the researcher synthesized four components of competence of art teachers in higher vocational colleges by combining the same or similar characteristics into a single component as in the table 3. there are four components of competence of art teachers in higher education institutions including: **1) Teaching ability, 2) Innovative ability, 3) social service ability, and 4) professional ability**. Details of each components will be analyzed to define the definition. Operations of each components are as follows:

1. Teaching ability

Zhou Jianda and Lin Chongde (1994) divided teachers' teaching ability into three aspects: teaching cognitive ability is the foundation, teaching operational ability is the concentration of teaching ability, and teaching monitoring ability is the key.

Shen Jiliang and Xin Tao (1995) considered teaching monitoring competence as an advanced form of the structure and adjustment centre of teachers' teaching competence, which includes teaching planning and preparation, organisation of classroom teaching, level and awareness of teaching and communication, sensitivity to students' progress, reflection on the effectiveness of teaching, and professional development.

Song Juan (2021) categorised teachers' pedagogical competences into seven articles, which are:

1. Instructional design skills: This refers to the rational design and organisation of the whole process of teaching and learning.

2. Teachers' ability to explain: using their own experience and skills in the teaching process to make knowledge more understandable through explanation.

3. Teachers' ability to demonstrate: by demonstrating themselves, they achieve the appropriate teaching objectives.

4. Teachers' organisational and managerial skills: to achieve mastery of classroom effects through certain procedures and arrangements.

5. Teachers' ability to correct errors: timely correction of students' errors during the teaching process.

6. Teaching evaluation skills: self-reflection and improvement by teachers after the course.

7. Ability to carefully prepare lessons and standardise the writing of lesson Programs: a general review and arrangement of what needs to be covered in the whole lesson before the lesson.

He Zhiying, Nie Changfeng (2023) classified teaching competence into two articles when constructing a three-level evaluation system of teacher competence for art teacher trainees centred on moral competence, teaching competence, nurturing competence and developmental competence:

1. Expertise in professional teaching: Familiar with the curriculum programme and curriculum standards of art subjects in primary and secondary schools, able to make comprehensive use of professional knowledge in art studies to scientifically design and effectively level texts, and have good analytical and appreciation skills.

2. Familiarity with technological means: the ability to use computers, the Internet and information technology to locate and integrate teaching resources, to use technological means to implement classroom teaching, and to have certain knowledge and skills of technology integration.

Guo Guangjun (2024) constructed an index system for evaluating teachers' competence in higher vocational colleges, in which teaching competence was divided into five parts, namely:

1. Literacy: encompassing teacher ethics and curriculum thinking.

2.Educational and teaching reform: including teaching innovation team, professional course construction, teaching materials and resources construction.

3.Education and teaching work: includes the number of courses taught, the number of hours taught, the number of students taught, educational counselling, and the quality of teaching.

4.Education and Teaching Achievements: Includes Teaching Achievement Award, Teaching Competence Competition Award, Supervision of Students Competition Award, Supervision of Students Practical Achievements.

5.Industry-teaching integration projects: including industry-industry colleges, internship and training bases, modern apprenticeships, and certificate content.

Simpson et al. (1993) used the Delphi method to argue and identify 27 important teaching competences that teachers should possess, arguing that teaching competences consist of six main competences: academic, Programning, presentation and communication, assessment and feedback, interpersonal communication, and management.

Xu Maijin et al. (2014) believe that the teaching competence structure of research university teachers should include three dimensions, namely, knowledge content, teaching skills and professional attitudes, and cover seven major competences, such as academic foundation, content expansion, teaching reflection, classroom organisation, teaching expression, role emotion, and academic charisma.

Yu Chenghai et al. (2005) believe that teaching competence is a professional quality and individual psychological characteristics formed by the transformation of knowledge and skills required for teaching in teaching activities, and it is a kind of professional competence expressed on the basis of teachers' cognitive ability.

Wang Jianwei, Wang Xiaogang and Jiang Liang (2023) believe that the teaching ability of college teachers is the main theme of teachers' teaching development work, the focus of improving the quality of talents, and the fundamental guarantee of high-quality classroom, which mainly includes the ability of integration and application of teaching resources, the ability of language expression, the ability of designing and organising teaching activities, the ability of surveying and analysing the

learning situation, the ability of applying traditional and modern teaching means, the ability of student. The main skills include the ability to integrate and apply teaching resources, the ability to design and organise teaching activities, the ability to investigate and analyse the learning situation, the ability to use traditional and modern teaching methods, the ability to manage students, the ability to explore and practise the latest education concepts or teaching modes, and the ability to understand and carry out education theories and policies.

In summary, Teaching ability refers to the comprehensive ability of teachers to use professional knowledge, skills and teaching methods in the process of education and teaching to effectively complete teaching tasks, achieve teaching goals and promote the all-round development of students. This includes classroom teaching, practical teaching, teacher character building and many other aspects, and requires teachers to possess in-depth pedagogical understanding, good classroom management, language expression and teacher-student interaction skills, as well as scientific evaluation methods and tools. Teaching competence is the core competence of teachers in the field of education and teaching, and is of great significance in improving teaching effectiveness and promoting the all-round development of students.

2. Innovative ability

According to Zhang Kongyi (2002), teachers' innovation ability includes the ability to choose educational research projects, the ability to conduct research with appropriate research methods, and the ability to obtain research results.

Ge Bingwei (2014) suggested that the research and innovation ability of higher vocational teachers mainly refers to educational research ability, but in addition to this, as higher vocational colleges and universities serving the construction of the local economy, higher vocational teachers need to have certain research ability:

1. Educational research ability. Teachers' educational research ability refers to their ability to conduct educational and pedagogical research by applying knowledge of educational research to educational phenomena and educational problems in the process of teaching. China's higher vocational education is in the midst of great development, as the frontline personnel serving vocational education, higher scientific research ability will be beneficial for higher vocational teachers to

find and solve their own teaching problems, and then promote the development of China's higher vocational education.

2. Research ability. Scientific research is one of the main functions of colleges and universities. As higher education, higher vocational colleges should undertake certain research functions. Higher vocational colleges and universities are closely related to the local economy, and higher vocational teachers are usually "experts" in a certain field, which requires higher vocational teachers to make use of the rich resources of the school to carry out corresponding scientific research in teaching field, contribute to local economic development, and further strengthen the scientific research function of higher vocational colleges and universities.

Guo Guangjun et al. (2024) pointed out that research and innovation ability: refers to the ability of teachers to engage in academic research, including scientific research and technological development. Scientific and technological research and development includes academic papers, patents and copyrights, academic reports and academic results. Technology development includes higher vocational teachers' horizontal research (co-operation between teachers and enterprises), product design and development, and process development.

In summary, innovative ability in teachers refers to their core capacity to utilize creative thinking, novel teaching methods, and personalized education strategies to enhance teaching quality, foster holistic student development, and drive educational transformation. For art teachers in higher vocational colleges, this encompasses not only innovation in teaching but also the ability to engage in research and creative practices. The ability to conduct educational research and engage in scientific and technological development—such as academic papers, patents, product design, and collaboration with industries—is essential. These competences, including creative thinking and research-oriented abilities, require teachers to continuously learn, practice, and maintain a sharp sense of insight, ultimately contributing to the advancement of education and creating a better learning environment for students.

3. Social service ability

Yu Yaping (2020) refers to that social service ability, i.e. social practice ability, includes school-enterprise co-operation and competition guidance.

Guo Guangjun et al. (2024) The research group pointed out that social practice ability includes service ability, inheritance ability and dissemination ability, which refers to teachers' service contribution to society as well as their ability for external communication and cultural inheritance and innovation. It includes five secondary components: training service ability, social construction ability, cultural inheritance and innovation ability, international cooperation and exchange ability, and overseas study and work ability.

Pan Maoyuan (1986) argued that, with regard to social functions, institutions of higher education should focus on the three functions according to their own characteristics and develop their own characteristics, mentioning that the function of direct social services should be centred on social benefits and serve the national economic benefits.¹ Subsequently, through the continuous research and discussion of researchers, there has been further enrichment and development. Based on the results of existing research, the discussion of the connotation of school social service can be broadly summarised into three orientations.

Wu Yiming (2016) believes that social service is the core competitiveness of the development of higher vocational colleges and universities, the reality of the basis for sustainable development, the inevitable path to show the value, can be docked with the regional industry more closely feed the training of talents, and can deepen the integration of industry and education of the pooling of resources.

Xiao Weiping et al. (2019) believe that the development of social services in higher vocational can promote the survival and development of higher vocational itself, serve the regional economic and social development, and cultivate composite talents.

Deng Hui (2022) Social service is regarded as the responsibility and important function of colleges and universities, which is the requirement of high-quality development of colleges and universities and the intrinsic need to expand the resources of running schools.

Cao Hongjun and Zou Fangming (2010) reflected on the positioning of the social service function of domestic universities and discussed two relationships that should be dealt with in order to effectively play the function of universities to serve society, namely, the relationship between direct and indirect service to society, and

the relationship between the fundamental needs of social development and urgent needs.

Liu Chang (2013) refers that Social service ability direct or indirect social contributions and values provided by the school to the society in the role of an organisation, and the Objectivesful and Programned activities of the school to continuously meet the needs of the society according to the development of the times, including the three basic functions of the school, such as teaching, scientific research, and social service, and so on.

Liu Chang (2013) believes that the social service of universities in the narrow sense refers to the activities properly carried out by the university on the premise of meeting the normal operation of the university, the ability of teaching and scientific research has been fully developed and safeguarded on the basis of the school's all the premises and equipment, scientific research and technology, teachers' resources, training of human resources, and other resources, and other services that are available, whose obvious characteristic is the direct promotion of socio-economic and cultural development, and the direct and substantial limited relevance to other social participants. The distinctive feature is the direct contribution to the socio-economic and cultural development of the society, which has a direct, substantial and limited impact on other social actors.

Yang Yuchun (2013) argues that in the process of promoting the development of social services through school-enterprise co-operation in higher vocational colleges, there is a lack of relevant regulations to promote the close collaboration between enterprises and schools, a lack of relevant supporting human resources to ensure the mechanism of co-operation and co-ordination of the operation of the mechanism, and a lack of clarity on the relationship between rights and obligations in the process of school-enterprise co-operation.

In summary, Social service ability refers to Combining professional knowledge and skills, art teachers of higher vocational colleges and universities actively participate in social services, including research and development of technology applications, school-enterprise cooperation, training services, as well as community education and cultural services, etc. In the process of social services, art teachers of higher vocational colleges and universities can improve their practical

abilities, acquire practical knowledge, enhance practical teaching, and improve their personal professional growth and the social influence of higher vocational education.

4. Professional ability

The concept of teacher professional competence is largely derived from the idea of teacher professionalism. Based on different understandings of the concept of teacher professionalism, many academics have also proposed the concepts of professional competence and pedagogical competence, which are similar to professional competence.

Qi Yinde (2018) classified the professional competence development of secondary teachers into three areas: essential core competence, development of peripheral competence, and marginal competence.

Xu Zhen (2019) divided teacher competence development into three structures with nine dimensions: 1. knowledge structure, 2. competence structure, and 3. personality structure, including teachers' professional values, ethics, and emotions.

Huang Zhiqi (2020), on the basis of the discussion of the connotation of the professional development of secondary teachers, subdivided the professional competence of secondary teachers into educational and teaching competence, independent learning competence, professional operation competence, objective evaluation competence, and guiding students' entrepreneurial competence .

The American educator Schulman (1998) regards subject content knowledge, general pedagogical knowledge, curriculum knowledge, subject pedagogical knowledge, knowledge about the characteristics of students, knowledge of the context of education, and knowledge of educational goals, values and philosophical-historical origins as the main components of teachers' professional competence.

Calderhead (2008) suggests that the professional competences that teachers should possess include eight major areas such as knowledge about self, knowledge about the subject matter, knowledge about the schoolchildren, knowledge about the curriculum, knowledge about teaching and learning, metacognitive knowledge, conceptual orientations about the how of learning, and knowledge of practice.

Lin Chongde (1998), the connotation of teacher's professional ability includes: teacher's professional ideal, knowledge structure, educational philosophy,

teaching monitoring ability, external behavioural style, etc.; Cha Youliang believes that teachers should have a strong sense of responsibility, mastery of necessary professional knowledge, strong educational ability, high teaching quality and high level of professionalism in teaching; in Yu Yi's opinion, a modern teacher also In Yu Yi's opinion, a modern teacher should also have the ability to deal with interpersonal relationships, the ability to update and create knowledge, the ability to research and teach malefactors, an infectious charisma, and a stable and healthy physical and mental qualities.

Dai Heng (2013), starting from the essential function of the teaching profession one of teaching and educating people, believes that the professional competence of teachers refers to the relevant competence that a teacher should have when he/she carries out teaching. Teaching and educating activities should have the relevant ability, including teaching, teaching, expression, teaching organisation, supervision, educational research, innovation, practice and other abilities.

Qi Zhanyong (2018) "Research on Vocational Education Policy" also puts forward specific requirements for secondary vocational school teachers on professional competence. The Study divides the professional competence of vocational teachers into seven competence areas, including teachers' educational and teaching competence, classroom management competence, practical training guidance competence, and independent learning and innovation competence, etc. It also specifies specific requirements and subdivided standards for the professional competence of secondary teachers. This is the most authoritative and official professional competence standard for secondary teachers in China.

Liu Dingyi (2004) believes that in-depth understanding of education is the primary factor influencing the development of teachers' professional competence, and that front-line teachers must seek to transform passive learning into active learning, and to enter into the repeated cycle of "learning" and "thinking" with problems, in order to develop their spirit of independent learning and innovation, and thus promote the scientific and efficient development of their professional competence. In order to cultivate teachers' spirit of independent learning and innovation, thereby promoting the scientific and efficient development of their professional ability.

Dunkin Pegman (1989) in Pegman's Updated International Encyclopaedia of Teachers states that teacher professionalism "is a type of occupational professionalism, a process of transformation in which teachers become members of the teaching profession and play increasingly sophisticated roles in teaching". Based on this understanding of teacher professionalism, academics refer to the competences that teachers should possess as professional competences, of which pedagogical competences are key.

Xu Yingjun and Zhai Hongying (2011), the core competences of the teaching profession include professional teaching competence, practical teaching competence and theoretical literacy and teaching competence in vocational education.

He Yanfang and Wu Dan (2022) also focused on professional development competence, applied research competence, and curriculum and teaching research competence on this basis.

Xin Yanhuai (2012) points out that the professional development of teachers refers to the process by which individual teachers acquire professional knowledge and skills in education, implement professional autonomy, demonstrate professional ethics, and continuously grow their professional competence through lifelong professional training, relying on professional organisations throughout their careers. "Professionalism is concerned with the structure of competences that a person engaged in a profession should have, and emphasises the process of changing competences, i.e., the process of becoming an expert from a novice.

Xie Yueguang et al. (2016), the teaching profession has important social functions, has specialised knowledge systems and technical requirements, requires professional education and professional growth, and meets the criteria of "professionalism". Based on the above understanding, teacher professional competence usually emphasises the competence structure of the teaching profession itself that distinguishes it from other professions, while teacher professional competence places more emphasis on the core competences of the teacher's ability, which is proposed on the basis of the teacher's professional competence, and is more central and mature than the professional competence, and is more in line with the international designation.

In summary, professional ability refers to the professional qualities and skills demonstrated by art teachers in their educational and teaching practices. These competences encompass various aspects, including art subject knowledge. In addition, artistic professional abilities such as artistic creation and practical artistic skills should also be included as core components of the competence framework. These competences are essential for the professional development of art teachers, contributing significantly to improving the quality and effectiveness of art education, fostering students' artistic literacy, and enhancing their creativity. Therefore, a well-rounded approach to teacher professional competence involves both theoretical knowledge and practical artistic expertise, which together support the development of students' artistic capabilities.

Concept and Theory's of Art Teacher Development

1. Adult Learning model

The Adult Learning Model, also known as Adult Learning Theory, is a body of theory devoted to the study of adult learning processes, characteristics, methods, and the differences in learning needs, motivation, and methods between adult learners and adolescent learners. The core concepts of adult learning theory include the following:

1. autonomy and self-direction of adult learning:

Knowles (1975) pointed out that adult learners usually have strong autonomy, they are able to choose their own learning content and learning methods, and actively participate in the learning process. Adult learners are more explicitly motivated to learn, usually driven by work, life or personal needs, and are clearly goal orientated.

2. Importance of experience:

Knowles (1975) points out that adult learners usually have a wealth of life and work experiences, which are not only the basis for learning, but also an important bridge between the content of learning and the actual life and work needs of individuals. Adult education theories emphasise the use of learners' experiences as a resource for teaching and learning to stimulate interest and deep understanding.

3. Task-oriented and applied:

Cross (1981) points out that adult learning is usually aimed at solving specific problems or achieving specific goals, such as upgrading job skills or obtaining a vocational qualification. Therefore, adult learners tend to choose learning content that is closely related to their real-life needs.

4. Learning Motivation:

Merriam ,Bierema (2014) stated that adult learning motivation is usually driven by external circumstances, especially career and life demands. Adult learners are more inclined to learn only when they encounter specific problems, such as learning to solve practical problems at work.

Building on these core concepts, various academics have expanded on the principles of adult learning, offering deeper insights into the factors that influence how adults acquire knowledge.

Knowles (1975) - Knowles was the founder of adult learning theory and proposed that there are six core principles of adult learning:

Self-directed: adults tend to be self-directed learners, able to make their own choices about what and how they learn.

Experience-based: The adult learner's life and work experience is the basis for learning and promotes better understanding and retention.

Learning Orientation: Adults usually learn to cope with practical problems, and their learning objectives are clear and closely related to their work.

Motivation: Adults are motivated by internal sources, such as self-esteem and a sense of achievement, rather than external rewards.

Task Orientation: Adults usually favour solving practical problems and the learning process is more hands-on.

Developmental needs: Adults often learn to improve their quality of life or career development, and have specific goals.

Mezirow (1991) proposes a transformational theory of adult learning, emphasising that adult learning is not just about acquiring knowledge, but about reconstructing one's beliefs and worldview through deep reflection. He argues that adult learning sometimes leads to cognitive, affective or behavioural shifts that drive an individual's self-understanding and behavioural change.

Brookfield (1986) emphasises critical reflection in adult learning, suggesting that the goal of adult education is to motivate learners to develop critical thinking, not only to learn knowledge, but also to reflect, question and challenge conventional ideas. Through critical reflection, adult learners are able to reassess their assumptions and beliefs, thereby promoting personal growth.

Hiemstra (1994) further explored the characteristics of adult learners in his study and proposed several complementary principles of adult learning theory: relevance of learning content: adult learners prefer to choose learning content that is closely related to their real life or work. Adult learners seek practical knowledge that can be immediately applied to their daily work or life. Personal control: Adult learners tend to want more autonomy over their learning, including choosing when, where and how they learn.

In summary, the adult learning model integrates core concepts and principles that highlight the unique characteristics of adult learners. It emphasises self-direction, experience-based learning, task-oriented education and intrinsic motivation. In addition, critical reflection, developmental needs, and personal control play a vital role in shaping the adult learning experience. These principles guide effective adult education by integrating the learning process with personal goals, work-related challenges and lifelong development.

2. Definition of Art Teacher Development

The concept of teacher development has been one of the hotspots of research both at home and abroad, and there are several major views on the definition of teacher development:

Jerry Gaff (1975) in *University Teacher Enhancement* states that teacher development is "the process of increasing competence, expanding interest, and competence, thereby promoting the professional and personal development of the teacher" and that special attention should be given to the teacher's fulfilment of his or her educational function.

Riegle (1987) point out that teacher development includes five areas: pedagogical development, professional development, organisational development, career development, and personal development.

The American Federation of Education, in its publication *University Faculty Development: a National Strength* (1991), suggests that there are four goals for teacher development, namely, personal development, professional development, organisational development, and pedagogical development.

Millis (1994) argues that in a broad sense, university faculty development includes teaching, research, career development and personal health and growth.

Bullough R.V (1997) has suggested that teacher development is a process in which teachers continue to transcend themselves, continue to realise themselves, and is more a process of conscious, active, dynamic and sustainable construction of the teacher as a subject.

Blignaut, A.S. and Trollip (2003) stated that university faculty development is the activity of training teaching skills and online courses.

Bligh (2005) point out that university faculty development is accomplished by enhancing individual strengths and competences as well as improving organisational competences and culture.

Zhang Hua (2014) refers to the research value orientation of teacher development is "accompanied by the transmutation of teacher pedagogy from empirical-analytical science to historical-levelive science to critical science, and the concept of teacher development ranges from the pursuit of technical control of teachers to the emphasis on practical wisdom of teachers, and ultimately, to the pursuit of individual freedom and social responsibility of teachers."

In summary, the concept of teacher development encompasses a range of views and definitions, reflecting its multifaceted nature. It is generally seen as a process aimed at enhancing teachers' competence, expanding their interests, and fostering both professional and personal growth. Key areas of focus include pedagogical skills, professional expertise, career development, and personal well-being. Teacher development is viewed not only as the improvement of individual teaching practices but also as a dynamic, ongoing process of self-realization and empowerment. Over time, the focus of teacher development has shifted from purely technical skills to the cultivation of practical wisdom and social responsibility. Additionally, teacher development also emphasizes the enhancement of

organizational culture and the integration of online learning, with the ultimate goal of promoting individual freedom and societal contributions.

3. Principle of Art Teacher Developme

Eichinger and Lombardo (2000) pointed out that the 70:20:10 principle is a well-established framework in the field of adult learning and professional development. They proposed that approximately 70% of learning is derived from hands-on experience, 20% from social interactions and networking, and 10% from formal education and training. This model has gained prominence in various academic and practical contexts, including organizational learning, career development, and blended learning environments. The principle emphasizes the integration of experiential, social, and formal learning as essential components of a comprehensive learning process, contributing to both individual and organizational growth. Academics have expanded on this framework, offering diverse perspectives and strategies for applying the 70:20:10 principle to enhance learning outcomes, improve career development, and foster continuous professional development. These contributions provide a multifaceted understanding of the principle's application across different learning environments and its potential to optimize effectiveness and satisfaction.

Senge (2018) provides a detailed analysis of applying the 70:20:10 principle to organizational learning, offering strategies to build a culture of continuous learning within companies. He emphasizes the importance of adapting learning strategies to create an environment that supports ongoing development. Robert Cain (2019), focusing on workplace learning, elaborates on how the 70:20:10 rule can enhance learning and accelerate career development, detailing the significance of each percentage in the rule and offering practical strategies for its application.

Parsons (2022) explores the application of the 70:20:10 principle in blended learning environments, providing practical examples and strategies for combining online and offline learning to optimize the learning experience. Emily Collins (2021) examines the role of the 70:20:10 principle in career development, highlighting the importance of informal learning and work experience for success in the workplace, and offering tips and tools for professional growth.

MacDonald (2023) breaks down the 70:20:10 learning model, providing strategies for building effective learning environments that align with the model, and stressing the importance of diverse learning styles. MacDonald guides readers on designing learning programs that improve outcomes and satisfaction.

Eichinger and Lombardo (2011) elaborate on the application of the 70:20:10 teaching principle to professional development, emphasizing the value of practical, social, and formal learning for personal and professional growth. They argue that by wisely allocating learning time, individuals can improve their skills and performance in the workplace.

In summary, the 70:20:10 pedagogical principle is a comprehensive approach to adult learning, which consists of 70% experiential learning, 20% social learning, and 10% formal learning. This model highlights the importance of hands-on experience as the primary driver of learning, supported by social interactions and formal education. The model is widely applicable across various contexts, including workplace training, blended learning, and career development. It promotes the creation of continuous learning cultures, the integration of diverse learning methods, and a balance between structured education and practical application. By applying this model, individuals can enhance their skills and career growth, while organizations can develop more effective training programs to support lifelong learning and professional development.

4. Methods of Art Teacher Development

Teacher development is regarded as a continuous and dynamic process aimed at improving teachers' overall qualities in terms of teaching competence, professional skills and so on. According to academics such as Shulman (1986), Mishra and Koehler (2005), and Kazemier Elles M. (2021), effective approaches to teacher development should focus on the adaptation and enhancement of teachers in a changing educational environment. In this process, the concept of Pedagogical Content Knowledge (PCK) proposed by Shulman (1986), which emphasises the ability of teachers to transform subject matter content into a form of instruction that is easy to comprehend and understand according to the cognitive level and learning characteristics of their students, is essential for teacher professional development. Specifically, teacher development methods include the following core approaches,

which not only contribute to the enhancement of individual teachers' competences, but also to the overall improvement of the quality of education.

The researcher had the methods of teacher development as following:

1. Case study:

Shulman (1986) pointed out that teacher training should focus on transforming subject knowledge into teaching content suitable for students, and case study is an effective way to help teachers combine teaching content with actual teaching situations. By analysing actual teaching cases, teachers are able to learn how to transform subject knowledge into teaching strategies and enhance teaching effectiveness.

2. peer mutual assistance and observation:

Shulman (1986) further emphasises that peer support and observation are integral parts of teacher training. Teachers are able to improve their own teaching and enrich their teaching strategies by observing their peers' teaching methods, sharing experiences and providing feedback.

3. Participatory Learning and Action Research:

Mishra and Koehler (2005) suggest that teachers' professional development should focus on practice-based learning and reflective practice. Through participatory learning and action research, teachers can not only improve their teaching skills, but also reflect on their own teaching practices, identify problems and seek solutions to optimise their teaching methods.

4. Expert Guidance:

Mishra and Koehler (2005) also pointed out that inviting experts or senior teachers to mentor is an effective way of teacher development. Guidance from experts can help teachers master the latest teaching concepts and methods and promote their growth and improvement.

5. Training and Teaching Research Activities:

Kazemier Elles M. (2021) emphasises that regular participation in teacher training and teaching research activities is an important way to enhance teachers' competence. Through systematic training, teachers can update their educational theories and teaching techniques and keep their teaching methods up-to-date.

In summary, According to the above academics, effective methods of teacher development do not only depend on the learning of subject knowledge, but also include the accumulation of practical experience, peer-to-peer mutual assistance and feedback, guidance from experts and systematic training. Through these methods, teachers can continuously improve their teaching ability, professional skills and other comprehensive abilities, thus promoting the development of their career.

Concept and Theory of Program and Program development

1. Definition of the program

The meaning of the word program to mean schedule and show program. And there are academics who have given many meanings to the word program as follows:

Weiss (1998) explains the meaning of a program as: It is a set of activities or services designed to achieve a specific Objectives. with a specified starting point and ending point.

Auerbach (2009) defined a program as a structured and intentional set of activities designed to achieve a specific outcome or set of outcomes.

Patton (2011) describes programs as a coherent set of activities designed to achieve a specific goal or objective. and proceed in a systematic and orderly manner

Rossi, Lipsey, and Freeman (1999) defined a program as a set of activities or services or interventions designed to achieve specific results or objectives and delivered according to a predetermined Program.

Brownell, Ross, and McCallum (2005) stated that across the two studies, there are seven features common to effective teacher education 77 programs in general education: 1) coherent program vision ,2) conscious blending of theory, disciplinary knowledge, and subject-specific pedagogical knowledge and practice, 3) carefully crafted field experiences ,4) standards for ensuring quality teaching, 5) active pedagogy that employs modeling and promotes reflection ,6) focus on meeting the needs of a diverse student population ,7) collaboration as a vehicle for building professional community delivered according to a predeterm.

In summary, a program refers to a structured process or a set of activities systematically designed to achieve specific goals or objectives. It is often characterized by a defined starting and ending point, coherence in execution, and

alignment with intended outcomes. Academics highlight that programs can include interventions, services, or educational activities, all aimed at facilitating knowledge development and problem-solving in a given context. Effective programs, particularly in education, integrate theoretical and practical components, ensure quality through well-defined standards, and often incorporate collaboration to enhance professional and community development. By being systematically organized, programs optimize efficiency, consistency, and the achievement of intended results.

2. Process of developing a program

The Teacher Competence Enhancement Programme (TCE) is a systematic process aimed at helping teachers improve their teaching competence, professional skills and teaching methods through multi-dimensional design and implementation. According to studies by academics at home and abroad, the components of a teacher competence enhancement programme include its design principles, goal setting, content selection and development process.

Darling-Hammond (2017) states that effective teacher empowerment programmes need to be based on the principle of continuous learning, emphasising that teacher professional development should be embedded in everyday teaching practice and that reflection and knowledge sharing should be facilitated through collaborative learning communities. She argues that teacher development is an ongoing process that must be embedded in teachers' daily teaching activities, creating a cycle of continuous reflection and improvement through collaborative learning with peers.

Guskey (2000) suggests that the design of teacher capacity enhancement programmes needs to follow the principle of systematicity, with clear project objectives and assessment criteria, and through a staged feedback mechanism to ensure that teachers are able to transfer their new skills effectively to the classroom. He emphasised that the implementation of the programme should continuously adjust and optimise the training content and strategies through a phased feedback and evaluation mechanism to ensure that teachers are able to effectively apply the new skills and knowledge they have acquired in practical teaching.

According to Timperley et al. (2007), the content of the programme should focus on the dual enhancement of subject knowledge and teaching strategies, and at

the same time, combined with the analysis of student demand data, promote teachers to adjust their teaching content and methods according to the actual needs of students. This two-way enhancement not only improves the depth of teachers' subject knowledge, but also helps them better understand students' needs, which in turn improves teaching effectiveness

In China, research on teacher capacity enhancement programmes has gradually developed in the direction of adaptation and localisation, with many academics proposing theories and methods specific to the Chinese educational context:

Gu Lingyuan (2010) stresses that action learning is the core principle of teacher capacity enhancement programmes, and that teachers' professional growth is promoted through the "problem-workshop-practice-reflection" cycle. According to Gu Lingyuan, through action learning, teachers can identify problems in practice and continuously improve their teaching ability through collective discussion and practical reflection.

Wang Qiang (2018) suggests that the project design should reflect the purpose orientation of 'student-centred' and help teachers develop differentiated teaching competence by reconstructing the teaching content. She emphasised that teachers should adjust their teaching strategies according to students' individual differences and learning needs, so as to tailor their teaching to students' needs.

Zhu Xudong (2015) pointed out that the development process needs to follow the principle of local adaptability and design personalised training paths in the context of school culture. He argues that teacher development programmes should take into account the actual situation of the school, its cultural context and the specific needs of teachers, so as to design more targeted and effective training content.

The effectiveness of teacher empowerment programmes relies on multi-dimensional design and implementation, which can be divided into the following key components:

Principles of project design

Teacher capacity enhancement programmes should follow the principles of continuous learning, systematic and participatory design to ensure that teachers' learning is closely aligned with their daily teaching practice and to promote their

continuous development. Darling-Hammond (2017) points out that teacher development is an ongoing process that needs to be embedded in teachers' teaching work.

Clear goal setting

The objectives of the programme should be clear and relevant, focusing on the improvement of teaching methods, classroom management and assessment skills. Guskey (2000) suggests that the objectives should be closely aligned with teachers' needs and educational trends to ensure that the training objectives are instructive for teachers' professional development.

Diversity and Adaptability of Content

Content to enhance teachers' competence should not only include subject matter knowledge and teaching strategies, but should also be customised to meet the challenges of teaching and learning. Shulman's (1986) theory of Pedagogical Content Knowledge (PCK) and Mishra and Koehler's (2005) TPACK framework emphasise the integration of educational technologies and pedagogical approaches to help teachers improve their teaching effectiveness.

Collaborative and participatory nature of the development process

Teacher empowerment programmes should be a collaborative process that includes teacher participation, peer review and expert guidance. Fullan (2001) states that teachers can enhance professional competence and build supportive learning communities through collaborative learning and reflective practice.

Systematic nature of assessment and feedback mechanisms

The evaluation mechanism should take into account the degree of goal achievement, teacher participation and outcome transformation. Kirkpatrick's (1994) four-level evaluation model provides a systematic evaluation framework to help identify problems and optimise the programme in a timely manner.

In summary, integrating the views of academics, we can conclude that the effectiveness of teacher capacity enhancement programmes relies on systematic design and multi-dimensional implementation. The development process includes three key steps: 1) studying the components and guidelines for capacity building, 2) creating and developing the program, and 3) evaluating the program. These steps involve understanding the foundational principles, designing the program to meet

teacher needs, and continuously assessing its effectiveness. The components of the programme, including clear design principles, goal setting, content selection, and evaluation, work together to support teachers' professional growth and ensure the improvement of education quality.

3. Components of the program

Pimpaporn Pimpko (2014) refers to clearly states in her research that the components of a training program consist of five core elements:

1. Principles, which refers to the guiding philosophy and principles behind the project, ensuring the correct direction for the program;
2. Objectives, which specify the expected outcomes of the program, usually including the improvement of knowledge, skills, and attitudes;
3. Content, which refers to the specific topics and learning materials that the program should cover. Content design should closely align with the objectives;
4. development Process, which involves the design and implementation of teaching methods and learning activities to ensure the effectiveness of the learning process;
5. Evaluation, which involves evaluating the training process and outcomes to ensure objectives are met and providing feedback for future improvements.

Kirkpatrick and Kirkpatrick (2006) refer to the following key factors when designing and implementing a training program:

1. Needs Analysis, which involves understanding the needs of the target audience before the program starts to ensure its relevance;
2. Setting Objectives, where training goals should be specific and measurable, aligning with the actual needs of the learners;
3. Determining Content, ensuring that the training content meets the objectives and provides necessary theoretical and practical guidance;
4. Selecting Participants, ensuring that the right learners are chosen based on the goals to meet the participants' needs;
5. Scheduling Training, ensuring the program is implemented at the right time and location for practical feasibility;
6. Selecting Appropriate Facilities, providing the necessary resources and support for implementation;

7. Selecting Suitable Instructors, ensuring instructors have the required knowledge and teaching skills;

8. Using Audiovisual Aids, ensuring diversity and interaction in the teaching process;

9. Coordinating the Program, including collaboration among team members to ensure smooth implementation;

10. Evaluating the Program, assessing the program's effectiveness through multiple levels of evaluation (reaction, learning, behavior, and results).

Bartholomew Eldridge et al. (2016) in their book *Planning Health Promotion Programs: An Intervention Mapping Approach* propose the Intervention Mapping Approach, which provides a systematic method for designing and implementing health promotion programs. The model emphasizes the need to follow several key steps during the program planning process to ensure that the program is scientifically sound and effective. These steps are as follows:

1. Needs Assessment

The first step in the intervention mapping approach is conducting a needs assessment, which focuses on identifying the health problems and needs of the target population. This step involves understanding the characteristics, health status, lifestyle, and other relevant factors of the target group to pinpoint key issues that require intervention.

2. Setting Goals and Objectives

After the needs assessment, the next step is to set clear goals and specific intervention objectives. These goals should not only focus on the final health outcomes but also on behavioral changes, such as improving health knowledge, changing unhealthy behaviors, and enhancing overall well-being.

3. Selecting Intervention Methods

Based on the established goals, the next step is to select appropriate intervention methods and theoretical frameworks. Intervention methods may include educational strategies, community activities, policy changes, and other methods, ensuring that they are suitable for the needs and context of the target population.

4. Developing Program Content

This phase focuses on developing the specific program content, such as educational materials, activity designs, and information dissemination methods. The content should be effective in communicating health information and engaging the target population in the program.

5. Planning the Implementation

The planning phase involves determining the specific steps for implementing the program, including resource allocation, scheduling, and task assignments. This step ensures that the program can be executed smoothly in real-world settings.

6. Evaluating the Program

The final step is evaluating the effectiveness of the program. This evaluation goes beyond assessing outcomes and includes reflecting on the implementation process itself. It helps identify which aspects of the program worked well and which need improvement, providing valuable feedback for future interventions.

In summary, Studying the components of a development program from various scholars, it can be concluded that the key elements of a program include 1) Principles, which provide the guiding philosophy and framework for the program's direction; 2) Objectives, which outline the specific, measurable outcomes expected from the program, such as the enhancement of knowledge, skills, and attitudes; 3) Contents, which refer to the topics and materials covered in the program, aligning closely with the objectives; 4) Development Process, which includes the design and implementation of teaching methods and learning activities to ensure effective learning; and 5) Evaluation, which assesses the program's success and effectiveness in achieving its goals, providing feedback for improvements. These components together ensure that the program is well-rounded, coherent, and capable of achieving its intended outcomes effectively.

1. Principles

Fullan and Quinn (2016) propose the Coherence Framework, which emphasizes that educational programs must be grounded in explicit moral goals, such as equity and innovation, and must be implemented through collaborative cultures. They argue that such an approach ensures the alignment of all program components

towards shared, meaningful objectives. For instance, an art teacher program might adopt "creativity-driven equity" as a guiding principle, ensuring that all students, regardless of their background, have equal opportunities to express their creativity.

Wiggins (2015) refers to the need for principles in educational design, stating that principles must address the fundamental question of "why the program exists." He suggests that programs should prioritize core values, such as fostering "student-centered artistic expression," to ensure that the program's mission aligns with the needs and interests of the learners.

Biesta (2015) refers to the three functions of education, which are qualification, socialization, and subjectification. He advocates for principles that strike a balance between skill development and societal responsibilities. Biesta's framework stresses that education should not only prepare students for the workforce but also enable them to become active, responsible citizens who can engage with the world meaningfully.

Darling-Hammond et al. (2017) refer to the importance of context-responsive principles, which ensure that educational programs are adaptable to the diverse cultural and institutional settings in which teachers work. They emphasize that principles should be flexible enough to accommodate the specific needs of different communities and teaching environments, thus making the program more relevant and effective for the teachers and students involved.

In summary, Principles provide ethical legitimacy and theoretical coherence, aligning the program with societal needs and disciplinary values. They act as a compass for decision-making, ensuring consistency between the program's intent and its implementation.

2. Objectives

Objectives translate principles into measurable outcomes, directly linking theory to practice.

Hattie (2015) refers to his Visible Learning theory, based on a synthesis of over 1,200 meta-analyses, which posits that effective instructional design hinges on clearly scaffolded objectives and closed-loop feedback systems. First, objectives must be specific and hierarchically structured, progressing from foundational to advanced competencies. Such structured objectives can improve learning outcomes by 0.48

standard deviations (effect size). Second, feedback mechanisms must be timely, task-oriented, and future-focused rather than merely evaluating past performance. Feedback demonstrates an effect size of 0.70, far exceeding the average impact of educational interventions (0.40).

Marzano (2017) refers to his New Taxonomy of Educational Objectives, which classifies goals into three interconnected systems: the self-system, which encompasses motivation and reflective practices; the metacognitive system, focused on strategic planning and monitoring of learning processes; and the cognitive system, addressing domain-specific knowledge and skills.

McTighe and Wiggins (2020) refer to their backward design framework, which prioritizes defining desired learner outcomes first, then aligning instructional objectives to achieve those outcomes.

Koedinger et al. (2015) refer to the importance of precision objectives, advocating for clarity and measurability through objectives rooted in cognitive science principles.

In summary, Effective objectives must be actionable, directly linking to observable results; hierarchical, progressing from foundational to advanced competencies; and principles-aligned, ensuring congruence with core educational values. These objectives operationalize abstract ideals into concrete, goal-driven outcomes.

3. Contents

Program content refers to the structured integration of knowledge, skills, and experiences that form the core of a program. It is not just a collection of topics but a carefully designed framework that aligns with the program's principles and objectives. Recent research highlights that program content typically includes theoretical knowledge, practical skills, experiential learning opportunities, and contextualized resources. Below are key perspectives from three influential scholars:

Shulman (1986) emphasizes that program content must integrate disciplinary knowledge with pedagogical knowledge. This dual focus ensures that participants understand both the subject matter and how to teach it effectively. Disciplinary knowledge provides the foundational understanding of the field, while pedagogical knowledge equips participants with the tools to deliver that knowledge in an

educational setting. This integration ensures that the content is both academically rigorous and practically applicable.

Kolb (1984), through his Experiential Learning Theory, highlights the importance of learning by doing. He argues that experiential learning, such as workshops or practicums, bridges the gap between theory and practice. By engaging in hands-on activities, participants can apply theoretical knowledge in real-world settings, making the content more relevant and impactful. This approach fosters deeper understanding and skill development.

Fullan and Quinn (2016) stress the need for culturally responsive resources in program content. They argue that content must be relevant to the diverse backgrounds and needs of participants and the communities they serve. Incorporating culturally responsive resources ensures that the program is inclusive and meaningful, addressing the unique contexts in which participants will apply their learning.

In summary, program content must be comprehensive, integrating theoretical knowledge, practical skills, experiential learning, and contextualized resources. It should balance depth, such as mastery of specific techniques, with breadth, such as interdisciplinary connections, ensuring participants are equipped to address both immediate and long-term challenges. This holistic approach ensures that content is not only relevant but also transformative, empowering participants to innovate and adapt in dynamic environments.

4. Development Process

In the development process of educational programs, several scholars have introduced models emphasizing systematic design, implementation, and iterative refinement:

Allen and Tanner (2020) refer to the Agile Program Design approach, which emphasizes rapid prototyping, pilot testing, and iterative adjustments to meet dynamic needs. This approach is particularly relevant in integrating emerging technologies, such as AI tools in art education.

Reigeluth and Karnopp (2020) recommend the Elaboration Theory, which suggests a phased development strategy. This strategy starts with core modules, such as foundational pedagogy, and progressively expands to more complex tasks, like trauma-informed art teaching.

Thomas and Brown (2016) introduce the Maker Education Framework, which centers on "design-practice-reflect" cycles. This framework utilizes art workshops for experiential learning, fostering creativity and hands-on engagement among learners.

Guskey (2018) proposes the Five-Stage Model for Professional Development, which prioritizes needs analysis, learning, practice, feedback, and institutionalization. This model ensures that professional development initiatives are sustainable and effectively integrated into educational practices.

In summary, these models highlight the importance of a flexible, iterative development process that is responsive to stakeholder input. They ensure that educational programs evolve through continuous improvement, addressing emerging challenges while maintaining fidelity to core principles.

5. Evaluation

The development process involves systematically designing, implementing, and refining programs to adapt to emerging needs.

Patton (2018) refers to Developmental Evaluation, which emphasizes real-time data collection, such as teacher journals and classroom observations, to support adaptive decision-making during program implementation. This approach allows for continuous adjustments based on immediate feedback, making the program more flexible and responsive.

Killion (2018) refers to the Three-Level Evaluation Model, which assesses outcomes at three levels: individual (teacher skill growth), organizational (quality of the school-wide art program), and student (creative competency development). This model provides a holistic view of a program's impact across different stakeholders.

Bennett and Provost (2015) refer to pragmatic evaluation using mixed methods, combining quantitative data, such as test scores, with qualitative narratives, such as interviews, to capture the nuanced impacts of a program and provide a comprehensive understanding of its effectiveness.

Graham et al. (2020) refer to the Culturally Responsive Evaluation Framework, which prioritizes cultural validity by incorporating participatory methods, such as teacher self-assessment and community feedback, ensuring the evaluation process respects and reflects cultural differences.

In summary, these scholars emphasize that evaluation should be flexible, multidimensional, and culturally sensitive, enabling programs to be continuously improved while ensuring they remain effective and relevant to all stakeholders.

4. Evaluation of the program effectiveness

The evaluation of the effectiveness of teacher competence enhancement programmes is a key component in ensuring that teacher professional development programmes achieve the desired results. Academics at home and abroad have conducted in-depth studies in this area and put forward a variety of assessment methods and perspectives.

Guskey (2000) points out that the effectiveness assessment of teacher professional development programmes should be based on a five-level model, including participant response, learning outcomes, organisational support and change, the extent to which participants use new knowledge and skills, and student learning outcomes. He emphasised that only through systematic evaluation can the impact and effectiveness of the programme be fully understood.

Desimone (2009) proposed a core characteristics framework for evaluating the effectiveness of teacher professional development programmes. She argued that evaluation should focus on the content focus, active learning, consistency, duration, and group participation of the programme to ensure that the programme is effective in enhancing teachers' pedagogical practices.

Kennedy (1998), through her study of teacher professional development programmes, found that programmes whose content focused primarily on teacher behaviour had less impact on student learning, while programmes that focused on teachers' subject matter knowledge, curriculum, or students' learning styles had a greater impact on student learning. She emphasised that evaluation should focus on the correlation between project content and teachers' teaching practices.

Cui Yun Kuo (2020), a domestic scholar, proposed a 'three-dimensional evaluation framework', which advocates evaluating teacher professional development programmes from the three dimensions of goal achievement, process participation and outcome transformation. He emphasised that the evaluation should take into account the design objectives, implementation process and final outcomes of the programme in order to ensure the effectiveness and sustainability of the programme.

In summary, the evaluation of the effectiveness of teacher capacity enhancement programmes should adopt a multi-dimensional approach, taking into account the design, implementation and outcomes of the programmes in a holistic manner. Through systematic evaluation, the quality and effectiveness of teacher professional development programmes can be ensured, thus promoting the sustainable improvement of teachers' teaching competence.

5. Educational programme development

Educational programme development is a systematic process that involves a number of key components. The following will explore in detail the basic concepts, classical models, modern methods and their core components of educational programme development based on the research of academics at home and abroad to help understand how to design and implement effective teacher training programmes. The development of an educational programme begins with the identification of learning objectives, teaching methods and assessment criteria.

Gagné (1985) states that the core of educational programme development lies in identifying learning objectives, selecting appropriate methods and assessing learning outcomes.

Richey and Klein (2014) emphasise that modern educational programme development should incorporate learners' needs to ensure that the programme is scientifically sound and feasible.

Having understood the basic framework of educational project development, we can further explore several classic project development models that provide systematic guidance.

Taylor (1942) proposes the Objective Model (OM) of assessment, which emphasises a cyclical process of goal setting, content development, method selection and assessment feedback.

Stufflebeam (1976)'s CIPP Evaluation Model, which can be used at all stages of the project development process, includes:

Context Evaluation (Context Evaluation): Define the objectives of the training and the needs of the audience.

Input Evaluation: Evaluating project resource allocation and feasibility.

Process Evaluation: Monitor the implementation of the project and provide recommendations for improvement.

Product Evaluation: Analyse the final impact of the project. While classical theoretical frameworks provide us with systematic design ideas, modern approaches to educational programme development place greater emphasis on flexibility and innovation. Modern approaches to educational programme development have combined technological advances and educational needs to form more innovative design frameworks.

The ADDIE model (Analysis, Design, Development, Implementation, Evaluation) (Molenda, 2003) is currently the most widely used programme design model, which is implemented step-by-step through five phases:

Analysis: Identify learning needs, objectives and resources, and define the core content and objectives of the training programme.

Design: Plan course content and teaching methods to ensure that they are consistent with the learning objectives, and design assessment tools.

Development: Produce actual teaching materials and learning resources to ensure consistency with the design phase.

Implementation: Applying the curriculum to actual teaching, teacher training and resource management.

Evaluation: Evaluate the effectiveness of the programme, conduct formative and summative assessments, and provide feedback for subsequent improvement.

The Design Thinking (Brown, 2009) approach is also increasingly being introduced into educational programme development, an approach that emphasises the development and improvement of teaching and learning programmes through a creative and iterative process centred on the needs of learners.

The design of teacher training programmes should be tailored to meet specific training needs. The leadership development framework of Hughes, Ginnett, and Curphy (2009) can be used effectively in teacher training programmes:

Background (Context): Consider external environmental factors such as school culture, educational policies, and teacher needs;

Content: The content of the training should be centred on teaching skills, subject edge and teaching strategies;

Process: Combine classroom teaching, practical activities, peer support and other training methods;

Participants: set up appropriate training modes according to the different development stages of teachers;

Evaluation: Measure the effectiveness of the training through a continuous evaluation mechanism, focusing on the achievement of objectives, the effectiveness of teachers' learning, and the practical application of the programme. Evaluation can use a combination of quantitative and qualitative methods to provide timely feedback, promote teachers' continuous improvement, and ensure that the training content is effectively applied to actual teaching.

In summary, educational programme development is a systematic and iterative process that involves a number of components such as goal setting, content design, implementation strategies and evaluation mechanisms. The theoretical models proposed by different academics, such as Taylor's Goal Evaluation Model, Stufflebeam's CIPP model, and modern ADDIE and Design Thinking approaches, provide the theoretical basis and practical guidance for programme development. By integrating the strengths of different models, the scientific, operational and effective nature of teacher training programmes can be ensured. From studying the components of the development program from various academicians, it can be concluded that the components of the program include 1) principles, 2) Objectives, 3) contents, 4) development process, 5) Evaluation.

Development Background of Zhejiang Higher Vocational Colleges

1. Definition of Higher Vocational Colleges

Internationally, higher vocational institutions are often referred to as 'Vocational Education and Training (VET)' or 'Technical and Vocational Education and Training (TVET)'. Training (TVET), as defined in the following documents: United Nations Educational, Scientific and Cultural Organisation (UNESCO): In its Technical and Vocational Education and Training (TVET) Strategy (2016-2021), UNESCO defines TVET as a form of education that provides learners with knowledge, skills and competences designed to meet the needs of the labour market and promote sustainable development. In the Copenhagen Declaration (2002), the EU

has identified vocational education and training (VET) as a key component of the European education system, aimed at improving employability, social inclusion and economic growth. The World Bank, in its Skills Development in Sub-Saharan Africa (2014) report, states that TVET is a form of education that provides students with vocationally relevant skills and knowledge, and usually includes vocational education at the secondary and tertiary levels.

China's definition of higher vocational institutions is mainly reflected in the following policy documents: The Vocational Education Law of the People's Republic of China (promulgated in 1996 and amended in 2022) clearly divides vocational education into secondary vocational education and higher vocational education, with higher vocational colleges and universities being the mainstay of the implementation of higher vocational education, which is aimed at cultivating high-quality technical and skilled personnel. The document 'Outline of the National Medium- and Long-Term Education Reform and Development Plan (2010-2020)' points out that higher vocational education is an important part of higher education, and that its mission is to cultivate high-quality skilled specialists who can meet the needs of economic and social development. The Decision of the State Council on Accelerating the Development of Modern Vocational Education (2014) further specifies that higher vocational colleges and universities should deepen the integration of industry and education and school-enterprise cooperation, cultivate technical and skilled talents, and serve the transformation and upgrading of industries. The Action Plan for Improving the Quality and Excellence of Vocational Education (2020-2023) emphasises that higher vocational colleges and universities should improve the quality of their education, cultivate innovative and complex technical and skilled talents, and serve national strategies and regional economic development.

In summary, higher vocational institutions, often referred to as Vocational Education and Training (VET) or Technical and Vocational Education and Training (TVET), play a critical role in providing education that aligns with labor market demands and supports sustainable development. TVET is recognized internationally for its ability to enhance employability, foster social inclusion, and contribute to economic growth, particularly at the secondary and tertiary levels. In China, higher vocational education is explicitly defined in national policies as an essential part of

the higher education system. Its primary mission is to cultivate skilled technical professionals capable of addressing the needs of both the economy and society. Key policy documents emphasize the integration of industry and education, promoting school-enterprise cooperation, and ensuring that vocational education meets evolving market demands. Moreover, recent initiatives highlight the importance of improving educational quality, developing innovative and versatile technical talents, and aligning vocational education with national strategies and regional economic development goals. These Principles reflect the growing recognition of vocational education's role in workforce development and its crucial contribution to socio-economic transformation.

2. The Background of Zhejiang Higher Vocational Colleges

As one of the more leading regions in China's economic development, Zhejiang Province's higher vocational colleges and universities play an important role in cultivating technical and application-oriented talents. In recent years, the number and quality of Zhejiang's higher vocational colleges and universities have steadily improved, gradually becoming an important base for higher vocational education in China. According to the Department of Education of Zhejiang Province (2023), there are currently 49 higher vocational colleges and universities in Zhejiang Province, covering a wide range of fields such as business management, information technology, medicine and health, and machinery manufacturing. The distribution of these institutions covers all cities in the province and widely meets the demand for technical and applied talents in different regions and industries. Zhejiang higher vocational colleges and universities have remarkable characteristics in talent cultivation, and the following points are their main features:

1). Rich professional settings

Data from Zhejiang Vocational and Technical Education Research Centre (2023) show that Zhejiang Province's higher vocational colleges and universities have a rich set of majors, covering almost all traditional and emerging industries. From traditional machinery manufacturing and electronic information to emerging fields such as the Internet, big data and artificial intelligence, the majors offered by Zhejiang's higher vocational colleges and universities meet the diversified demand for skilled personnel in the local economy and society. Especially in the context of digital

economy and intelligent manufacturing, the professional settings of higher vocational colleges and universities in Zhejiang Province follow the social development trend and constantly update the course content to meet the needs of future industrial development.

2). Joint schooling and practical teaching

With the changes in social demand and industrial development, higher vocational colleges and universities in Zhejiang Province have begun to try to run schools jointly with enterprises, so as to make a close connection between education and market demand through in-depth co-operation with industries and enterprises. Through this mode of co-operation, institutions are able to provide students with more practical knowledge and skills training, laying a solid foundation for their employment. In addition, practical teaching occupies an important position in the curriculum. While focusing on practical teaching, higher vocational colleges and universities encourage students to get in touch with real work scenes in advance through off-campus internships and other forms, so as to improve students' practical operation ability.

3). Focus on practical teaching and application ability cultivation

Higher vocational colleges and universities in Zhejiang Province attach great importance to practical teaching, especially in the cultivation of skilled talents, focusing on the improvement of students' hands-on ability and practical ability. According to the Department of Education of Zhejiang Province (2023), practical teaching has become one of the core contents of the curriculum of Zhejiang higher vocational colleges and universities. Many institutions cooperate with enterprises to open internship bases, where students can improve their professional skills and operational abilities in a real working environment. Through these practical programmes, students are able to combine theoretical knowledge with practical work and enhance their competitiveness in employment.

4). Integration of local industrial needs and educational needs

According to Li Tao (2021) mentioned that higher vocational colleges and universities in Zhejiang Province pay great attention to the interface with local industries in their professional settings and curriculum design. For example, Hangzhou, as the economic and technological centre of Zhejiang Province, many

higher vocational colleges and universities have opened majors related to local advantageous industries, such as tourism management and Internet application technology. The opening of these specialisations not only meets the demand of local industries for highly skilled personnel, but also provides students with more employment opportunities and development space.

5). Promote the educational development of emerging industries

With the rapid development of science and technology and the emergence of emerging industries, Zhejiang higher vocational colleges and universities are also opening majors related to emerging industries. For example, the establishment of emerging majors such as artificial intelligence, big data, intelligent manufacturing, etc. not only meets the demand for highly skilled personnel in modern industries, but also provides students with more opportunities for career development. These emerging majors not only have strong market prospects, but also represent the foresight and innovation of Zhejiang's higher vocational colleges and universities in subject development.

In summary, the development of higher vocational education in Zhejiang Province is characterized by 49 institutions offering diverse programs that align with local industrial needs. These colleges emphasize practical teaching and industry collaboration, providing students with real-world experience. The integration of emerging fields like AI and big data into the curriculum reflects Zhejiang's forward-looking approach, ensuring that graduates are well-prepared for the workforce.

3. Background of Art Programs and Faculty in Zhejiang Higher Vocational Colleges

Art education in higher vocational colleges and universities in Zhejiang Province has gained remarkable development in recent years, and the settings of art majors are gradually enriched, and more and more attention is paid to cultivating applied art talents who have both theoretical knowledge and practical operation ability. The art education system in Zhejiang Province not only provides students with diversified learning paths, but also continuously strengthens the construction of teaching staff to meet the needs of the modern art industry. The following is the existent state and situation of art majors and faculty in higher vocational colleges and universities in Zhejiang :

1). Diversification and development of art majors

According to the Art Education Association of Zhejiang Province (2024), with the increase of social demand for art talents, the art majors set up in higher vocational colleges and universities in Zhejiang Province have been gradually enriched to cover a wide range of fields from traditional art to modern art. Currently, art majors in Zhejiang Province have included six major categories: music, dance, performance (including hosting), broadcast hosting, art design and calligraphy. These majors focus on the inheritance of traditional art forms as well as the combination of modern art and technology, such as digital media art, visual communication design, etc., fully demonstrating the diversity and practicality of art education in higher vocational colleges and universities in Zhejiang Province. Art higher vocational colleges and universities in Zhejiang Province are also responding to industrial demands by offering courses that are closely integrated with modern technology, such as digital art and interactive design. According to the Zhejiang Vocational and Technical Education Research Centre (2023), with the rise of the digital culture industry, more and more colleges and universities have opened relevant majors geared towards digital art and Internet technology to cultivate talents that meet the needs of the modern art industry. The opening of these majors not only caters to the development trend of the industry, but also provides students with more opportunities for career development.

2). Combination of art majors and local economy

The combination of art major setting and local economy in Zhejiang Province higher vocational colleges and universities is also particularly important. According to Li Tao (2021) mentioned that the rapid economic development of Zhejiang Province has promoted the expansion and diversification of art majors. Especially in economic and cultural centre cities such as Hangzhou, higher vocational colleges have provided strong talent support for the development of local industries by offering art majors closely related to local cultural and creative industries. For example, higher vocational colleges in Hangzhou have opened majors related to digital media art and creative design, aiming to cultivate professionals who can meet the needs of local creative industries, digital media and cultural and creative

industries. This combination not only promotes the development of the local economy, but also enhances the social value of art education.

3). Practice and Innovation of Art Education

Higher vocational colleges and universities in Zhejiang Province focus on practical teaching in art education, especially emphasising the cultivation of students' creative and artistic expression abilities. According to the Department of Education of Zhejiang Province (2023), it is pointed out that art colleges and universities in Zhejiang Province pay attention to the practical ability of students, and through off-campus internships and art creation practice, students are able to improve their skills in a real art creation environment. Particularly in the fields of art design and performance, the institutions organise students to participate in various practical projects, such as exhibitions, performances and competitions, which not only improves students' practical ability, but also enhances their competitiveness in employment. In addition, many art colleges and universities also actively promote cooperation with industrial enterprises and carry out industry-university-research co-operation projects. This mode of school-enterprise co-operation enables students to get in touch with the latest industry trends and participate in actual art projects, thus improving their comprehensive quality and practical ability.

4). Construction of artistic teaching staff

The development of art majors can not be separated from the high-quality teacher team. Higher vocational colleges and universities in Zhejiang Province have also made a lot of efforts in the construction of art teacher teams. According to Wang (2022), art colleges and universities in Zhejiang Province pay special attention to teachers' professional background and practical experience, and many art teachers not only have solid theoretical knowledge, but also have rich experience in art creation and industry. Some teachers have held important positions in the art industry or participated in large-scale art projects, which provides valuable practical guidance for art education.

The majority of the teaching staff at art colleges and universities in Zhejiang Province have a high academic background, with many of them holding a master's degree or higher, and are actively involved in academic research and professional training. According to the Art Education Association of Zhejiang

Province (2024), art teachers not only impart professional knowledge in teaching, but also actively participate in various art creations and industry exchanges in order to improve the quality of teaching and professionalism. With the continuous development of the art industry, art colleges and universities in Zhejiang Province also continue to improve the overall level of their faculty through international cooperation and academic exchanges.

In summary, the development of higher vocational education in Zhejiang Province has been marked by growth and diversification, with 49 colleges offering a wide range of programs from traditional fields to emerging sectors like AI and big data. Practical training and school-enterprise cooperation play a crucial role in enhancing employability. Art education has also expanded, offering diverse programs in traditional and modern arts. The strong focus on industry-aligned curricula and faculty with both academic and practical experience ensures that Zhejiang's vocational education continues to meet regional needs and prepares students for the evolving job market.

Related research

1. Domestic research

Wang Qiang and Lv Yang (2022) studied the ability characteristics that art design teachers should have under the 'dual-teacher' teacher standard in higher vocational colleges and universities. The objectives of the research are to improve the ability of art teachers in higher vocational colleges and universities. The results of the research are as follows: 'dual-teacher' art and design teachers should have 'four major qualities', namely, the quality of theoretical knowledge of teaching, able to teach art and design-related disciplines; with a certain quality of teaching practice skills, able to skillfully guide students in art and design-related technical skills training and practical skills guidance; to have the quality of teaching innovation, to be able to carry out art and design teaching innovation, specialisation, and teaching reform, integrating the latest knowledge and technical skills into teaching resources; and to have the quality of practical innovation, to be able to carry out art and design innovation, technical skills innovation, industry-teaching integration practice, and to promote the updating of knowledge and technology.

Liu Jingyi and Wu Xiulin (2022) studied the thinking and exploration of the competence training and enhancement of public art teachers in colleges and universities under the perspective of aesthetic education. The objectives of the research are to explore the competence of public art teachers in colleges and universities through the method of literature analysis, focusing on the enhancement of professional competence. The results of the research are as follows: the competence of college art teachers includes the following abilities: First, the ability to integrate educational and teaching resources, improve the ability to promote the organic integration of moral, intellectual, physical, aesthetic, and labour education, and the ability to promote the physical and mental development of students. Second, the ability to plan art activities on campus and to motivate students to learn art. Art teachers need to have some ability to programme activities. Third, the improvement of academic ability, lifelong learning awareness, and academic research ability in aesthetic education and art disciplines. Only through continuous learning can teachers achieve better development and realise their self-worth in the new era of educational change. Teachers should also have the ability to make academic innovations in their disciplines to promote the construction of public art programmes.

Zhang Li (2020) studied the construction of a competence model for art teachers in higher vocational colleges. The objectives of the research are to explore the key competences required for art teachers in higher vocational education through a combination of literature analysis and empirical research. The results of the research are as follows: the competence model for art teachers includes five dimensions: teaching ability, practical skills, professional ethics, innovation ability, and interpersonal communication. Zhang Li emphasized that innovation ability and practical skills are particularly important for art teachers in higher vocational colleges, as they need to adapt to the rapidly changing demands of the art and design industry.

Chen Xia (2021) explored the professional development of art teachers in higher vocational colleges from the perspective of competence-based education. The objectives of the research are to identify the core competences that art teachers need to develop to meet the requirements of modern vocational education. The results of the research are as follows: the core competences of art teachers include teaching design ability, curriculum development ability, industry practice ability, and reflective

practice ability. Chen Xia argued that art teachers should continuously update their knowledge and skills to keep pace with industry trends and educational reforms.

Zhou Min (2020) studied the impact of digital technology on the competences of art teachers in higher vocational colleges. The objectives of the research are to explore how digital technology influences the teaching and professional development of art teachers. The results of the research are as follows: digital technology has significantly enhanced the teaching ability, innovation ability, and practical skills of art teachers. Zhou Min emphasized that art teachers need to master digital tools and platforms to improve their teaching effectiveness and meet the needs of modern students.

Liu Yang (2021) investigated the role of emotional intelligence in the competences of art teachers in higher vocational colleges. The objectives of the research are to examine the relationship between emotional intelligence and teaching effectiveness. The results of the research are as follows: emotional intelligence plays a crucial role in the teaching ability, interpersonal communication, and professional ethics of art teachers. Liu Yang suggested that art teachers should receive training to enhance their emotional intelligence, which can improve their overall teaching performance and student engagement.

Wang Xia (2022) explored the integration of traditional culture into the competences of art teachers in higher vocational colleges. The objectives of the research are to investigate how traditional culture can be incorporated into art education to enhance the cultural literacy of teachers and students. The results of the research are as follows: the integration of traditional culture into art education can significantly improve the cultural competence, teaching ability, and innovation ability of art teachers. Wang Xia proposed that art teachers should actively learn and promote traditional culture to enrich their teaching content and methods.

In summary, the above literature review highlights the multifaceted nature of competence of art teachers in higher vocational colleges and universities. Key dimensions such as teaching ability, practical skills, innovation, professional ethics, interpersonal communication, digital technology, emotional intelligence, and cultural competence are essential components of their professional development. These findings provide a comprehensive framework for understanding and assessing the

competences of art teachers, offering valuable insights for improving the quality of education and fostering teacher growth in higher vocational institutions.

2. Foreign research

Charalampos Dervenis, Panos Fitsilis, Omiros Iatrellis (2022) studied Teacher Competences in Higher Education, the Objectives of the study was to comprehensively analyse and identify the teaching competences of university professors. These competences are derived from the roles and tasks of university professors. The results of the research are as follows: The study proposed a multidimensional teacher competence framework with six main dimensions, identifying a total of 32 specific teaching competences. These dimensions cover the key areas of digital competence, pedagogy and student management. The study highlights the importance of digital competence, which has become particularly critical during the COVID-19 epidemic.

Zimmerman (2019) emphasized that Theoretical Concepts of competence of art teachers should include the integration of technology in art education. She argued that art teachers need to be proficient in using digital tools and platforms to enhance teaching effectiveness and student engagement. The study also highlighted the importance of creativity and innovation in art education, suggesting that art teachers should continuously update their skills to keep pace with technological advancements.

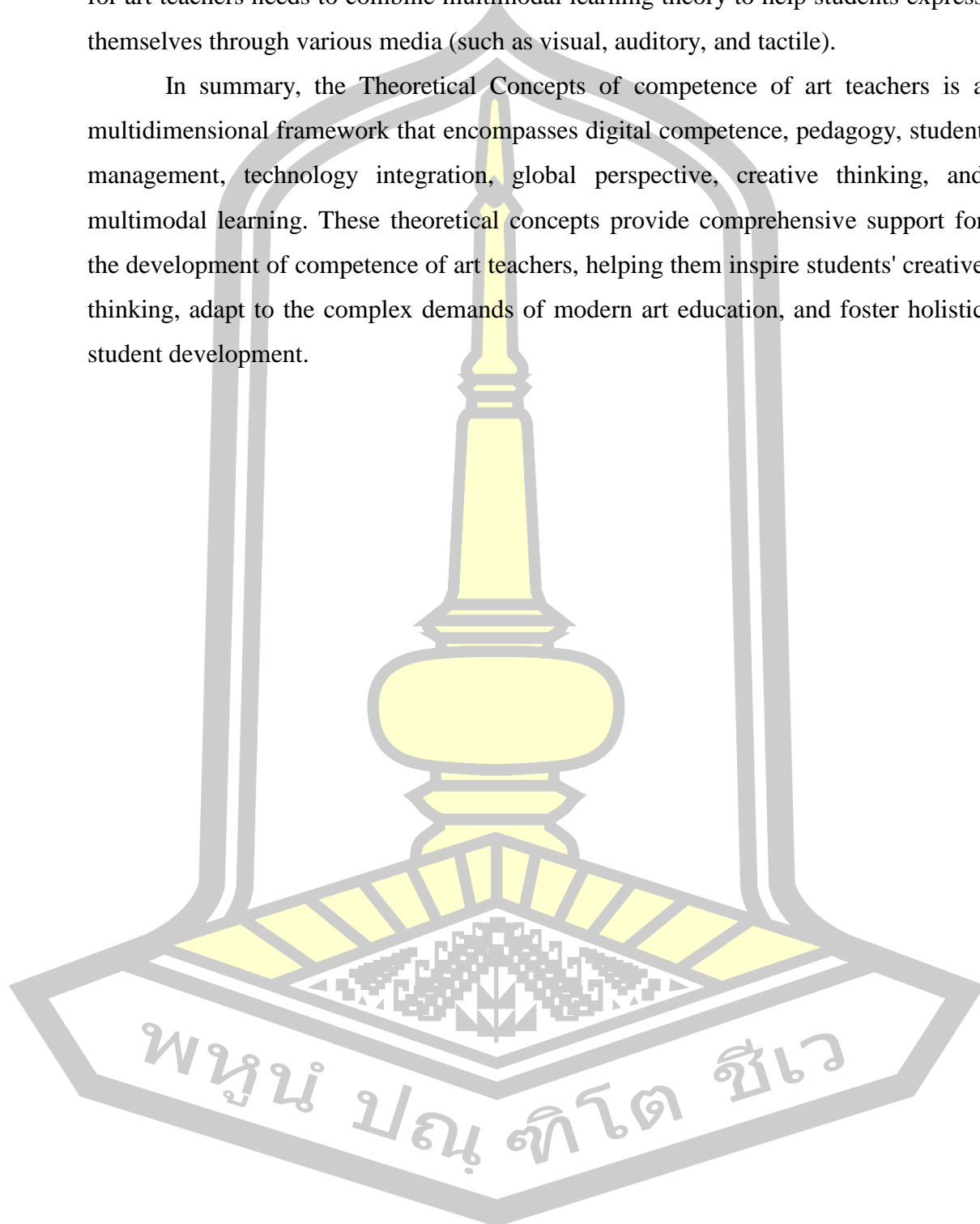
Anderson (2020) proposed that the Theoretical Concepts of competence of art teachers should incorporate a global perspective, emphasizing the importance of cultural diversity and inclusivity in art education. He argued that art teachers should be equipped to teach students from diverse cultural backgrounds and promote cross-cultural understanding through art.

Runco (2021) pointed out that the Theoretical Concepts of competence of art teachers should specifically focus on fostering creative thinking. He argued that the theoretical framework for art teachers needs to incorporate theories of creative thinking (such as divergent and convergent thinking) and use open-ended questions, brainstorming, and creative tasks to help students develop problem-solving skills through creativity.

Duncum (2022) emphasized that the Theoretical Concepts of competence of art teachers should incorporate a multimodal learning perspective, especially in digital

media and interdisciplinary art education. He proposed that the theoretical framework for art teachers needs to combine multimodal learning theory to help students express themselves through various media (such as visual, auditory, and tactile).

In summary, the Theoretical Concepts of competence of art teachers is a multidimensional framework that encompasses digital competence, pedagogy, student management, technology integration, global perspective, creative thinking, and multimodal learning. These theoretical concepts provide comprehensive support for the development of competence of art teachers, helping them inspire students' creative thinking, adapt to the complex demands of modern art education, and foster holistic student development.



CHAPTER III

RESEARCH METHODOLOGY

This chapter outlines the research design and procedures of the "Competence Improvement Programme for Higher Vocational Art Teachers in Zhejiang Province". A research development methodology was designed to investigate the study. The research process was divided into three stages. Each stage has detailed procedural steps and expected results, and the research methodology is as follows:

Phase 1: Investigation of the components of competence of art teachers in higher vocational colleges in Zhejiang

There are 2 steps for conduction of the study as folling:

Step 1 Study the components of competence of art teachers in higher vocational colleges in Zhejiang.

1.Data sources

The researcher will collect literature related to the competencies of art teachers, including books, textbooks, documents, and research articles. Additionally, foreign research articles and books will be included to ensure comprehensive coverage of international research in the field. These materials will be sourced from libraries, the internet, and online databases. The researcher will then categorize, evaluate, and critically analyze these sources to ensure they are relevant, credible, and of high quality. By synthesizing the findings, the researcher will form a comprehensive understanding of the components of competence of art teachers.

2. Research instrument

The researcher will organise and analyse the data using record forms for printed documents or Information record form. The collected literature will be categorised and critically evaluated and digital tools will be used to streamline the data collection and analysis process.

3. Data collection

Use the information record form to analyze the data, which including: Teaching ability, Innovation ability, Social service ability, and Professional ability.

Step 2 Evaluating the suitability of the components of competence of art teachers in higher vocational colleges in Zhejiang

1.The researcher managed the components in the evaluation form for the experts who were under the criteria for selecting qualified experts are as follows:

1.1 Education: The interviewees possess a master's degree or higher

1.2 Experience: talents with professional knowledge and experience in Artistic studies,educational research

1.3 Job position: Arts Research/ educational research

Experts include:

1.1 Professor Mu Ke, Doctor of Fine Arts, Deputy Dean of the International Academy of Fine Arts, Harbin Normal University

1.2 Professor WangXiaoming, Master of Fine Arts, Supervisor of Master's Students , Department of Basic Professional Teaching,China Academy of Art,

1.3 Professor Wang Hao, Master of Fine Arts, College of Fine Arts and Design, Tianjin Normal University

1.4 Professor Zhu Hongliang, Master of Fine Arts , Dean of the Faculty of Arts and Culture , Zhejiang Technical Institute of Economics

1.5 Professor PanJun, Master of Fine Arts, Faculty of Arts and Culture ,Zhejiang Technical Institute of Economics

2. Research instrument

The research instrument was a evaluation form that the researcher has proceeded to create and find the quality of research instrument as follows.

2.1 Characteristics of evaluation form the divided into 2 parts:

Part 1 Checklist evaluation form, asking about the status of the experts.

Part 2: Assessing the suitability of the components of competence of art teachers in higher vocational colleges in Zhejiang.The criteria were:

Level 5 refers to suitability at the highest level

Level 4 refers to suitability at the highe level

Level 3 refers to suitability at the medium level

Level 2 refers to suitability at the low level

Level 1 refers to suitability at the lowest level

2.2 Find out quality of evaluation form

2.2.1 Study details of components, art teacher competence

2.2.2 Define components of art teacher competence

2.2.3 create evaluation form of art teacher competence

2.2.4 Take it to the advisor to check for accuracy and improve

according to recommendations which were the contents of 4 components: Teaching ability, Innovation ability, Social service ability, and Professional ability.

2.2.5 Prepare a complete suitability evaluation for art teacher

competence based on the definition of terms.

3. Data Collection

The researcher proceeded with data collection with the following steps:

3.1 The researcher asked for the official documents of the Faculty of Education, Mahasarakham University to experts to request assistance in collecting data.

3.2 Contacted and coordinated with experts to assess the suitability of the components of art teacher competence.

3.3 Carried out data collection by handing the evaluation form.

4. Data Manipulation and Analysis

4.1 Organizing data the researcher proceeds as follows.

4.1.1 Verify accuracy Completeness of the evaluation form

4.1.2 Code, score and record data on the computer

4.2 Data analysis Form for evaluating the suitability of components art teacher competence. Use mean analysis and standard deviation with the criteria as following (Srisa-ard, B. 2010) :

4.51 – 5.00 refers to suitability at the highest level

3.51 – 4.50 refers to suitability at a high level

2.51 – 3.50 refers to suitability at a medium level

1.51 – 2.50 refers to suitability at a low level

1.00 – 1.50 refers to suitability at the lowest level

Phase 2: To explore the existent state, desired state, and priority needs of competence of art teachers in higher vocational colleges in Zhejiang

To explore existent states, desired states of competence of art teachers in higher vocational colleges in Zhejiang, the researcher conducted a survey research method as follows:

1. Population and sample

1.1 The population in this study consists of arts instructors from public higher vocational colleges in Zhejiang Province. Zhejiang Province has a total of 47 higher vocational colleges, 37 of which are public institutions (this study focuses on public higher vocational colleges in Zhejiang Province, excluding private institutions). Among these public colleges, 16 offer programs in the arts, with a total of 885 art teachers.

1.2 The sample group selected for this study consists of arts instructors from higher vocational colleges in Zhejiang Province. To ensure both representativeness and comprehensiveness in the analysis, five colleges were selected based on the criteria of the number of art teachers, geographic location, and institutional level. These institutions include Zhejiang Vocational Academy of Art, Jinhua Vocational and Technical University, Wenzhou Polytechnic, Hangzhou Vocational & Technical College, and Ningbo Polytechnic, with a total of 275 art teachers classified according to the number of arts teachers. As follows the table 4.

Table 4 Shows the population and sample.

| Size of school | Population | Samples |
|----------------|--------------|--------------|
| Size of school | Art teachers | Art teachers |
| Large | 358 | 103 |
| Medium | 300 | 93 |
| Small | 227 | 79 |
| Total | 885 | 275 |

The researcher performed the following steps.

1. The sample size was determined using the Yamane formula (1967), resulting in a sample size of 275 persons.

2. Stratified Random Sampling was employed, with the population stratified according to school size (Large, Medium, and Small). This stratification was chosen to ensure that each group was proportionately represented in the sample, reflecting the diversity within the population.

3. The number of samples for each stratum was calculated based on the proportion of the population in each stratum. The total sample size of 275 was then proportionally allocated to each stratum. Simple random sampling was used within each stratum to select the individuals, as detailed in the table above.

2. Research instrument

2.1 Constructed research instrument

Constructed research instrument, which was a questionnaire, divided into sections, which are:

Part 1 Checklist of the status of the respondents in terms of gender, position and education level which was a forced choice.

Part 2 Rating Scale questionnaire asked about the existent states and desired state. Data analysis involved calculating the arithmetic mean (\bar{X}) and standard deviation (S.D.), presenting the results in a tabular format. By classifying the questions as a 5-level estimation scale of the Likert Scale, the score value is 5 levels as follows:

5 refers to existent state and desired state at the highest level

4 refers to existent state and desired state at a high level

3 refers to existent state and desired state at a medium level

2 refers to existent state and desired state at a low level

1 refers to existent state and desired state at the lowest level

2.2 Find out quality of research instrument

2.2.1 Study how to construct an estimation scale questionnaire.

2.2.2 Draft questionnaire “Study of the components of Art Teachers in Higher vocational colleges in Zhejiang,” from The results of the study in Phase 1 served as a framework for constructing the questionnaire.

2.2.3 Take it to the thesis advisor to check its accuracy and make improvements according to their advice.

2.2.4 Checking the quality of the questionnaire by checking content validity, the researcher brought the create questionnaire by the researcher. and has been considered by advisor, send to expert's evaluation validity of contents, suitability, and clarity of the questions Carry out research instrument for quality checks. Criteria of content validity is 0.60 or higher.

The experts for examining the questionnaire using the IOC (Index of Congruence) technique consisted of 5 experts, as follows:

1. Professor Dun Zibin, Doctor of Fine Arts, College of Fine Arts and Design, Tianjin Normal University
2. Associate Professor Feng Wenhua, Doctor of Fine Arts, Faculty of Culture and Arts, Zhejiang Technical Institute of Economics
3. Associate Professor Ye fengquan, Master of Fine Arts , Faculty of Arts and Crafts, Hangzhou Institute of Vocational Technology
4. Associate Professor Sun Yongtai, Doctor of Education, Full-time Associate Editor, Journal of Educational Science, Jimei University
5. Associate Professor Shen Qing, Master of Fine Arts, Director of Tongxiang Campus Management Committee, Zhejiang Media University.

2.2.5 The researcher took the questionnaire that has been checked for validity and considered by the advisor and to try out with a sample of 30 persons. using Pearson's simple correlation coefficient, the researcher selected items with item classification power between .20 - .80. The validity of the existent state is 0.767, the validity of the desired state is 0.713.

2.2.6 Checking the reliability, the researcher used the questionnaire with discriminatory power to find the reliability by Cronbach'Alpha Coefficient method. the Criteria is greater than .70. The reliability of the existent state, teaching ability, is 0.924, Social service ability is 0.907, Social service ability is 0.907, Professional ability is 0.936. The reliability of the desired state, Teaching ability is 0.926, Innovation ability is 0.864, Social service ability is 0.900, Professional ability is 0.938.

2.2.7 Prepare a complete questionnaire. and used to collect data with samples

3. Data Collection

3.1 The researcher recorded the official documents of the Faculty of Education, Maharakham University to sample group to request assistance in collecting data.

3.2 Contact with sample group to request data collection.

3.3 Carry out data collection

After the data collection process, the researcher will organize, clean, and validate the collected data to ensure its accuracy and completeness. Missing or anomalous values will be addressed appropriately. The data will then be entered into a computer system and prepared for subsequent analysis.

4. Data Manipulation and Analysis

In the data collection process, after the data is collected, the researcher will organize, code, classify, and clean the data. Once the data integrity is ensured, statistical analysis tools such as SPSS will be used to analyze the data and generate usable statistical results. During the analysis, appropriate statistical methods (e.g., descriptive statistics) will be employed to process the data, ensuring the validity and reliability of the data analysis.

4.1 Data manipulation and analysis, the researcher proceeds as follows.

4.1.1 Validate exhaustive questionnaire

4.1.2 The record data on the computer

4.2 Analysis of questionnaire data

4.2.1 Part 1 Status of respondents using frequency and percentage analysis

4.2.2 Part 2 Existent state and desired state use mean analysis and standard deviation (Srisa-ard, B. 2010)

4.51 - 5.00 refers to existent state and desired state at the highest level

3.51 - 4.50 refers to existent state and desired state at a high level

2.51 - 3.50 refers to existent state and desired state at a medium level

1.51 - 2.50 refers to existent state and desired state at a low level

1.00 - 1.50 refers to existent state and desired state the lowest level

5. Statistics for data analysis

5.1 The statistics used to determine the quality of the instrument are the Index of Congruance (IOC), discrimination, and Reliability of the Questionnaire

5.2 Basic statistics: frequency, percentage, mean, standard deviation.

5.3 Priority Needs of Index (PNImodified)

Phase 3 :To develop a program to enhance competence of art teachers in higher vocational colleges in Zhejiang

Developing a program to enhance competence of art teachers in higher vocational colleges in Zhejiang. This phase included in-depth interviews with 5 experts to study the principles and methods for developing art teachers competence, as well as evaluating the suitability and feasibility of the program. Research instrument included interview forms, questionnaires, and assessment forms. The statistical methods used in the research included percentage, mean, standard deviation, and content analysis.

Step 1 The interview: the researcher proceeded as the follows:

The researcher set criteria on educational background, work experience, or positions of the experts as follows:

1.1 Education: The interviewee holds a doctoral degree and an academic title of associate professor or above.

1.2 Experience: professional knowledge in the field of educational training and educational management; educational research or educational psychology;

1.3 Job position: experience in teaching and educational teacher competence in the above fields;

The experts consist of 5 persons as follows:

1. Professor Sun Gangcheng, Doctor of Education, Supervisor of Doctoral Students , Faculty of Educational Sciences, Yan'an University.

2. Associate Professor Zhai Junqing, Doctor of Education, Supervisor of Master's Students, Faculty of Education, Zhejiang University.

3. Associate Professor Wen Jing , Doctor of Education , Supervisor of Master's Students, Institute of Education, Xiamen University

4. Associate Professor Zhang Lu, Doctor of Education, Faculty of Education, Wenzhou University.

5. Associate Professor Lu Jihai, Doctor of Education, Deputy Director of Social Cooperation Department, Zhejiang Gongshang University.

2. Research instrument

The research instrument which was an interview form divided into as follows:

Part 1 General information including: 1) education level 2) job position 3) work experience.

Part 2 Opinions on the issues: The questionnaire survey is mainly for the comprehensive development competence of art teachers in issues about principles and methods.

2.2 Find out quality of research instrument

The researcher has proceeded to create and find the quality of the tools as follows.

1) Study the concepts, theories, and related research: develop program to enhance art teacher competence of in higher vocational colleges in Zhejiang

2) Create an interview form.

3) Take the interview form to the advisor to check the correctness of the interview form, and idioms, and make improvements as recommended.

4) Improve the interview form according to the advice to be published in the complete form.

3. Data Collection

The researcher collects data. The details are as follows:

3.1 Prepare a letter asking for cooperation from the Faculty of Education to experts.

3.2 Submit a letter requesting a cooperation thesis outline and a structured interview form to the experts to ask for assistance in giving an interview

3.3 Coordinate with experts to request an interview date and time.

3.4 Interview on the appointed date and time.

4. Data Manipulation and Analysis

4.1 Collect interview data. organize information group content

4.2 Data were analyzed by qualitative data analysis techniques.

Content Analysis.

Step 2 Formulation or constructed programs

In drafting a program to enhance competence of art teachers in higher vocational colleges in Zhejiang . The researcher proceeds as follows:

1. The researcher took the results of the study from Phase 1, the results of the study of components, components, and guidelines for developing enhance to competence of art teachers in higher vocational colleges in Zhejiang according to the research concept. The draft enhance to competence of art teachers program consists of 5 components: 1) Principless, 2) Objectives, 3) Contents, 4) Development process, and 5) Evaluation program.

2. The researcher leads a program to enhance competence of art teachers in higher vocational colleges in Zhejiang. Propose to the advisor for consideration. and improve according to the advice and corrections according to the advisor.

3. The researcher will present the program to experts

Step 3 Assessment programs

The developed program underwent rigorous validation through expert assessment. Five experts evaluated the program's suitability and feasibility using standardized assessment forms with five-point Likert scales.

1. Expert. Criteria for selecting qualified experts areas follows:

1.1 Education: The interviewee holds a doctoral degree and an academic title of associate professor or above;

1.2 Experience : professional knowledge in the field of educational training and educational management; educational research or educational psychology;

1.3 Job position : experience in teaching and educational teacher competence in the above fields.

Experts include:

1 . Professor Zhu Huaixin, Doctor of Education, Doctoral Supervisor, Faculty of Education,Zhejiang University.

2. Professor Zhang Feng, Doctor of Education, Doctoral Supervisor , Faculty of Psychology ,Henan University.

3. Professor He Xuelian, Doctor of Education, Deputy Dean, Faculty of Economics and Management ,Quzhou College of Technology.

4. Associate Professor Ma Yuan, Doctor of Education ,Administration of Continuing Education, Zhejiang University.

5. Associate Professor Jiang Jiong ping, Doctor of Education, Director of the Academic Affairs Office at Tourism College of Zhejiang China.

2. Research instrument

The research instrument used in this study was a questionnaire, designed to assess the various components of the program.

2.1 Constructed research instrument

Constructed research instrument by studying documents. Relevant research of program components Then determine the key points to be assessed from the information obtained from the study. then used to create questions to cover the issue.

2.2 Find out quality of research instrument

2.2.1 Study the details of the components of the program.

2.2.2 Determine the key points to be assessed from the data obtained from the study used to write questions to cover all issues.

2.2.3 Advisor the correctness of the idioms.

2.2.4 Experts Verify Content Validity of Question Clarity.

3. Data Collection

The researcher coordinated with experts to evaluation them suitability and feasibility of the program. Researcher required the approval letter from the Faculty of Education, Maharakham University before starting the data distribution process. In order to make data collection process effectively and objectively, the request letter was attached with the evaluation form and sent to respondents. The data was distributed by hard copy in which given directly to the experts and also sent

evaluation form to the experts through their email. The researcher will receive the data through email or collect complete papers by meeting directly to the experts. And then researcher obtained draft back within one week.

4. Data Manipulation and Analysis

validate analyze data and interpret data. Criteria by using the mean interpretation criterion (Boonchom Sri-sa-ard, 2010)

4.51 - 5.00 refers to suitability and feasibility at the highest level

3.51 - 4.50 refers to suitability and feasibility at a high level

2.51 - 3.50 refers to suitability and feasibility at a medium level

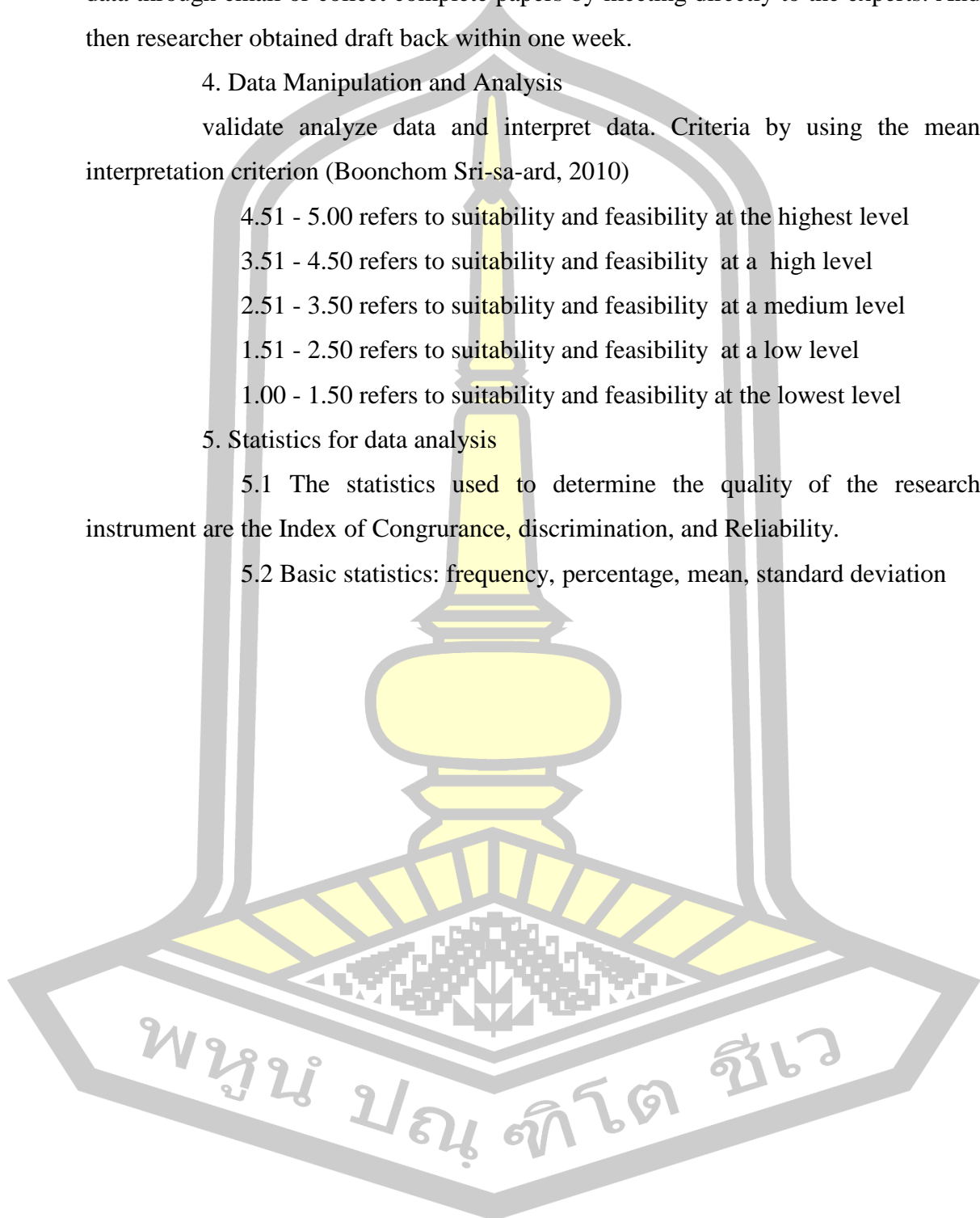
1.51 - 2.50 refers to suitability and feasibility at a low level

1.00 - 1.50 refers to suitability and feasibility at the lowest level

5. Statistics for data analysis

5.1 The statistics used to determine the quality of the research instrument are the Index of Congruance, discrimination, and Reliability.

5.2 Basic statistics: frequency, percentage, mean, standard deviation



CHAPTER IV

RESULT OF DATA ANALYSIS

The research on a program to enhance competence of art teachers in higher vocational colleges in Zhejiang . The researcher analyzed results of the data as the following:

1. Symbols used in data analysis
2. Steps for data analysis
3. Data analysis results

Symbols used in data analysis

| Symbol | Represents |
|---------------|-------------------------------------|
| \bar{x} | Mean |
| S.D. | Standard Deviation |
| PNI modified | Priority Need Index modified |
| N | Population |
| I | Importance or Desired State |
| D | Degree of success or Existent state |

Steps for data analysis

Results steps of the analysis were divided into 3 phases:

Phase 1: Investigate components of competence of art teachers in higher vocational colleges in Zhejiang

Phase 2: Explore the existent state, desired state and PNI of Competence of Art Teachers in Higher vocational colleges in Zhejiang

Phase 3: Developing a program to enhance competence of Art Teachers in Higher vocational colleges in Zhejiang

Result of data analysis

Phase 1: Analyzing components of Competence of Art Teachers in Higher vocational colleges in Zhejiang as table 5.

Table 5 Mean Standard Deviation and level of Suitability of Components of competence of art teachers

| Items | Components of competence of Art teachers | \bar{x} | S.D. | level of suitability |
|-------|--|-----------|------|----------------------|
| 1. | Teaching ability | 5 | 0 | Highest Suitable |
| 2. | Innovative ability | 4.60 | 0.49 | Highest Suitable |
| 3. | professional ability | 4.60 | 0.49 | Highest Suitable |
| 4. | Social service ability | 4.80 | 0.40 | Highest Suitable |
| | Total | 4.80 | 0.43 | Highest Suitable |

From the table 3 it was found that the components of competence of art teachers in higher vocational colleges in Zhejiang were overall at the highest level (\bar{x} =4.78) When considering each aspect, it was found that the suitability levels were ranked from highest to lowest as follows 1) Teaching ability highest (\bar{x} =4.88) 2) Innovative ability highest (\bar{x} =4.81) 3) professional ability highest (\bar{x} =4.75) and 4) Social service ability highest (\bar{x} =4.67) competence.

Phase 2: Explore the existent state, desired state and PNImodified of Competence of Art Teachers in Higher vocational colleges in Zhejiang as table 6 and 7.

Table 6 Shows the frequencies and percentages of respondent demographics

| Basic information of the respondents | N=275 (number) | |
|--------------------------------------|----------------|------------|
| | frequency | Percent(%) |
| Gender | | |
| Female | 186 | 67.69% |
| Male | 89 | 32.31% |
| Total | 275 | 100.0 |
| Position | | |
| Administrator and art teachers | 49 | 17.69% |
| Art teachers | 226 | 82.31% |
| Total | 275 | 100.0 |

Table 6 (Continued)

| Basic information of the respondents | N=275 (number) | |
|--------------------------------------|----------------|------------|
| | frequency | Percent(%) |
| Education Level | | |
| Below Bachelor's Degree | 0 | 0% |
| Bachelor | 84 | 30.72% |
| Master | 157 | 57.04% |
| Doctor | 34 | 12.24% |
| Total | 275 | 100.0 |

From Table 6, it was found that the demographic characteristics of respondents focus on gender, position, and education level. Among the 275 respondents, the majority are female (67.69%), while males account for 32.31%, reflecting a significant gender disparity in the sample population. Regarding professional roles, 17.69% of respondents undertake both administrative and teaching responsibilities, while the vast majority (82.31%) are solely engaged in teaching, indicating that teachers form the primary group in this population. In terms of education level, none of the respondents have qualifications below a bachelor's degree, suggesting that the field has a certain baseline requirement for academic credentials. The majority of respondents hold a master's degree (57.04%), followed by bachelor's degree holders (30.72%), while those with a doctoral degree account for 12.24%. This distribution indicates that art educators generally possess a certain level of professional academic competence, with a particularly high proportion of master's degree holders, reflecting the strong professional foundation of educators in this field. Table 7 Mean, standard deviation, level of the existent state, desired state, and PNI modified of the components of competence of art teachers in higher vocational colleges in Zhejiang, classified by components.

| Component | Existent state | | | Desired state | | | PNI _{modified} | Order Priority Needs |
|---------------------|----------------|-------|-------|---------------|-------|---------|-------------------------|----------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 1. Teaching ability | 3.63 | 0.230 | high | 4.72 | 0.165 | highest | 0.298 | 3 |

Table 7 (Continued)

| Component | Existent state | | | Desired state | | | PNI _{modified} | Order Priority Needs |
|-------------------------------|----------------|-------|--------|---------------|-------|---------|-------------------------|----------------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 1. Teaching ability | 3.63 | 0.230 | high | 4.72 | 0.165 | highest | 0.298 | 3 |
| 2. Innovative ability | 3.47 | 0.674 | medium | 4.55 | 0.592 | highest | 0.313 | 2 |
| 3. Social service ability | 3.11 | 0.443 | medium | 4.21 | 0.211 | high | 0.356 | 1 |
| 4. Professional competence | 3.59 | 0.954 | high | 4.62 | 0.515 | highest | 0.288 | 4 |
| Total | 3.48 | 0.479 | medium | 4.56 | 0.265 | highest | 0.308 | - |

From the table 5 it was found that the existent state of competence of were level overall at the medium ($\bar{x} = 3.48$). Considering each aspect, it was found that the existent state levels were ranked from highest to lowest as follows: 1) Teaching ability 2) Professional competence 3) Innovative ability 4) Social service ability.

The desired state of competence of were level overall at the highest ($\bar{x} = 4.56$). Considering each aspect, it was found that the desired state levels were ranked from highest to lowest as follows: 1) Teaching ability 2) Professional competence 3) Innovative ability and 4) Social service ability.

The priority need index modified (PNI_{modified}), the order of the priority need index modified social service ability the first, innovative ability the second, teaching ability the third, professional competence the fourth.

Table 8 Mean, standard deviation, level of the existent state , desired state, and PNI modified of the components of competence of art teachers in higher vocational colleges in Zhejiang. Classified by items of component of teaching ability.

| Teaching ability | Existent state | | | Desired state | | | PNI modified | Order Priority Needs |
|--|----------------|-------|--------|---------------|-------|---------|--------------|----------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 1. You have the ideal ambition in line with the development of society and education career and are willing to strive for it continuously. | 4.05 | 0.880 | high | 4.79 | 0.502 | highest | 0.182 | 11 |
| 2. You have beliefs, positive attitudes and correct values | 4.01 | 0.916 | high | 4.76 | 0.621 | highest | 0.187 | 10 |
| 3. You have a passion for education | 4.08 | 0.919 | high | 4.56 | 0.796 | highest | 0.120 | 12 |
| 4. You have the ability to model and coach students to improve their professional competence, work ethic and professionalism. | 3.59 | 0.779 | high | 4.83 | 0.525 | highest | 0.343 | 4 |
| 5. You've been trained in professional ethics. | 3.55 | 0.797 | medium | 4.57 | 0.649 | highest | 0.287 | 7 |
| 6. You have the ability to design instruction based on the needs of higher vocational education. | 3.63 | 0.774 | high | 4.56 | 0.677 | highest | 0.257 | 9 |

Table (Continued)

| Teaching ability | Existent state | | | Desired state | | | PNImodified | Order Priority Needs |
|---|----------------|-------|--------|---------------|-------|---------|-------------|----------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 7. You can guide students to value the experience of the learning process through scientific assessment methods | 3.54 | 0.838 | high | 4.55 | 0.668 | highest | 0.285 | 8 |
| 8. You have strong theoretical and practical teaching skills. | 3.58 | 0.712 | high | 4.85 | 0.367 | highest | 0.354 | 3 |
| 9. You focus on practical teaching skills and are good at developing students' hands-on skills. | 3.56 | 0.734 | high | 4.79 | 0.535 | highest | 0.343 | 5 |
| 10. You have the ability to manage a classroom and students are highly motivated to interact in your classroom. | 3.59 | 0.798 | high | 4.80 | 0.536 | highest | 0.335 | 6 |
| 11. You have the ability to apply emerging information technologies to teaching and learning. | 3.17 | 0.926 | medium | 4.82 | 0.402 | highest | 0.523 | 1 |
| 12. You regularly summarise and reflect on your teaching. | 3.25 | 0.762 | medium | 4.77 | 0.556 | highest | 0.469 | 2 |
| Total | 3.63 | 0.230 | high | 4.72 | 0.164 | highest | 0.299 | - |

From the table 8, it was found that the existent state of teaching ability was rated overall at a very high level ($\bar{x} = 3.63$). Considering each item, the highest-rated aspect was " You have a passion for education " ($\bar{x} = 4.08$), followed by " You have the ideal ambition in line with the development of society and education career and are willing to strive for it continuously." ($\bar{x} = 4.05$). The lowest-rated aspect was "Having the ability to apply emerging information technologies to teaching and learning" ($\bar{x} = 3.19$).

The desired state of competence was found to be at the highest level overall ($\bar{x} = 4.72$). Considering each item, the highest-ranked desired state was "Having strong theoretical and practical teaching skills" ($\bar{x} = 4.85$), followed by " You have the ability to model and coach students to improve their professional competence, work ethic and professionalism." ($\bar{x} = 4.83$). The third-ranked condition was " You have the ability to apply emerging information technologies to teaching and learning." ($\bar{x} = 4.82$), while the lowest-ranked condition was "You can guide students to value the experience of the learning process through scientific assessment methods " ($\bar{x} = 4.55$).

In terms of the Priority Needs Index Modified (PNI_{modified}), the highest priority was identified as "The ability to apply emerging information technologies to teaching and learning" (PNI_{modified} = 0.523), followed by "Having strong theoretical and practical teaching skills" (PNI_{modified} = 0.469). The lowest priority was "A passion for education" (PNI_{modified} = 0.120).

Table 9 Mean, standard deviation, level of the existent state, desired state , and PNI modified of the components of competence of art teachers in higher vocational colleges in Zhejiang. Classified by items of component of innovative ability

| Innovative ability | Existent state | | | Desired state | | | PNI _{modified} | Order Priority Needs |
|--|----------------|-------|--------|---------------|-------|---------|-------------------------|----------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 1. You value academic research skills and regularly write or publish academic papers | 3.28 | 0.693 | medium | 4.88 | 0.464 | highest | 0.488 | 1 |

Table 9 (Continued)

| Innovative ability | Existent state | | | Desired state | | | PNI _{modified} | Order Priority Needs |
|---|----------------|--------------|---------------|---------------|--------------|----------------|-------------------------|----------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 2. You regularly apply for research projects in the field of teaching or academia | 3.36 | 0.718 | medium | 4.73 | 0.678 | highest | 0.410 | 2 |
| 3. You value the translational application of your academic achievements and apply for patents for them. | 3.24 | 0.720 | medium | 4.42 | 0.874 | high | 0.365 | 3 |
| 4. You have a creative mind and are good at coming up with new ideas and approaches in your work and artistic creation. | 3.53 | 1.115 | high | 4.45 | 0.806 | high | 0.259 | 5 |
| 5. You focus on the development of students' innovative thinking and have the ability to guide students to apply innovative thinking in their learning. | 3.82 | 1.137 | high | 4.53 | 0.784 | highest | 0.186 | 7 |
| 6. You are good at developing new teaching methods and courageous in making teaching reforms. | 3.39 | 1.237 | medium | 4.47 | 0.784 | high | 0.319 | 4 |
| 7. You are creative, observant and insightful. | 3.64 | 1.179 | high | 4.38 | 0.794 | high | 0.203 | 6 |
| Total | 3.47 | 0.674 | medium | 4.55 | 0.592 | highest | 0.313 | |

From the table 9 it was found that the existent state of innovative ability of were level overall at the medium ($\bar{x} = 3.47$). Considering each item, it was found that the existent state levels were ranked most, You focus on the development of students' innovative thinking and have the ability to guide students to apply innovative thinking in their learning. ($\bar{x} = 3.82$), and you are creative, observant and insightful. ($\bar{x} = 3.64$), and least, you value the translational application of your academic achievements and apply for patents for them. ($\bar{x} = 3.24$).

The desired state of competence of were level overall at the highest ($\bar{x} = 4.55$). Considering each item, it was found that the desired state levels were ranked most you value academic research skills and regularly write or publish academic papers ($\bar{x} = 4.88$), second most you regularly apply for research projects in the field of teaching or academia, ($\bar{x} = 4.73$), and least, you are creative, observant and insightful. ($\bar{x} = 4.38$).

The priority need index modified (PNImodified), the order of priority need index modified the first, you value academic research skills and regularly write or publish academic papers (PNImodified =0 .488) the second, you regularly apply for research projects in the field of teaching or academia (PNImodified = 0.410) and the least, you focus on the development of students' innovative thinking and have the ability to guide students to apply innovative thinking in their learning.(PNImodified =0 .186) .

Table 10 Mean, standard deviation, level of the existent state , desired state ,and PNI modified of the components of competence of art teachers in higher vocational colleges in Zhejiang. Classified by items of component of social service ability.

| Social service ability | Existent state | | | Desired state | | | PNImodified | Order Priority Needs |
|---|----------------|-------|--------|---------------|-------|-------|-------------|----------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 1. You are good at working with companies on curriculum development and instructional design. | 3.05 | 0.820 | medium | 4.26 | 0.654 | high | 0.395 | 2 |
| 2. You regularly declare corporate research projects. | 3.18 | 0.906 | medium | 4.09 | 0.439 | high | 0.286 | 7 |
| 3. You often visit the company for research and study. | 3.11 | 0.927 | medium | 4.25 | 0.482 | high | 0.366 | 3 |

Table 10 (Continued)

| Social service ability | Existent state | | | Desired state | | | PNI _{modified} | Order Priority Needs |
|---|----------------|-------|--------|---------------|-------|-------|-------------------------|----------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 4. You have undertaken and completed many university-enterprise co-operation projects | 2.88 | 0.936 | medium | 4.48 | 0.529 | high | 0.556 | 1 |
| 5. You can provide professional consulting and diagnostic services to companies and participate in R&D or management innovation projects. | 3.20 | 1.037 | medium | 4.08 | 0.441 | high | 0.272 | 8 |
| 6. You actively participate in corporate training and help companies develop talent. | 3.10 | 0.851 | medium | 4.11 | 0.442 | high | 0.327 | 6 |
| 7. You conduct regular training for the community | 3.17 | 1.145 | medium | 4.22 | 0.456 | high | 0.330 | 5 |
| 8. You regularly participate in and contribute to educational | 3.14 | 1.006 | medium | 4.19 | 0.471 | high | 0.334 | 4 |
| Total | 3.11 | 0.438 | medium | 4.21 | 0.211 | high | 0.356 | |

From the table 10, it was found that the existent state of collaboration ability with enterprises was rated overall at a medium level ($\bar{x} = 3.11$). Considering each item, the highest-rated aspect was " You can provide professional consulting and diagnostic services to companies and participate in R&D or management innovation projects." ($\bar{x} = 3.20$), followed by " You regularly declare corporate research projects." ($\bar{x} = 3.18$). The lowest-rated aspect was " You have undertaken and completed many university-enterprise co-operation projects " ($\bar{x} = 2.96$).

The desired state of collaboration ability with enterprises was found to be at a very high level overall ($\bar{x} = 4.21$). Considering each item, the highest-ranked desired state was " You have undertaken and completed many university-enterprise co-operation projects " ($\bar{x} = 4.48$), followed by " You are good at working with companies on curriculum development and instructional design." ($\bar{x} = 4.26$). The third-ranked condition was " You often visit the company for research and study." ($\bar{x} = 4.25$), while the lowest-ranked condition was " You can provide professional consulting and diagnostic services to companies and participate in R&D or management innovation projects." ($\bar{x} = 4.08$).

In terms of the Priority Needs Index Modified (PNI_{modified}), the highest priority was identified as " You have undertaken and completed many university-enterprise co-operation projects " (PNI_{modified} = 0.556), followed by " You are good at working with companies on curriculum development and instructional design." (PNI_{modified} = 0.395). The lowest priority was " You can provide professional consulting and diagnostic services to companies and participate in R&D or management innovation projects." (PNI_{modified} = 0.272).

Table 11 Mean, standard deviation, level of the existent state , desired state, and PNI modified of the components of competence of art teachers in higher vocational colleges in Zhejiang. Classified by items of component of professional ability.

| Professional ability | Existent state | | | Desired state | | | PNI _{modified} | Order Priority Needs |
|--|----------------|-------|-------|---------------|-------|---------|-------------------------|----------------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 1. You have a high level of professional research interest in the arts | 3.74 | 1.102 | high | 4.66 | 0.540 | highest | 0.245 | 13 |
| 2. You have high general artistic qualities. | 3.62 | 1.030 | high | 4.64 | 0.544 | highest | 0.282 | 8 |

Table 11 (Continued)

| Professional ability | Existent state | | | Desired state | | | PNI _{modified} | Order Priority Needs |
|---|----------------|-------|--------|---------------|-------|---------|-------------------------|----------------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 3. You have expertise in an artistic discipline. | 3.69 | 1.101 | high | 4.62 | 0.589 | highest | 0.250 | 11 |
| 4. You have practical skills in the arts . | 3.77 | 0.780 | high | 4.61 | 0.597 | highest | 0.222 | 9 |
| 5. In addition to your teaching job, you stick to your creative art in your spare time. | 3.52 | 1.048 | high | 4.60 | 0.610 | highest | 0.309 | 4 |
| 6. You take an active part in competitions or exhibitions in your field of artistic specialisation. | 3.35 | 1.047 | medium | 4.72 | 0.519 | highest | 0.410 | 1 |
| 7. You have a high level of concentration and artistic insight | 3.71 | 0.894 | high | 4.49 | 0.680 | high | 0.212 | 6 |
| 8. You regularly participate in academic exchange activities organised by industry associations | 3.43 | 1.066 | medium | 4.71 | 0.514 | highest | 0.376 | 2 |

Table 11 (Continued)

| Professional ability | Existent state | | | Desired state | | | PNI _{modified} | Order Priority Needs |
|--|----------------|-------|--------|---------------|-------|---------|-------------------------|----------------------------|
| | \bar{x} | SD | level | \bar{x} | SD | level | | |
| 9.You proactively seek out opportunities for professional learning and exchange training | 3.45 | 0.871 | medium | 4.57 | 0.608 | highest | 0.325 | 7 |
| 10.You follow the latest knowledge of your profession and are constantly learning to update your expertise | 3.70 | 1.129 | high | 4.67 | 0.544 | highest | 0.260 | 12 |
| 11.You regularly discuss academic professional issues with colleagues | 3.64 | 1.080 | high | 4.63 | 0.605 | highest | 0.271 | 10 |
| 12.In the work environment, what you consider to be an art major is not valued in comparison to other majors | 3.44 | 1.094 | medium | 4.55 | 0.579 | highest | 0.322 | 3 |
| 13.You've found a good balance between creating art and teaching it | 3.56 | 1.113 | high | 4.59 | 0.587 | highest | 0.288 | 5 |
| Total | 3.59 | 0.953 | high | 4.62 | 0.515 | highest | 0.288 | |

From the table11, it was found that the existent state of academic competence was rated overall at a very high level ($\bar{x} = 3.59$). Considering each item, the highest-rated aspect was " You have practical skills in the arts " ($\bar{x} = 3.77$), followed by " You have a very high level of professional research interest in the arts " ($\bar{x} = 3.74$). The lowest-rated aspect was " You regularly participate in academic exchange activities organized by industry associations" ($\bar{x} = 3.43$).

The desired state of academic competence was rated overall at the highest level ($\bar{x} = 4.62$). Considering each item, the highest-rated desired state was "You take an active part in competitions or activities in the field of artistic specialization" ($\bar{x} = 4.72$), followed by "You regularly participate in academic exchange activities organised by industry associations " ($\bar{x} = 4.71$). The third-ranked condition was " You follow the latest knowledge of your profession and are constantly learning to update your expertise " ($\bar{x} = 4.67$), while the lowest-ranked condition was " In the work environment, what you consider to be an art major is not valued in comparison to other majors " ($\bar{x} = 4.57$).

In terms of the Priority Needs Index Modified (PNImodified), the highest priority was identified as " You take an active part in competitions or exhibitions in your field of artistic specialisation." (PNImodified = 0.410), followed by " You regularly participate in academic exchange activities organised by industry associations " (PNImodified = 0.376). The lowest priority was " You have a high level of concentration and artistic insight " (PNImodified = 0.212).

Phase 3: Design construct and evaluate Program to Enhance Competence Art Teachers in Higher Vocational Colleges in Zhejiang

Step 1 Interview

According to the results of the study on the priority value of priority needs index modified (PNImodified). Existent state, desired state of competence of art teachers in higher vocational colleges in Zhejiang. To create the program to enhance competence of art teachers in higher vocational colleges in Zhejiang. The results of the data analysis from the interview 5 experts, as follows:

1. Components of program

From the study, documents, textbooks, the components of Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang , it consists of 5 components: 1) Principles 2) objectives 3) contents 4) development process 5) evaluation, which are consistent with Opinions of experts, the following statement.

“I think the design of the five components is very scientific. The setting of ‘Principles’ lays a theoretical foundation for the program, such as how to balance creativity and professionalism in arts education. The ‘Objectives’ are clear and specific, particularly addressing the actual needs of arts teachers in higher vocational colleges, such as improving their teaching and social service abilities. The module design of ‘Contents’ is comprehensive, covering key areas such as teaching and professional development. The ‘Development Process’ emphasizes a step-by-step improvement concept, which helps avoid content redundancy. As for ‘Evaluation,’ it is recommended to refine the indicators to better track the effectiveness of implementation.”

(Interviewee 1 , November 12, 2024 : interview)

“...The five components of the program represent a well-structured framework aligned with the principles of teacher development. Each component, particularly the focus on practical application and comprehensive content, ensures the program's relevance and effectiveness in enhancing the competences of art teachers.”

(Interviewee 2 , November 13, 2024 : interview)

“I believe the design of these five sections aligns well with the actual needs of higher vocational art teachers in Zhejiang. The 'Objectives' section should emphasize the vocational aspect, such as improving teachers' ability to guide students in practical skills. The 'Contents' section is comprehensive but should also consider the diverse professional backgrounds of different art teachers and provide tailored module options. The 'Principles' section plays a critical role in ensuring the program is designed with clear logic and remains true to its original intent. Lastly, the 'Evaluation' section helps assess the effectiveness of the program's implementation and ensures the achievement of its objectives.”

(Interviewee 3 , November 18, 2024 : interview)

“I believe the design of these five components is very comprehensive and highly reasonable. The 'Principles' section provides clear theoretical support for the entire program. The 'Objectives' section addresses the core needs of art teachers, such as enhancing teaching abilities and clarifying directions for professional development. The 'Contents' section is particularly commendable as it covers key areas of art teacher competence, including teaching, innovation, and social service. The 'Development Process' emphasizes phased implementation, allowing teachers to gradually improve their abilities while avoiding content overlap or implementation confusion. The 'Evaluation' section ensures that the entire program can be continuously optimized. I am confident that such a scientifically designed program will have a positive impact on the professional development of art teachers”

(Interviewee 4 , November 22, 2024 : interview)

“These five components constitute a complete framework, which is particularly instructive and relevant in enhancing teachers' teaching ability and comprehensive quality. I believe that such a design, with its focus on 'Principles,' 'Objectives,' 'Contents,' 'Development Process,' and 'Evaluation,' can effectively support senior art teachers in achieving their professional growth.”

(Interviewee 5 , November 24, 2024 : interview)

2. Principles of Enhance Competence of Teachers development

From interviews with experts on key issues Enhance Competence of Art Teachers in higher vocational colleges in Zhejiang, Adjusting using the 70:20:10 Learning Model. Experts have consistent opinions on using the 70:20:10 Learning Model in developing competence of art teachers, the following.

“I fully subscribe to the principles of teacher development based on the 70:20:10 theory. This theory emphasises the importance of learning from work, in particular the accumulation of experience through daily teaching practice, and translates it into a core pathway for competence enhancement. At the same time, self-directed learning and formal training are indispensable as they help teachers to continuously update their knowledge and skills in order to adapt to the rapidly changing needs of education. Through this model, teachers are able to benefit from current and future professional development.”

(Interviewee 1 , November 12, 2024 : interview)

“The 70:20:10 model reflects well the balance of teachers' professional development. 70 per cent of learning comes from practice, which ensures the integration of theory and practice; 20 per cent comes through collaboration and interaction with colleagues, enabling teachers to benefit from professional communities and mentoring relationships; and 10 per cent comes through formal training and coursework, which provides teachers with a systematic structure of knowledge. This model is effective in contributing to the overall development of teachers, while also enhancing their impact on student learning outcomes.”

(Interviewee 2 , November 13, 2024 : interview)

“The 70:20:10 model provides a scientific and practical methodology for teacher development. 70 per cent of learning by doing provides teachers with an intuitive accumulation of experience; 20 per cent of interactive learning helps teachers to broaden their horizons through mentor support and colleague exchanges; and 10 per cent of formal learning ensures systematic and professional knowledge supplementation. The framework is flexible and practical, capable of being adapted to the individual needs of teachers and the context of their teaching and learning, and is highly actionable.”

(Interviewee 3 , November 18, 2024 : interview)

“I believe that the 70:20:10 model is highly instructive in teacher development. Especially in the context of China's higher vocational education, the 70% of practical learning can help teachers quickly adapt to the characteristics of vocational education while enhancing their teaching and student guidance abilities. The 20% and 10% components, although relatively small, should not be ignored, especially the 20% of community learning, which enables teachers to benefit from the experiences of others, and this kind of intangible learning is very helpful for personal growth. Overall, the model is very well balanced and easy to implement.”

(Interviewee 4 , November 22 , 2024 : interview)

“I fully agree with the adoption of the 70:20:10 model to enhance teachers' professional competence. It emphasises the importance of teachers learning on the job, which is particularly crucial, especially for teachers in higher education

institutions who need to accumulate experience and improve their teaching style through teaching practice. In addition, 20 per cent learnt through interactions with colleagues or professional mentors, which not only broadened teachers' horizons but also facilitated reflection on teaching. And although formal training only accounts for 10 per cent, it can systematically supplement theoretical knowledge, and the overall design of this model is very scientific.”

(Interviewee 5 , November 24, 2024 : interview)

3. The methods of development to enhance competence of art teachers in higher vocational colleges in Zhejiang.

From interviews with experts on key issues The methods of development consisting of Principles and methods of competence of teacher development by the Learning Model 70:20:10 and methods of developing social competence, consisting of 1) case study 2) peer mutual assistance and observation 3) Participatory learning and action research 4) expert guidance 5) training

“The proposed methods are well-designed and highly practical. The combination of ‘case study’ and ‘peer mutual assistance and observation’ stands out to me. Case studies allow teachers to analyze real-world scenarios, helping them understand and navigate complex classroom situations. Meanwhile, peer observation provides a collaborative environment where teachers can learn from each other's experiences and teaching strategies. These two methods, grounded in practice and collaboration, offer a solid foundation for professional development. I believe these methods can significantly contribute to enhancing teaching competence.”

(Interviewee 1, November 12, 2024)

“The outlined methods address multiple dimensions of teacher development. I particularly appreciate the emphasis on ‘participatory learning and action research.’ This approach encourages teachers to actively engage with their teaching practices, identify challenges, and implement evidence-based solutions. In the context of art education, where creativity and adaptability are critical, this method helps bridge the gap between theory and practice. Additionally, the inclusion of ‘expert guidance’ is vital, as it allows teachers to benefit from the insights and mentorship of experienced

professionals. Overall, this framework is comprehensive and well-suited to art teachers' needs.”

(Interviewee 2, November 13, 2024)

“These development methods are both comprehensive and targeted. I find the ‘training’ component particularly essential in the current educational climate, where technology and innovative teaching methods are evolving rapidly. Structured training sessions can equip teachers with the tools and knowledge needed to keep pace with these changes. Moreover, ‘peer mutual assistance and observation’ offers a more informal yet impactful way of learning. By observing colleagues and exchanging ideas, teachers can gain fresh perspectives on how to manage their classrooms or introduce creative projects. These methods are well-balanced and practical.”

(Interviewee 3, November 18, 2024)

“The proposed methods reflect a thoughtful and balanced approach to professional development. I’m particularly impressed by the integration of ‘case study’ and ‘participatory learning and action research.’ These methods enable teachers to engage in reflective practice, analyzing real-world teaching challenges and developing actionable solutions. Furthermore, ‘expert guidance’ plays a critical role in offering professional advice, especially for art teachers who often require specialized skills and techniques. The combination of these methods ensures both practical application and continuous growth, making them highly effective.”

(Interviewee 4, November 22, 2024)

“These methods are highly relevant to the development of art teachers in higher vocational colleges. The inclusion of ‘participatory learning and action research’ is particularly noteworthy, as it emphasizes continuous improvement through self-reflection and collaboration. Additionally, ‘peer mutual assistance and observation’ creates opportunities for teachers to share best practices and learn from each other, fostering a supportive professional community. Finally, the structured nature of ‘training’ and the personalized approach of ‘expert guidance’ complement each other well, providing a strong foundation for skill enhancement. This combination of methods is both strategic and effective.”

(Interviewee 5, November 24, 2024)

4. The number of hours of development in learning from learning by course of the teachers who participated in the development in the components of teaching ability, innovative ability, social service ability, and professional abilities should use the appropriate time for each content, how many hours should be used?

With interviewing 5 experts in the aforementioned key issues, it was agreed that the number of hours dedicated to enhance teaching ability, innovative ability, social service ability, and professional abilities of art teachers in higher vocational colleges in Zhejiang through formal course learning should be set at 18 hours. This would result in a total programme duration of 180 hours.

“...it is reasonable to set the total number of hours of formal course work at 18 hours. I recommend that 6 hours each be allocated to social service competences and innovation competences, which is consistent with the PNI index ranking results from the research. And an allocation of 3 hours each for teaching and professional abilities would ensure that foundational competences receive the necessary support.”

(Interviewee 1, November 12, 2024 : interview)

“...I find the design of 3 hours per component to be scientifically grounded. For teaching ability and professional ability, this amount of time is concentrated enough to focus on essential aspects and achieve meaningful learning outcomes. At the same time, allocating more hours to innovative ability and social service ability reflects their higher priority and demand for improvement. Overall, this time distribution is highly targeted and effective.

(Interviewee 2, November 13, 2024 : interview)

“...I particularly appreciate the logic behind the specific allocation. Assigning 6 hours each to social service ability and innovative ability ensures that the most critical competences receive sufficient attention. Meanwhile, dedicating 3 hours each to teaching ability and professional ability emphasizes the importance of maintaining foundational skills within the overall framework. This arrangement reflects a thoughtful prioritization and balance among the different competences.”

(Interviewee 3, November 18, 2024 : interview)

“...Allocating 3 hours for teaching ability and professional ability is practical and ensures focus. Meanwhile, dedicating more time to innovative ability and social service ability aligns well with the current needs of teachers.”

(Interviewee 4 , November 22, 2024 : interview)

“...The 18-hour structure is efficient and well-thought-out. Splitting the hours based on priority levels allows for targeted training while keeping the total time manageable.”

(Interviewee 5 , November 24, 2024 : interview)

5. Evaluation

From interviews with five experts on the topic of art teacher competence development in Zhejiang higher vocational colleges, the experts have the following opinions:

“...Evaluating teacher competence is a dynamic process that requires a blend of direct observation and contextual feedback. Classroom observations are a vital method, providing evaluators with insights into teaching practices, classroom management, and student engagement. By using structured rubrics tailored to the competences outlined in the program—such as social service ability and innovative ability—evaluators can assess how effectively the teacher applies the training in real teaching scenarios. Observations also create opportunities for constructive feedback, ensuring continuous improvement.”

(Interviewee 1 , November 12 , 2024 : interview)

“...Student feedback and learning outcomes are important reference dimensions when assessing teacher competence. Through students’ classroom performance, assessment tasks, and feedback questionnaires, it is possible to understand whether teachers have effectively enhanced students’ learning experience in various ways. For example, the assessment of creativity can be combined with student evaluations of classroom activity and interaction, while social service competence can be demonstrated through feedback on student participation in activities. Of course, these data need to be leveled in the context of specific teaching and learning environments to avoid the one-sidedness of single data...”

(Interviewee 2 , November 13, 2024 : interview)

“...A comprehensive assessment system requires not only external observation, but should also emphasise teachers' self-assessment skills. Teachers can use reflective tools to analyse their growth in areas such as creativity and pedagogical skills, and set specific personal development plans in relation to the training objectives. At the same time, the assessment should also focus on the teacher's professional development, such as participation in workshops, study programmes and ability to collaborate with peers. This approach allows teachers to remain proactive about their professional development and aligns with the planned long-term capacity enhancement goals.”

(Interviewee 3 , November 18, 2024 : interview)

“...Teachers' subject expertise is a non-negligible part of the competence assessment. Teachers of the arts, in particular, should demonstrate an understanding of the latest developments in their subject and incorporate them into their instructional design. The assessment can examine how teachers use this expertise to innovate in the classroom and design curriculum content that meets the needs of students. This is directly related to the enhancement of creative skills in the training programme and also reflects the practicality of the professional abilities...”

(Interviewee 4 , November 22, 2024 : interview)

“...Teachers' pedagogical skills take centre stage in assessment. Assessment should focus on whether teachers are able to impart complex knowledge to students in a concise and lively manner while meeting the learning needs of diverse students. For example, classroom management skills, the application of diverse teaching methods, and the effectiveness of classroom interactions are all important indicators of teaching skills. The assessment focuses on observing whether these skills are integrated with the strategies learnt in the training, thereby contributing to the overall development of students...”

(Interviewee 5 , November 24, 2024 : interview)

By summarising the interviews with the five experts mentioned above, the researcher determined the time allocation for the program to enhance competence of art teachers in Higher Vocational Colleges in Zhejiang , as shown in Table 10.

Table 12 Structure of component, principles, methods and hours of program to enhance competence of art teachers in Zhejiang higher vocational colleges

| Principle | Methods | Components | Hours | Subtotal | Total |
|--|---|------------------------|-------|----------|-------|
| 70% experiential learning | -Participatory learning and action research - Case study | Teaching ability | 30 | 126 | 180 |
| | | Innovative ability | 39 | | |
| | | Social service ability | 36 | | |
| | | professional ability | 21 | | |
| 20% learn from others | -Peer mutual assistance and observation -Expert guidance | Teaching ability | 9 | 36 | |
| | | Innovative ability | 9 | | |
| | | Social service ability | 12 | | |
| | | professional ability | 6 | | |
| 10% learning through formal curriculum | Training | Teaching ability | 3 | 18 | |
| | | Innovative ability | 6 | | |
| | | Social service ability | 6 | | |
| | | professional ability | 3 | | |

From table 12 The program to enhance competence of art teachers in higher vocational colleges in Zhejiang found that the total development time was 180 hours, divided into experiential learning using 126 hours, learn from others using 36 hours, learning through the formal education using 18 hours .

In consideration of the prioritised need levels and the opinions of the preceding five expert recommendations on the duration of training, the researcher allocated the requisite time for five components of competence, as shown in table 13.

Table 13 Structure of component, principles, methods and hours of program to enhance competence of art teachers in Zhejiang higher vocational colleges.

| Component | Principle | Methods | Hours |
|------------------------|--|---|--------------|
| Teaching ability | 70% experiential learning | -Participatory learning and action research - Case study | 30 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 9 |
| | 10% learning through formal curriculum | Training | 3 |
| Subtotal | | | 42 |
| Innovative ability | 70% experiential learning | -Participatory learning and action research - Case study | 36 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 9 |
| | 10% learning through formal curriculum | Training | 6 |
| Subtotal | | | 51 |
| Social service ability | 70% experiential learning | -Participatory learning and action research - Case study | 39 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 12 |
| | 10% learning through formal curriculum | Training | 6 |
| Subtotal | | | 57 |

Table 13 (Continued)

| Component | Principle | Methods | Hours |
|----------------------|--|---|-------|
| professional ability | 70% experiential learning | -Participatory learning and action research - Case study | 21 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 6 |
| | 10% learning through formal curriculum | Training | 3 |
| Subtotal | | | 30 |
| Total | | | 180 |

From table 13, The program to enhance competence of art teachers in higher vocational found that the total development time was 180 hours, divided into components of using Teaching ability 42 hours, components of Innovative ability using 51 hours, components of Social service ability using 57 hours and components of professional ability using 30 hours.

Step 2: Program to Enhance Competence Art Teachers in Higher Vocational Colleges in Zhejiang

Part 1: Introduction to Program to Enhance Competence Art Teachers in Higher Vocational Colleges in Zhejiang : As follows:

1. Principle

The program aims to enhance competence of art teachers in higher vocational colleges Zhejiang by integrating teaching, innovation, social service, and professional expertise. Teacher competence is defined as the ability to effectively apply knowledge, skills, and teaching strategies to achieve educational goals, adapt to challenges, and foster student development. Guided by the **70:20:10 framework**, the program emphasizes learning through practice (70%), collaboration (20%), and structured training (10%), ensuring a well-rounded and practical approach to teacher development.

2. Objectives

To comprehensively enhance competence of art teachers in higher vocational colleges in Zhejiang, aligning teaching quality, research, and community engagement with the demands of vocational education.

3. Content

Program to enhance competence art teachers in higher vocational colleges in Zhejiang has content scope divided in to 4 modules include :

Module 1: Teaching ability:

Focused on equipping teachers with the skills to design, implement, and evaluate educational practices, leveraging digital tools and reflective methods to foster student growth.

Module 2: Innovative ability:

Aimed at cultivating creativity in teaching, research, and artistic practice to meet the challenges of modern education and drive instructional transformation.

Module 3: Social service ability:

Encouraging teachers to engage in school-enterprise cooperation, community education, and cultural services, enhancing their real-world experience and societal impact.

Module 4: Professional abilities

Developing art-specific expertise, interdisciplinary integration, and lifelong learning skills to elevate the quality of art education and students' creative abilities.

4. Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table 13.

5. Evaluation

Evaluation before development, evaluation during development and evaluation after development

5.1 Testing.

5.2 Behavioral observation.

5.3. Interviews.

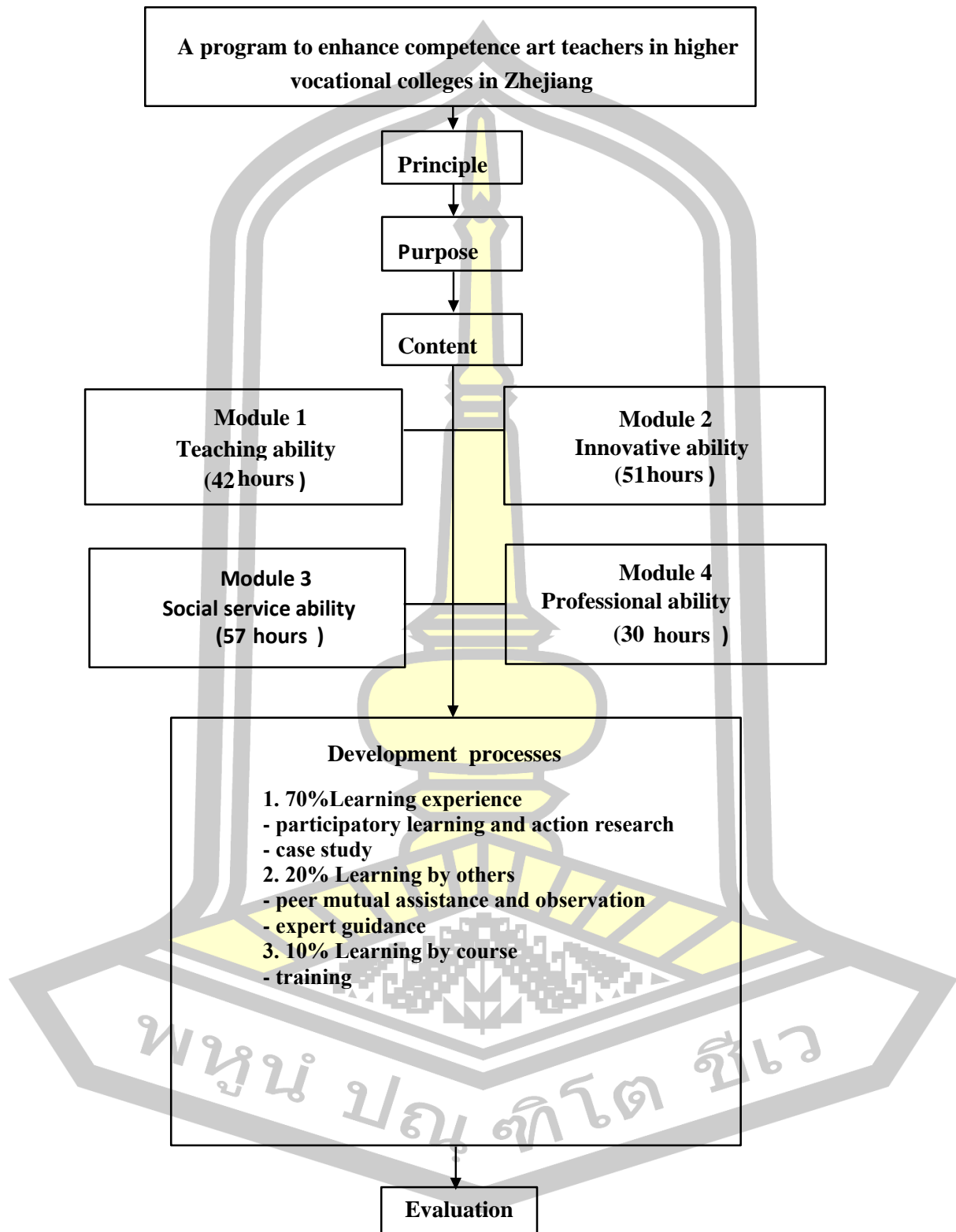


Figure 2 A program to enhance competence art teachers in higher vocational colleges in Zhejiang.

Part 2 Details of the Program to enhance competence art teachers in higher vocational colleges in Zhejiang. As follows:

1. Module 1: Teaching ability

1.1 Principles

Teaching ability refer teachers have ability to teachers to use professional knowledge, skills and teaching methods in the process of education and teaching to effectively complete teaching tasks, achieve teaching goals and promote the overall development of students. This includes many aspects such as teacher character building, teaching design ability, teaching implementation ability, network information use and media technology ability, teaching evaluation and reflection ability, etc. Teachers are required to have correct values and comprehensive teaching literacy, and teaching competence is the core competence of teachers in the field of education and teaching, which is of great significance in improving teaching effectiveness and promoting the all-round development of students.

1.2 Objectives

This module aims to enhance the teaching ability of art teachers in higher vocational colleges in Zhejiang Province by strengthening their professional knowledge, instructional design, classroom implementation, and reflective evaluation practices. The goal is to improve teaching effectiveness, foster the holistic development of students, and support teachers in addressing the evolving challenges of vocational education.

1.3 Content

Teaching ability represents the fundamental competence for teachers in fulfilling instructional tasks, achieving educational objectives, and fostering the comprehensive development of students. In the context of Zhejiang's higher vocational art colleges, it encompasses various dimensions such as lesson design, classroom implementation, the application of digital and media tools, and reflective evaluation practices. This capacity also extends to embodying ethical values and cultivating professional teaching literacy, which collectively contribute to improving teaching effectiveness and nurturing students' holistic growth.

This training program employs the 70:20:10 learning model to enhance the teaching competences of art teachers systematically. Key methodologies include participatory learning and action research, case study, peer mutual assistance and observation, expert guidance, and training. Through participatory action research, teachers design and reflect on

experimental teaching practices to address classroom challenges. Case studies allow for the analysis of exemplary teaching scenarios to derive innovative strategies. Peer mutual assistance fosters collaborative reflection and professional support through mutual feedback. Expert guidance provides tailored advice on research, teaching methods, and professional applications. Finally, targeted training equips teachers with the necessary technical and methodological skills to elevate their instructional quality. The details of these activities are illustrated in the accompanying table.

1.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table 14.

Table 14 professional competence of teacher development by the Learning Model 70:20:10 and methods of developing teaching ability.

| Principles | Methods | Details of activities |
|--|---|--|
| | subtotal hours: 30 hours | |
| 70: Learning by Experience (30 hours.) | Participatory learning and action research (20 hours) | <ol style="list-style-type: none"> 1. Classroom teaching simulation: for teachers to conduct simulated classroom teaching, experiment with different teaching methods on the spot, and reflect on and improve them. 2. Problem-Based Learning (PBL): Improve problem-solving skills by designing and solving practical problems in teaching and learning. 3. Cooperative Group Learning (CGL): in which teachers discuss pedagogy, feedback and improvement among themselves. |
| | Case study (10 hours) | <ol style="list-style-type: none"> 1. Teaching Case Discussion: Provide cases of different teaching scenarios, such as successful experiences in dealing with classroom management problems, for teachers to analyse and discuss solutions. 2. Video case studies: videos of effective classrooms are shown for teachers to observe and learn from excellent teaching methods. 3. Case writing: Teachers write cases from their own classroom experiences, share them and collect feedback. |

Table 14 (Continued)

| Principles | Methods | Details of activities |
|-----------------------------------|--|--|
| | subtotal hours: 9 hours | |
| 20: Learning and Others (9hours.) | Peer mutual assistance and observation (6 hours) | 1. Classroom Mutual Evaluation: Teachers listen to each other's lessons and provide feedback, sharing teaching techniques and suggestions for improvement. 2. Teachers' Workshop: Themes (e.g. classroom questioning techniques, time management, etc.) are assigned within the group, and each teacher is responsible for sharing his/her own experience to promote mutual learning and support. 3. Observation: Observe senior teachers' classes, record and analyse the effectiveness of their teaching strategies. |
| | Expert guidance (3 hours) | 1. Expert Lectures: Educational experts provide teachers with specific guidance that combines theory and practice. 2. Teaching counselling: Experts are regularly invited to the classroom to listen to lessons and provide one-on-one feedback. |
| | subtotal hours: 3 hours | |
| 10: learning by course (3 hours.) | Training (3 hours) | 1. Teaching Methodology Workshops: Specialised training on teaching techniques (e.g. classroom questioning, homework design, teaching assessment). 2. Technical support courses: Teachers will be taught how to use digital technology to enhance classroom effectiveness (e.g. using online learning platforms or interactive tools). |
| Total | 42 hours | |

1.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development.

1.5.1 Testing.

1.5.2 Behavioral observation.

1.5.3. Interviews.

2. Module 2: Innovative ability

2.1 Principles

Innovative ability refers to teachers' capacity for creativity and innovation in both teaching practices and their professional fields, particularly in the arts. This

involves the ability to develop and apply novel teaching methods, design personalized educational strategies, and engage in academic research and technological advancement within their specialized fields. Additionally, it encompasses the ability to create and express artistic ideas. The cultivation and enhancement of these abilities require teachers to engage in ongoing learning, consistent practice, and maintaining a keen sense of insight and originality. Innovative ability is a key competence that fosters educational progress and elevates the overall quality of education.

2.2 Objectives

This module aims to enhance the innovative ability of art teachers in higher vocational colleges in Zhejiang Province by cultivating their creativity in teaching methods, academic research, and professional artistic practices. The goal is to enable teachers to address complex educational challenges, improve teaching quality and research capabilities, and contribute to the holistic development of students.

2.3 Content

Innovative ability is the core driving force for promoting transformation and development in the field of education, especially in the context of art education in higher vocational colleges. This capability is not only related to the innovation of teaching methods and the optimization of educational strategies but also encompasses the comprehensive enhancement of teachers' academic research, technological application, and artistic creation skills. By cultivating innovative abilities, teachers can address complex problems in teaching practices in a more scientific manner, thus meeting the demands of improving education quality and fostering the holistic development of students.

This training program adopts a multi-dimensional approach to systematically enhance teachers' innovative abilities, including case study, peer mutual assistance and observation, participatory learning and action research, expert guidance, and training. Through case studies, teachers analyze successful academic achievements and teaching cases to draw valuable lessons. Peer mutual assistance and observation provide opportunities for collaborative learning and improvement. Participatory learning and action research involve designing and implementing small-scale research projects, applying research findings to practice. Expert guidance offers

personalized suggestions for academic papers, project applications, and other professional tasks. The training equips teachers with basic skills in research design, data analysis and application of tools, enabling them to continuously improve their research capacity and use of innovative thinking in educational practice and professional creativity.

2.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table 15.

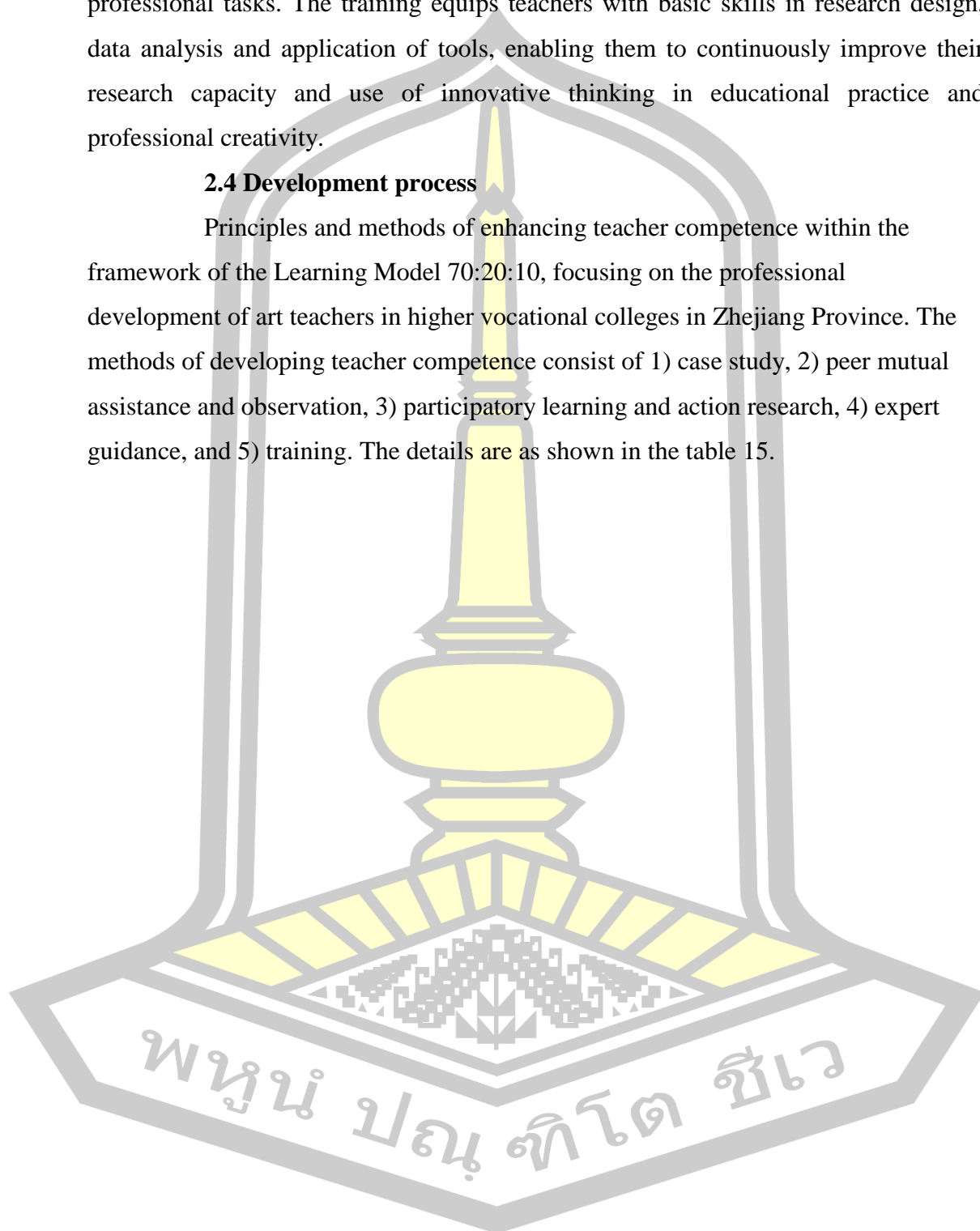


Table 15 Principles and methods of social competence of teacher development by the Learning Model 70:20:10 and methods of developing innovative ability.

| Principles | Methods | Details of activities |
|--|---|--|
| 70: Learning by Experience (30 hours.) | subtotal hours: 36 hours | |
| | Participatory learning and action research (20 hours) | 1. Art Research Proposal and Implementation: Design small-scale art research projects and develop them into formal research proposals to enhance the ability to apply for art-related research topics. 2. Art Research Paper Writing: Conduct research on art topics and write academic papers to improve skills in art research paper writing. 3. Focusing on the transformation of research results: helping to upgrade teachers to patent their research results (e.g., inventions and designs in their areas of specialisation) and transforming them into practicable projects. |
| | Case study (16 hours) | 1. Case studies of high-quality papers: Providing high-level academic papers in different fields, teachers learn about their research design, data analysis and writing structure. 2. Case studies of successful project submissions: analyse successful project submissions in the field of education and refine the core components of topic selection and design. 3. Case studies of innovative teaching results: learn how teachers at home and abroad effectively transform research results into teaching content and improve students' innovative ability. |
| 20: Learning by Others (9hours.) | subtotal hours: 9 hours | |
| | Peer mutual assistance and observation (6 hours) | 1. Teachers observe their peers' classroom teaching, pay attention to the use of innovative teaching methods and record the inspiration; 2. Groups discuss problems in research practice, work together to propose solutions and improve research plans. |
| Expert guidance (3 hours) | 1. Academic paper writing and journal selection: expert guidance to optimise the structure of the paper, improve the quality of the content, and select suitable journals for submission. 2. One-on-one counselling for project declaration: provide specific guidance and improvement suggestions for teachers' research projects. 3. Suggestions and evaluation of results transformation: experts provide optimisation and practical suggestions for the transformation and application of teachers' academic results. | |

Table 15 (Continued)

| Principles | Methods | Details of activities |
|-----------------------------------|-------------------------|--|
| 10: learning by course (6 hours.) | subtotal hours: 6 hours | |
| | Training (6 hours) | 1. Academic paper writing methods: learning research methods, data analysis, and other academic writing techniques. 2. Research project proposal course: explaining the methods for writing research proposals and common issues. |
| Total | 51 hours | |

2.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

2.5.1 Testing.

2.5.2 Behavioral observation.

2.5.3. Interviews.

3. Module 3: Social service ability

3.1 Principles

Social service ability emphasizes the active involvement of teachers in community and professional initiatives by integrating their expertise and skills. This includes the application of technology, the development and implementation of school-enterprise cooperation projects, as well as providing training services and contributing to community education and cultural programs. By engaging in these activities, art teachers in higher vocational colleges enhance their practical abilities, gain valuable real-world experience, and strengthen the application of practical teaching methods. Furthermore, such participation promotes professional growth while simultaneously amplifying the social influence and value of higher vocational education.

3.2 Objectives

This module aims to enhance the Social service ability of art teachers in higher vocational colleges in Zhejiang Province by strengthening their practical skills

in school-enterprise cooperation, community education, and cultural services, ensuring education better aligns with social and industry demands.

3.3 Content

Social service ability emphasizes the integration of teachers' professional knowledge and skills into professional fields and community-related activities, aligning with the principles of vocational education. This includes school-enterprise cooperation, enterprise project research, and the design and implementation of educational and cultural projects tailored to community needs. Through participatory learning and action research, teachers collaborate with enterprises to understand industry demands, participate in curriculum development, and address practical issues in teaching and research. Case studies analyze successful examples of school-enterprise cooperation and community service practices, providing essential references for optimizing curriculum design and enhancing practical teaching strategies.

Additionally, peer mutual assistance and observation encourage teachers to share and evaluate their experiences in school-enterprise cooperation and community service, fostering mutual learning and improvement. Expert guidance provides targeted support in areas such as school-enterprise cooperation model innovation, community service project design, and enterprise training research. Lastly, through specialized training, teachers gain foundational knowledge and skills in enterprise course design and community service, effectively integrating educational practice with social demands. These activities collectively enhance teachers' practical abilities, promote their professional development, and strengthen the social value and influence of vocational education.

3.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table 16.

Table 16 Principles and methods of personal competence of teacher development by the Learning Model 70:20:10 and methods of developing social service ability.

| Principles | Methods | Details of activities |
|--|---|--|
| 70: Learning by Experience (30 hours.) | subtotal hours: 39 hours | |
| | Participatory learning and action research (20 hours) | 1. University-enterprise co-operation in curriculum development: Teachers work with enterprises to research industry needs and design and implement enterprise-oriented curricula and teaching contents. 2. Enterprise project practice: Participate in enterprise project practice to understand the operation mode of enterprises and transform practical problems into teaching and research topics. 3. Community service project implementation: plan and implement educational or cultural activities to promote social contribution in accordance with the needs of the local community. |
| | Case study (19 hours) | 1. Case analysis of school-enterprise cooperation: study successful projects of school-enterprise cooperation and summarise the experience of matching the curriculum design with the needs of enterprises. 2. Successful cases of enterprise training: analyse typical cases of enterprise talent training and learn how to optimise the content and form of training. 3. Typical Community Service Practices: Summarise the excellent practical experiences in community education activities and explore ways to enhance social influence. |

Table 16 (Continued)

| Principles | Methods | Details of activities |
|-----------------------------------|--|--|
| | subtotal hours: 12 hours | |
| 20: Learning by Others (9hours.) | Peer mutual assistance and observation (6 hours) | <p>1. School-Enterprise Cooperation Seminar: Teachers share their experiences of school-enterprise cooperation projects and discuss the integration of curriculum development with the needs of enterprises.</p> <p>2. Community Service Observation: Organise observation of other teachers' community service activities, record highlights and make suggestions for improvement.</p> |
| | Expert guidance (6 hours) | <p>1. Guidance on optimisation of school-enterprise cooperation: experts are invited to explain the model innovation and implementation methods of school-enterprise cooperation, and provide suggestions on curriculum development.</p> <p>2. Coaching on enterprise project research: experts help teachers optimise teaching and research content in enterprise projects.</p> <p>3. Advice on community service project design: experts guide how to carry out influential educational activities in line with the actual needs of the community.</p> |
| | subtotal hours: 6 hours | |
| 10: learning by course (6 hours.) | Training (6 hours) | <p>1. School-enterprise co-operation course design: learn the basic principles, implementation process and evaluation methods of school-enterprise co-operation course development.</p> <p>2. Methods of developing school-enterprise co-operation projects: forms and path development strategies for school-enterprise co-operation projects</p> |
| Total | 57 hours | |

3.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

3.5.1 Testing.

3.5.2 Behavioral observation.

3.5.3. Interviews.

4. Module 4: Professional ability

4.1 Principles

Art professional qualities and skills are at the core of enhancing competence of art teachers in higher vocational colleges, encompassing subject knowledge, artistic practice, interdisciplinary integration, and continuous learning abilities. These competence serve as the foundation for promoting teachers' professional growth, improving teaching quality, and fostering students' creativity, while providing crucial support for the diversified development of vocational education.

4.2 Objectives

This module aims to enhance the professional abilities of art teachers in higher vocational colleges in Zhejiang Province by cultivating their expertise in art subject knowledge, artistic practice, interdisciplinary integration, and continuous learning abilities. The goal is to empower teachers to improve their professional teaching quality, foster student creativity, and contribute to the diversified development of vocational education.

4.3 Content

Professional abilities are essential for the growth and effectiveness of art teachers in higher vocational colleges. This module emphasizes the integration of art subject knowledge, artistic practice, interdisciplinary teaching, and continuous learning to enhance teachers' ability to deliver high-quality education and foster student creativity. The program also focuses on the application of advanced teaching tools and innovative methodologies to improve classroom practices.

The training employs methods such as participatory learning and action research, case studies, peer mutual assistance and observation, expert guidance, and

specialized training. Key activities include art creation workshops, research integration projects, peer teaching observations, expert-led mentoring on teaching and artistic development, and skill-building sessions on digital teaching tools. These activities aim to systematically develop teachers' professional abilities, aligning their skills with the demands of modern vocational education.

4.4 Development process

Principles and methods of pedagogical competence of teacher development by the Learning Model 70:20:10 and methods of developing social competence, consisting of 1) case study 2) peer mutual assistance and observation 3) Participatory learning and action research 4) expert guidance 5) training. The details are as shown in table 17.

Table 17 Principles and methods of pedagogical competence of teacher development by the Learning Model 70:20:10 and methods of developing professional ability.

| Principles | Methods | Details of activities |
|--|---|---|
| | subtotal hours: 21 hours | |
| 70: Learning by Experience (30 hours.) | Participatory learning and action research (12 hours) | <ol style="list-style-type: none"> 1. Practical training in art creation: In-depth creation in individual art fields, regular sharing and discussion. 2. Academic Exchange Activities :Participate in academic exchange activities organised by industry associations on a regular basis to share art creation experience with peers, understand industry dynamics, and learn new art creation concepts. |
| | Case study (9 hours) | <ol style="list-style-type: none"> 1. In-depth analyses of art creation and practical experience: Famous artists are invited to give in-depth analyses of their art creation process, share their creative ideas and techniques. 2. Path of Artistic Ability Enhancement: Outstanding artists are invited to explain how to enhance one's comprehensive artistic ability, including techniques, theory application and self-breakthrough. |

Table 17 (Continued)

| Principles | Methods | Details of activities |
|-----------------------------------|--|--|
| | subtotal hours: 6 hours | |
| 20: Learning by Others (9hours.) | Peer mutual assistance and observation (3 hours) | <p>1. Art Exhibition and Competition Guidance: Teachers share their experiences of participating in art exhibitions and competitions. This includes discussing how to prepare artwork, understanding the judging criteria, and exploring effective strategies for showcasing art.</p> <p>2. Peer observation of art exhibitions: Organise observation of art exhibitions. Teachers should note the highlights of the exhibitions, identify areas for improvement and share insights on how to improve artistic expression.</p> |
| | Expert guidance (3 hours) | 1. Expert guidance on artistic creation: experts regularly guide artistic creation and research and development content. |
| | subtotal hours: 3 hours | |
| 10: learning by course (6 hours.) | Training (3 hours) | <p>1. Enhancement of Core Artistic Skills: Learn the latest theories and methods in the art profession.</p> <p>2.Types of Art Competitions and Enhancement Strategies: Understand the different types of art competitions, learn how to improve the creation skills of art pieces and performance in competitions, and explore strategies for enhancing competition results.</p> |
| Total | 30 hours | |

4.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

4.5.1 Testing.

4.5.2 Behavioral observation.

4.5.3. Interviews.

The researchers revised and improved the program to enhance competence of art teachers in higher vocational colleges in Zhejiang. according to the experts' opinions.

The researcher created a program draft to enhance competence of art teachers in higher vocational colleges in Zhejiang based on a synthesis of all the findings of the study, and had the program evaluated by five experts.

The researcher revised and improved the program to enhance competence of art teachers in higher vocational colleges in Zhejiang from two aspects according to the experts' suggestion.

(1) The duration of the program implementation is relatively long and should be appropriately shortened. 145 hours is more appropriate, so that teachers have time to reflect on what they have learned. Module 1 Teaching ability development hours from 42 hours to 30 hours, Module 2 Innovative ability development hours from 51 hours to 41 hours, Module 3 Social service ability development hours from 57 hours to 46 hours and Module 4 professional ability development hours from 30 hours to 24 hours.

(2) The researcher made improvements to the evaluation issues of the program to enhance the competence of art teachers in higher vocational colleges in Zhejiang based on the experts' suggestions, as follows: Module 1 Teaching ability Experts The researchers agreed on the three assessment methods: 1) Testing, 2) Behavioral observation, and 3) Interviews. For Module 2 Innovative ability, Module 3 Social service ability, Module 4 professional ability, two assessment methods were used: 1) Behavioral observation and 2) Interviews. The researchers improved the

Program to Enhance Competence Art Teachers in higher vocational colleges in Zhejiang as presented below. The details are as shown in table18:

The researchers have improved the program to enhance competence of art teachers in higher vocational colleges in Zhejiang according to the suggestions of experts in the following issues of the time period for development and evaluation is as follows: Evaluation issues Module1 Teaching ability Experts The researchers agreed on the three assessment methods: 1) Testing, 2) Behavioral observation, and 3) Interviews. For Module2 Innovative ability, Module 3 Social service ability, Module 4 professional ability, two assessment methods were used: 1) Behavioral observation and 2) Interviews. The researchers improved the Program to Enhance Competence Art Teachers in higher vocational colleges in Zhejiang as presented below. The details are as shown in table18:

Table 18 Structure of component, principles, methods and hours of program to enhance competence of art teachers in higher vocational colleges in Zhejiang

| Component | Principle | Methods | Hours |
|--------------------|--|---|--------------|
| Teaching ability | 70% experiential learning | -Participatory learning and action research - Case study | 24 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 7 |
| | 10% learning through formal curriculum | Training | 3 |
| Subtotal | | | 34 |
| Innovative ability | 70% experiential learning | -Participatory learning and action research - Case study | 29 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 8 |
| | 10% learning through formal curriculum | Training | 4 |
| Subtotal | | | 41 |

Table 18 (Continued)

| Component | Principle | Methods | Hours |
|------------------------|--|---|-------|
| Social service ability | 70% experiential learning | -Participatory learning and action research - Case study | 32 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 9 |
| | 10% learning through formal curriculum | Training | 5 |
| Subtotal | | | 46 |
| professional ability | 70% experiential learning | -Participatory learning and action research - Case study | 17 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 5 |
| | 10% learning through formal curriculum | Training | 2 |
| Subtotal | | | 24 |
| Total | | | 145 |

From table 18, the program to enhance competence of art teachers in Zhejiang higher vocational colleges found that the total development time was 145 hours, divided into components of teaching ability using 34 hours, components of innovative ability using 41 hours, components of social service ability using 46 hours, and components of professional ability using 24.

Program to enhance competence of art teachers in higher vocational colleges in Zhejiang (Revised)

Part 1: Introduction to Program to Enhance Competence Art Teachers in Higher Vocational Colleges in Zhejiang : As follows:

1. Principle

The program aims to enhance competence of art teachers in higher vocational colleges Zhejiang by integrating teaching, innovation, social service, and professional expertise. Teacher competence is defined as the ability to effectively apply knowledge, skills, and teaching strategies to achieve educational goals, adapt to challenges, and foster student development. Guided by the 70:20:10 framework, the program emphasizes learning through practice (70%), collaboration (20%), and structured training (10%), ensuring a well-rounded and practical approach to teacher development.

2. Objectives

To comprehensively enhance competence of art teachers in higher vocational colleges in Zhejiang, aligning teaching quality, research, and community engagement with the demands of vocational education.

3. Content

Program to enhance competence art teachers in higher vocational colleges in Zhejiang has content scope divided in to 4 modules include :

Module 1: Teaching ability:

Focused on equipping teachers with the skills to design, implement, and evaluate educational practices, leveraging digital tools and reflective methods to foster student growth.

Module 2: Innovative ability:

Aimed at cultivating creativity in teaching, research, and artistic practice to meet the challenges of modern education and drive instructional transformation.

Module 3: Social service ability:

Encouraging teachers to engage in school-enterprise cooperation, community education, and cultural services, enhancing their real-world experience and societal impact.

Module 4: Professional abilities

Developing art-specific expertise, interdisciplinary integration, and lifelong learning skills to elevate the quality of art education and students' creative abilities.

4. Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table.

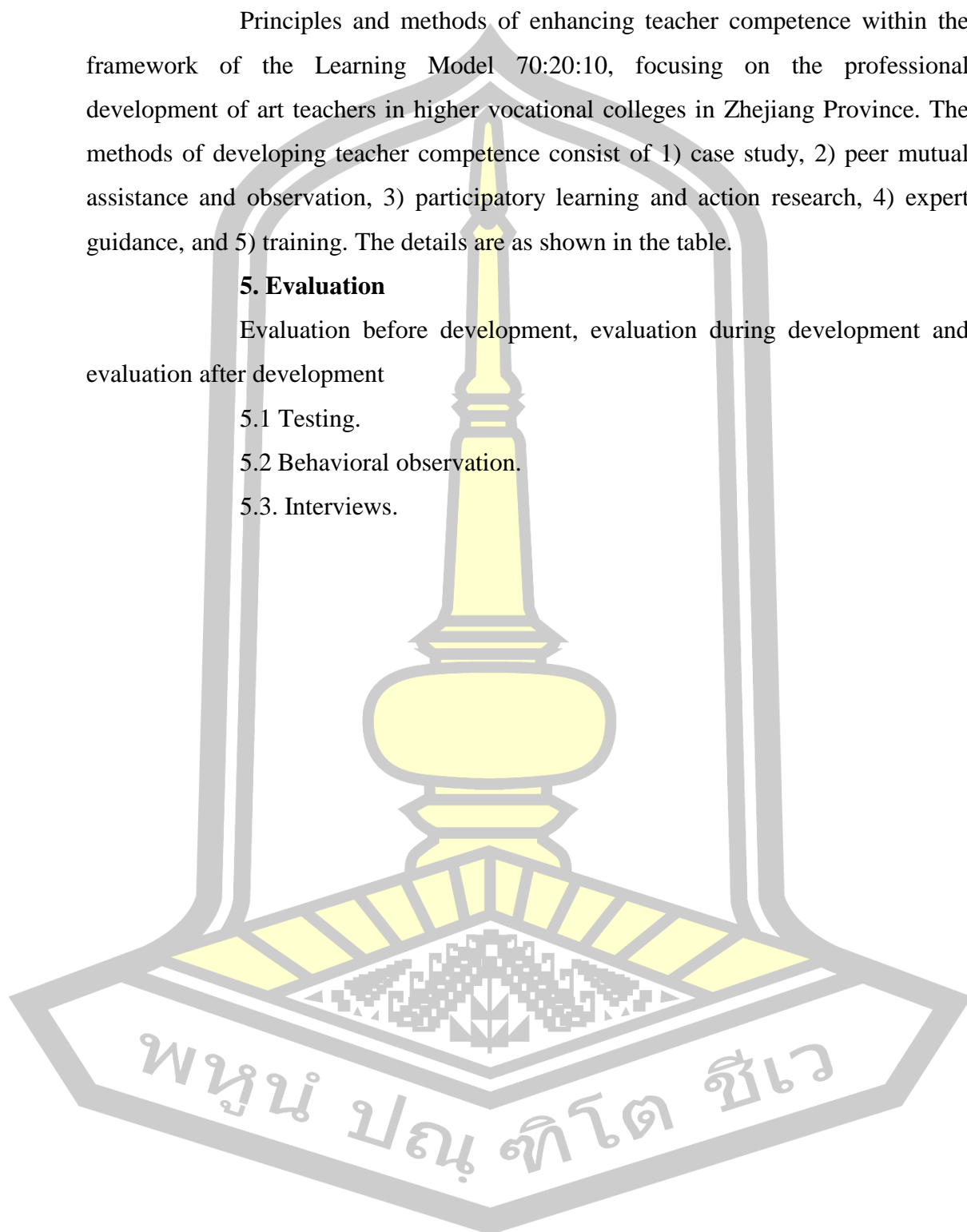
5. Evaluation

Evaluation before development, evaluation during development and evaluation after development

5.1 Testing.

5.2 Behavioral observation.

5.3. Interviews.



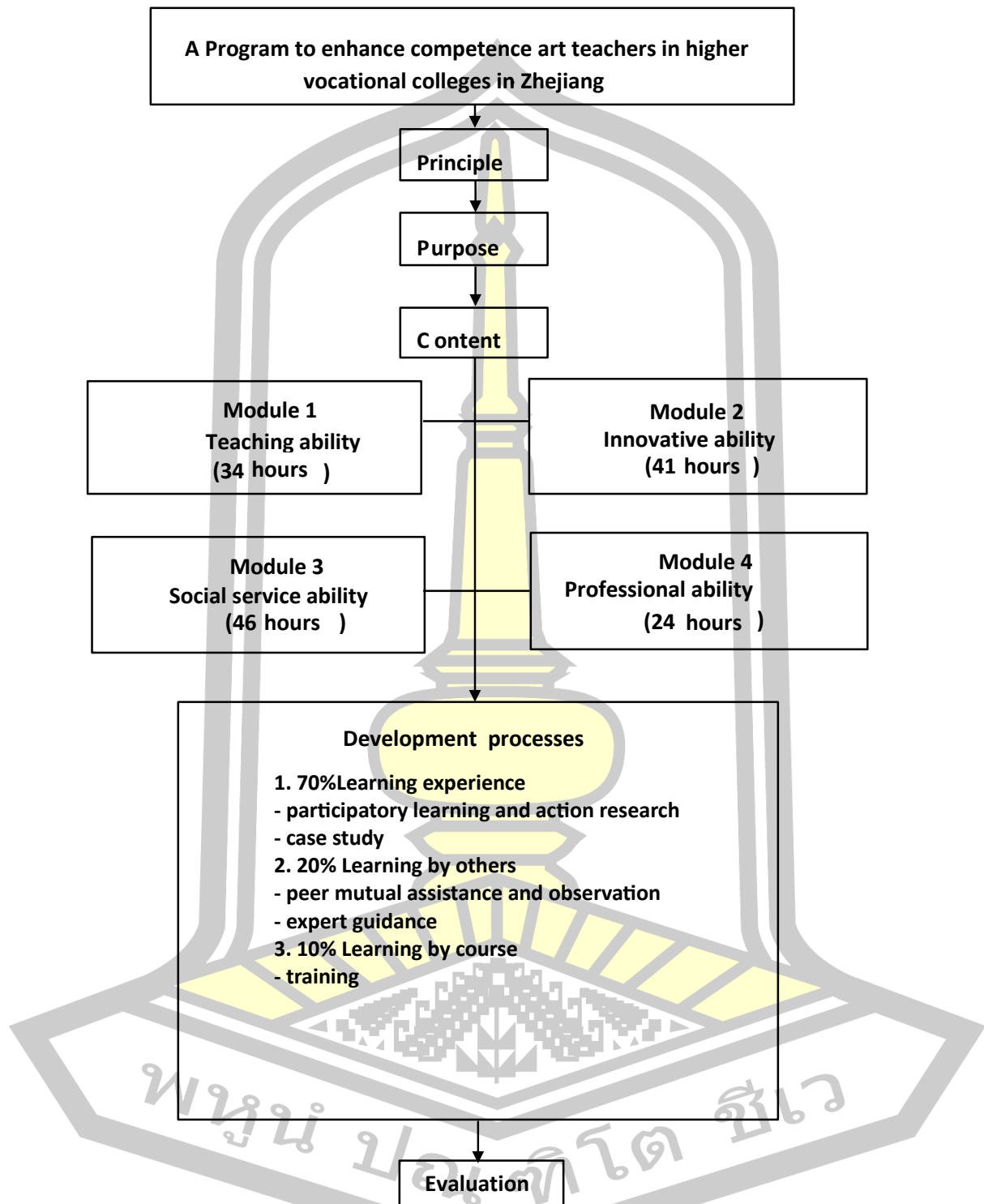


Figure 3 A Program to enhance competence art teachers in higher vocational colleges in Zhejiang.

Part 2 Details of the Program to enhance competence art teachers in higher vocational colleges in Zhejiang. As follows:

1. Module 1: Teaching ability

1.1 Principles

Teaching ability refer teachers have ability to teachers to use professional knowledge, skills and teaching methods in the process of education and teaching to effectively complete teaching tasks, achieve teaching goals and promote the overall development of students. This includes many aspects such as teacher character building, teaching design ability, teaching implementation ability, network information use and media technology ability, teaching evaluation and reflection ability, etc. Teachers are required to have correct values and comprehensive teaching literacy, and teaching competence is the core competence of teachers in the field of education and teaching, which is of great significance in improving teaching effectiveness and promoting the all-round development of students.

1.2 Objectives

This module aims to enhance the teaching ability of art teachers in higher vocational colleges in Zhejiang Province by strengthening their professional knowledge, instructional design, classroom implementation, and reflective evaluation practices. The goal is to improve teaching effectiveness, foster the holistic development of students, and support teachers in addressing the evolving challenges of vocational education.

1.3 Content

Teaching ability represents the fundamental competence for teachers in fulfilling instructional tasks, achieving educational objectives, and fostering the comprehensive development of students. In the context of Zhejiang's higher vocational art colleges, it encompasses various dimensions such as lesson design, classroom implementation, the application of digital and media tools, and reflective evaluation practices. This capacity also extends to embodying ethical values and cultivating professional teaching literacy, which collectively contribute to improving teaching effectiveness and nurturing students' holistic growth.

This training program employs the 70:20:10 learning model to enhance the teaching competence of art teachers systematically. Key methodologies include participatory learning and action research, case study, peer mutual assistance and observation, expert guidance, and training. Through participatory action research, teachers design and reflect on

experimental teaching practices to address classroom challenges. Case studies allow for the analysis of exemplary teaching scenarios to derive innovative strategies. Peer mutual assistance fosters collaborative reflection and professional support through mutual feedback. Expert guidance provides tailored advice on research, teaching methods, and professional applications. Finally, targeted training equips teachers with the necessary technical and methodological skills to elevate their instructional quality. The details of these activities are illustrated in the accompanying table.

1.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table 19.

Table 19 Principles and methods of pedagogical competence of teacher development by the Learning Model 70:20:10 and methods of developing teaching ability.

| Teaching ability | | |
|--|---|--|
| Principles | Methods | Details of activities |
| subtotal hours: 24 hours | | |
| 70: Learning by Experience (24 hours.) | Participatory learning and action research (14 hours) | 1. Classroom teaching simulation: for teachers to conduct simulated classroom teaching, experiment with different teaching methods on the spot, and reflect on and improve them. 2. Problem-Based Learning (PBL): Improve problem-solving skills by designing and solving practical problems in teaching and learning. 3. Cooperative Group Learning (CGL): in which teachers discuss pedagogy, feedback and improvement among themselves. |

Table 19 (Continued)

| Teaching ability | | |
|--|--|--|
| Principles | Methods | Details of activities |
| | subtotal hours: 24 hours | |
| 70: Learning by Experience (24 hours.) | Case study (10 hours) | <p>1. Teaching Case Discussion: Provide cases of different teaching scenarios, such as successful experiences in dealing with classroom management problems, for teachers to analyse and discuss solutions.</p> <p>2. Video case studies: videos of effective classrooms are shown for teachers to observe and learn from excellent teaching methods.</p> <p>3. Outstanding Teachers' Experience Sharing: Outstanding teachers are invited to share their successful experience in teaching.</p> |
| 20: Learning by Others (7hours.) | subtotal hours: 7 hours | |
| | Peer mutual assistance and observation (4 hours) | <p>1. Teachers' Workshop: Themes (e.g. classroom questioning techniques, time management, etc.) are assigned within the group, and each teacher is responsible for sharing his/her own experience to promote mutual learning and support.</p> <p>2. Observation: Observe senior teachers' classes, record and analyse the effectiveness of their teaching strategies.</p> |
| | Expert guidance (3 hours) | <p>1. Expert Lectures: Educational experts provide teachers with specific guidance that combines theory and practice.</p> <p>2. Teaching counselling: Experts are regularly invited to the classroom to listen to lessons and provide one-on-one feedback.</p> |

Table 19 (Continued)

| Teaching ability | | |
|---|-------------------------|------------------------------|
| Principles | Methods | Details of activities |
| 10: learning by course (3 hours.) | subtotal hours: 3 hours | |
| | Training (3 hours) | |
| Total | | 34 hours |

1.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development.

1.5.1 Testing.

1.5.2 Behavioral observation.

1.5.3. Interviews.

2. Module 2: Innovative ability

2.1 Principles

Innovative ability refers to teachers' capacity for creativity and innovation in both teaching practices and their professional fields, particularly in the arts. This involves the ability to develop and apply novel teaching methods, design personalized educational strategies, and engage in academic research and technological advancement within their specialized fields. Additionally, it encompasses the ability to create and express artistic ideas. The cultivation and enhancement of these abilities require teachers to engage in ongoing learning, consistent practice, and maintaining a keen sense of insight and originality. Innovative ability is a key competence that fosters educational progress and elevates the overall quality of education.

2.2 Objectives

This module aims to enhance the innovative ability of art teachers in higher vocational colleges in Zhejiang Province by cultivating their creativity in teaching methods, academic research, and professional artistic practices. The goal is to enable teachers to address complex educational challenges, improve teaching quality and research capabilities, and contribute to the holistic development of students.

2.3 Content

Innovative ability is the core driving force for promoting transformation and development in the field of education, especially in the context of art education in higher vocational colleges. This capability is not only related to the innovation of teaching methods and the optimization of educational strategies but also encompasses the comprehensive enhancement of teachers' academic research, technological application, and artistic creation skills. By cultivating innovative abilities, teachers can address complex problems in teaching practices in a more scientific manner, thus meeting the demands of improving education quality and fostering the holistic development of students.

This training program adopts a multi-dimensional approach to systematically enhance teachers' innovative abilities, including case study, peer mutual assistance and observation, participatory learning and action research, expert guidance, and training. Through case studies, teachers analyze successful academic achievements and teaching cases to draw valuable lessons. Peer mutual assistance and observation provide opportunities for collaborative learning and improvement. Participatory learning and action research involve designing and implementing small-scale research projects, applying research findings to practice. Expert guidance offers personalized suggestions for academic papers, project applications, and other professional tasks. The training equips teachers with basic skills in research design, data analysis and application of tools, enabling them to continuously improve their research capacity and use of innovative thinking in educational practice and professional creativity.

2.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3)

participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table 20.

Table 20 Principles and methods of pedagogical competence of teacher development by the Learning Model 70:20:10 and methods of developing innovative ability.

| Innovative ability | | |
|--|---|--|
| Principles | Methods | Details of activities |
| | subtotal hours: 29 hours | |
| 70: Learning by Experience (29 hours.) | Participatory learning and action research (19 hours) | 1, Art Research Proposal and Implementation: Design small-scale art research projects and develop them into formal research proposals to enhance the ability to apply for art-related research topics. 2. Art Research Paper Writing: Conduct research on art topics and write academic papers to improve skills in art research paper writing. 3. Focusing on the transformation of research results: helping to upgrade teachers to patent their research results (e.g., inventions and designs in their areas of specialisation) and transforming them into practicable projects. |
| | Case study (10 hours) | 1. Case studies of high-quality papers: Providing high-level academic papers in different fields, teachers learn about their research design, data analysis and writing structure. 2. Case studies of successful project submissions: analyse successful project submissions in the field of education and refine the core components of topic selection and design. 3. Case studies of innovative teaching results: learn how teachers at home and abroad effectively transform research results into teaching content and improve students' innovative ability. |

Table 20 (Continued)

| Innovative ability | | |
|---|--|---|
| Principles | Methods | Details of activities |
| | | subtotal hours: 8 hours |
| 20: Learning by Others (8hours.) | Peer mutual assistance and observation (4 hours) | 1. Teachers observe their peers' classroom teaching, pay attention to the use of innovative teaching methods and record the inspiration; 2. Research exchange and sharing sessions: peers discuss their experiences in writing papers. |
| | Expert guidance (4 hours) | 1. Academic paper writing and journal selection: expert guidance to optimise the structure of the paper, improve the quality of the content, and select suitable journals for submission. 2. One-on-one counselling for project declaration: provide specific guidance and improvement suggestions for teachers' research projects. 3. Suggestions and evaluation of results transformation: experts provide optimisation and practical suggestions for the transformation and application of teachers' academic results. |
| | | subtotal hours: 4hours |
| 10: learning by course (4 hours.) | Training (4 hours) | 1. Academic paper writing methods: learning research methods, data analysis, and other academic writing techniques. 2. Research project proposal course: explaining the methods for writing research proposals and common issues. |
| Total | 41hours | |

2.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

2.5.1. Behavioral observation.

2.5.2. Interviews.

3. Module 3: Social service ability

3.1 Principles

Social service ability emphasizes the active involvement of teachers in community and professional initiatives by integrating their expertise and skills. This includes the application of technology, the development and implementation of school-enterprise cooperation projects, as well as providing training services and contributing to community education and cultural programs. By engaging in these activities, art teachers in higher vocational colleges enhance their practical abilities, gain valuable real-world experience, and strengthen the application of practical teaching methods. Furthermore, such participation promotes professional growth while simultaneously amplifying the social influence and value of higher vocational education.

3.2 Objectives

This module aims to enhance the Social service ability of art teachers in higher vocational colleges in Zhejiang Province by strengthening their practical skills in school-enterprise cooperation, community education, and cultural services, ensuring education better aligns with social and industry demands.

3.3 Content

Social service ability emphasizes the integration of teachers' professional knowledge and skills into professional fields and community-related activities, aligning with the principles of vocational education. This includes school-enterprise cooperation, enterprise project research, and the design and implementation of educational and cultural projects tailored to community needs. Through participatory learning and action research, teachers collaborate with enterprises to understand industry demands, participate in curriculum development, and address practical issues in teaching and research. Case studies analyze successful examples of school-enterprise cooperation and community service practices, providing essential references for optimizing curriculum design and enhancing practical teaching strategies.

Additionally, peer mutual assistance and observation encourage teachers to share and evaluate their experiences in school-enterprise cooperation and community service, fostering mutual learning and improvement. Expert guidance provides targeted support in areas such as school-enterprise cooperation model innovation, community service project design, and enterprise training research. Lastly, through specialized training, teachers gain foundational knowledge and skills in enterprise course design and community service, effectively integrating educational practice with social demands. These activities collectively enhance teachers' practical abilities, promote their professional development, and strengthen the social value and influence of vocational education.

3.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table 21.

Table 21 Principles and methods of pedagogical competence of teacher development by the Learning Model 70:20:10 and methods of developing social service ability.

| Social service ability | | |
|--|---|--|
| Principles | Methods | Details of activities |
| | | subtotal hours: 32hours |
| 70: Learning by Experience (32 hours.) | Participatory learning and action research (20 hours) | 1. University-enterprise co-operation in curriculum development: Teachers work with enterprises to research industry needs and design and implement enterprise-oriented curricula and teaching contents. 2. Enterprise project practice: Participate in enterprise project practice to understand the operation mode of enterprises and transform practical problems into teaching and research topics. 3. Community service project implementation: plan and implement educational or cultural activities to promote social contribution in accordance with the needs of the local community. |

Table 21 (Continued)

| Social service ability | | |
|--------------------------------------|---|---|
| Principles | Methods | Details of activities |
| | Case study (12 hours) | 1. Case analysis of school-enterprise cooperation: study successful projects of school-enterprise cooperation and summarise the experience of matching the curriculum design with the needs of enterprises. 2. Successful cases of enterprise training: analyse typical cases of enterprise talent training and learn how to optimise the content and form of training. 3. Typical Community Service Practices: Summarise the excellent practical experiences in community education activities and explore ways to enhance social influence. |
| 20: Learning by Others (9hours.) | subtotal hours: 9 hours | |
| | Peer mutual assistance and observation (4 hours) | 1. School-Enterprise Cooperation Seminar: Teachers share their experiences of school-enterprise cooperation projects and discuss the integration of curriculum development with the needs of enterprises. 2. Community Service Observation: Organise observation of other teachers' community service activities, record highlights and make suggestions for improvement. |
| | Expert guidance (5 hours) | 1. Guidance on optimisation of school-enterprise cooperation: experts are invited to explain the model innovation and implementation methods of school-enterprise cooperation, and provide suggestions on curriculum development. 2. Coaching on enterprise project research: experts help teachers optimise teaching and research content in enterprise projects. 3. Advice on community service project design: experts guide how to carry out influential educational activities in line with the actual needs of the community. |
| 10: learning by course (5 hours.) | subtotal hours: 5hours | |
| | Training (5 hours) | |
| Total | 46 hours | |

3.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

3.5.1. Behavioral observation.

3.5.2. Interviews.

4. Module 4: Professional ability

4.1 Principles

Art professional qualities and skills are at the core of enhancing competence of art teachers in higher vocational colleges, encompassing subject knowledge, artistic practice, interdisciplinary integration, and continuous learning abilities. These competence serve as the foundation for promoting teachers' professional growth, improving teaching quality, and fostering students' creativity, while providing crucial support for the diversified development of vocational education.

4.2 Objectives

This module aims to enhance the professional abilities of art teachers in higher vocational colleges in Zhejiang Province by cultivating their expertise in art subject knowledge, artistic practice, interdisciplinary integration, and continuous learning abilities. The goal is to empower teachers to improve their professional teaching quality, foster student creativity, and contribute to the diversified development of vocational education.

4.3 Content

Professional ability are essential for the growth and effectiveness of art teachers in higher vocational colleges. This module emphasizes the integration of art subject knowledge, artistic practice, interdisciplinary teaching, and continuous learning to enhance teachers' ability to deliver high-quality education and foster student creativity. The program also focuses on the application of advanced teaching tools and innovative methodologies to improve classroom practices.

The training employs methods such as participatory learning and action research, case studies, peer mutual assistance and observation, expert guidance,

and specialized training. Key activities include art creation workshops, research integration projects, peer teaching observations, expert-led mentoring on teaching and artistic development, and skill-building sessions on digital teaching tools. These activities aim to systematically develop teachers' professional abilities, aligning their skills with the demands of modern vocational education.

4.4 Development process

Principles and methods of pedagogical competence of teacher development by the Learning Model 70:20:10 and methods of developing social competence, consisting of 1) case study 2) peer mutual assistance and observation 3) Participatory learning and action research 4) expert guidance 5) training. The details are as shown in table 22.

Table 22 Principles and methods of pedagogical competence of teacher development by the Learning Model 70:20:10 and methods of developing professional ability.

| Professional ability | | |
|--|---|---|
| Principles | Methods | Details of activities |
| | subtotal hours: 17 hours | |
| 70: Learning by Experience (17 hours.) | Participatory learning and action research (12 hours) | 1. Practical training in art creation: In-depth creation in individual art fields, regular sharing and discussion. 2. Academic Exchange Activities :Participate in academic exchange activities organised by industry associations on a regular basis to share art creation experience with peers, understand industry dynamics, and learn new art creation concepts. |
| | Case study (5 hours) | 1. In-depth analyses of art creation and practical experience: Famous artists are invited to give in-depth analyses of their art creation process, share their creative ideas and techniques. 2. Path of Artistic Ability Enhancement: Outstanding artists are invited to explain how to enhance one's comprehensive artistic ability, including techniques, theory application and self-breakthrough. |

Table 22 (Continued)

| Professional ability | | |
|-----------------------------------|--|---|
| Principles | Methods | Details of activities |
| | subtotal hours: 5 hours | |
| 20: Learning by Others (5hours.) | Peer mutual assistance and observation (3 hours) | 1. Art Exhibition and Competition Guidance: Teachers share their experiences of participating in art exhibitions and competitions. This includes discussing how to prepare artwork, understanding the judging criteria, and exploring effective strategies for showcasing art. 2. Peer observation of art exhibitions: Organise observation of art exhibitions. Teachers should note the highlights of the exhibitions, identify areas for improvement and share insights on how to improve artistic expression. |
| | Expert guidance (2 hours) | 1. Expert guidance on artistic creation: experts regularly guide artistic creation and research and development content. |
| 10: learning by course (2 hours.) | subtotal hours: 2 hours | |
| | Training (2 hours) | 1. Enhancement of Core Artistic Skills: Learn the latest theories and methods in the art profession. |
| Total | 24 hours | |

4.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

4.5.1. Behavioral observation.

4.5.2. Interviews.

Step 3: Results of evaluating the suitability and feasibility of the Program to Enhance Competence of Art Teachers in Higher vocational colleges in Zhejiang . As shown in table 23 .

Table 23 Mean and standard deviation of suitability and feasibility level of the Program to Enhance Competence of Art Teachers in Higher vocational colleges in Zhejiang

| Item | | Suitability | | | Feasibility | | |
|-----------------------|------------------------|-------------|------|---------|-------------|------|---------|
| | | | SD. | Level | \bar{x} | SD. | Level |
| 1.Principles | | 4.60 | 0.49 | highest | 4.60 | 0.49 | highest |
| 2.Objectives | | 4.60 | 0.49 | highest | 4.60 | 0.49 | highest |
| 3.Contents | Teaching ability | 4.60 | 0.49 | highest | 4.80 | 0.40 | highest |
| | Innovative ability | 4.60 | 0.49 | highest | 4.60 | 0.49 | highest |
| | Social service ability | 4.80 | 0.40 | highest | 4.80 | 0.40 | highest |
| | professional ability | 4.60 | 0.49 | highest | 4.60 | 0.49 | highest |
| Subtotal | | 4.73 | 0.51 | highest | 4.70 | 0.50 | highest |
| 4.Development Process | | 4.80 | 0.40 | highest | 4.80 | 0.40 | highest |
| 5.Evaluation | Pre-Development | 4.60 | 0.49 | highest | 4.60 | 0.49 | highest |
| | Development | 4.80 | 0.40 | highest | 4.80 | 0.40 | highest |
| | Post-Development | 4.80 | 0.40 | highest | 4.60 | 0.49 | highest |
| | Subtotal | 4.73 | 0.48 | highest | 4.73 | 0.51 | highest |
| Total | | 4.70 | 0.50 | highest | 4.60 | 0.47 | highest |

From the table21, it was found that the suitability of the program to enhance competence was overall rated at the highest level ($\bar{x} = 4.70$). When considering each aspect, the suitability levels were ranked from highest to lowest as follows: teaching ability ($\bar{x} = 4.60$), Innovative ability ($\bar{x} = 4.60$), social service ability ($\bar{x} = 4.80$), professional ability ($\bar{x} = 4.60$), When considering each aspect, it was found that the suitability levels were ranked from highest to lowest as follows Development

Processes ($\bar{x} = 4.80$), Evaluation ($\bar{x} = 4.73$), Content ($\bar{x} = 4.73$), Principle ($\bar{x} = 4.60$) and Objectives ($\bar{x} = 4.60$).

The feasibility of the program to enhance competence was also overall rated at the highest level ($\bar{x} = 4.60$). When considering each aspect, it was found that the suitability levels were ranked from highest to lowest as follows Evaluation ($\bar{x} = 4.60$), Principle ($\bar{x} = 4.60$) and Development Processes ($\bar{x} = 4.80$), Contents ($\bar{x} = 4.70$) and Objectives ($\bar{x} = 4.60$).



CHAPTER V

CONCLUSION

The research on a Program to Enhance Competence of Art Teachers in Higher vocational colleges in Zhejiang ,The researcher summarized the results, discussed the results, and made recommendations in the following order:

1. Research objectives
2. Research results
3. Discussion
4. Suggestions and Recommendations

Research Objectives

1. To investigate the components of competence of art teachers in higher vocational colleges in Zhejiang.
- 2.To explore existent state and desired state, and priority need of art teacher's competence in higher vocational colleges in Zhejiang.
3. To develop a program to enhance competence of art teachers in higher vocational colleges in Zhejiang.

Research Results

The entire results of this research were reported according to the research questions sequence as follows:

1. There are 4 components of competence of art teachers in higher vocational colleges in Zhejiang including: 1) Teaching ability, 2) Innovation ability, 3) Social service ability, 4) Professional ability, and those of which are overall at the highest of applicability.
2. The existent state of competence of art teachers is generally at a medium level, while the desired state of competence is at the highest level. After modifying the priority needs index (PNI) modified, the ranking is as follows: social service

ability ranks first, innovation ability ranks second, teaching ability ranks third, and professional ability ranks fourth.

3.The program to enhance competence of art teachers in higher vocational colleges in Zhejiang consists of principles, objectives, content, development process, and evaluation. The methods for developing teacher competence including; 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training, with a development period of 145 hours and evaluation of the suitability and feasibility of the program was found to be overall at a high level.

Discussion

From the research Program to Enhance the Program to Enhance competence of art teachers in Higher Vocational Colleges in Zhejiang,the researcher discussed the results as follows:

1.The components of competence of art teachers in higher vocational colleges in Zhejiang

The components of competence art teachers in higher vocational colleges in Zhejiang consisting of 1) Teaching ability 2) Innovative ability 3) Social service ability and 4) professional ability And the results of evaluation the suitability components of competence of art teachers in higher vocational colleges in Zhejiang. the components of competence of art teachers in higher vocational colleges in Zhejiang were level overall at the highest. Because teachers must have the responsibility to educate students with knowledge and skills. It covers competence such as teaching ability , innovative ability , social service ability and professional ability, which are essential for teachers to become ideal and professional educators. These abilities enable teachers to effectively change learner behavior and support the teaching and learning process. In addition to knowledge transmission, Teachers should possess the following core competences: teaching skills, student assessment skills, classroom management skills, professional development skills, as well as professional ethics, social, and humanistic competences. Which is according to the concept of the Global Teacher Key Competences Framework. Pan Zhuochao (2018)

identified four competences for arts teachers: (1) Teaching ability: Evaluated in terms of both teaching and learning, focusing on teaching methods and critical thinking. (2) Creative Research Competence: Involves the creation and discovery of knowledge, including innovation and the translation of knowledge into valuable products or services. (3) Social service ability: Teachers contribute to professional organisations and communities through their knowledge and involvement in policy development. (4) Practical Competences: Emphasis is placed on artistic creation, reflecting the uniqueness of the art school and the contributions of faculty through creativity and research. Building on this framework, Wang Qiang and Lv Yang (2022) explained that art teachers should focus on the teaching quality and innovation quality of professional knowledge and technical skills, taking into account the characteristics of art teachers. It is specifically pointed out that art teachers should have 'four qualities', i.e., theoretical knowledge teaching quality, able to carry out art and design-related subject knowledge teaching; practical skills guidance quality, able to skilfully guide students and art and design-related technical skills training and practice; teaching innovation quality, able to carry out art and design teaching innovation, professional construction and teaching reform. With teaching innovation quality, can carry out art design teaching innovation, professional construction and teaching reform, etc., the latest knowledge and technical skills into education and teaching resources; with practice innovation quality, can carry out art design innovation, technical skills innovation and industry-education integration practice, promote the updating of knowledge and technical skills. Following this, Xu Weiming, Deng Guoqiong, and Jiang Ruijie (2023) propose a comprehensive framework for evaluating teachers in art higher vocational colleges, focusing on five core competence dimensions: 1) Moral and ethical behaviour: The evaluation of teachers' ethics is considered the foremost criterion, implementing a 'one-vote veto' system. A qualitative evaluation, guided by the Ten Guidelines for the Professional Behaviour of College Teachers in the New Era, is recommended, along with the establishment of ethics files to regulate teacher conduct. 2) Teaching ability: Teaching, as the primary responsibility of educators, is assessed through practical applications, particularly in art education. Evaluation extends beyond theoretical teaching to include practical

activities such as outdoor sketching, performance rehearsals, exhibition curation, and vocational skills competition guidance.3) Research ability: In art higher vocational colleges, research and creative capabilities are crucial. The evaluation incorporates not only traditional research outputs such as papers and projects but also artistic performances, creative works, and contributions to cultural development. A 'no papers only' policy emphasizes the quality of academic achievements rather than the quantity.4) Social service capacity: Teachers in higher education, particularly in art schools, play a vital role in social service, with responsibilities both within and outside the institution. On-campus services include administrative duties and student support, while off-campus contributions involve roles such as adjudication, vocational accreditation, public training services, and engagement in public service activities.5) Professional development: The evaluation system also includes professional development, acknowledging the continuous growth of educators. This includes further education, professional qualifications, enterprise experience, and international academic exchanges, aligning with the Guiding Opinions on the Reform of Teacher Assessment Systems released in 2016. Expanding on these findings in an international context, Park, H., & Lee, J. (2022) emphasized that senior competence of art teachers is composed of four dimensions: teaching ability, creative ability (innovation), industry-academia service ability (social service), and technical expertise (professionalism), and verified that the four dimensions do not exist in isolation, but are interrelated as an organic whole. It is also found that social service ability has the most significant effect on teaching ability, while professional ability is the basis of innovation ability. Wang Xiaofei (2023) proposed four core indicators of teacher competence in higher vocational colleges and universities in her Study on the Construction of Teacher Competence Model in Higher Vocational Colleges and Universities: educational teaching ability, professional practice ability, scientific research ability and social service ability. Educational teaching ability covers the application of teaching resources, teaching design, teaching implementation and teaching evaluation and reflection, assessing teachers' organisation and implementation ability in the teaching process. Professional practice ability involves guiding students' practical training, skill competition and innovation and

entrepreneurship, assessing the role of teachers in practice teaching. Scientific research ability includes research thinking, logical thinking, academic expression and research implementation, focusing on assessing teachers' academic research and innovation ability. Social service competence, on the other hand, examines teachers' contributions in technical counselling, social training and cultural services. The results of the study show that these competence indicators have high reliability and validity, can comprehensively measure the core competences of teachers in higher vocational colleges and universities, and provide a scientific basis for teachers' development and institutional management.

2. The priority needs of competence of art teachers in higher vocational colleges in Zhejiang.

After modifying the priority needs index (PNI) modified, the ranking is as follows: social service ability ranks first, innovation ability ranks second, teaching ability ranks third, and professional ability ranks fourth. The results showed that social service ability as the first priorities for the program of enhance competence of art teachers in higher vocational colleges in Zhejiang. Because teachers still lack focus on improving and developing their social service competencies, particularly in terms of self-awareness and self-competence. This shortcoming highlights the urgency of improving these competences to ensure that teachers can effectively respond to the changing needs of vocational education. In the current context of industrial integration and reform of higher vocational education, social service ability has become one of the indispensable core competences of higher vocational teachers. Teachers not only need to have professional teaching ability, but also must be able to take the initiative to participate in social service, provide technical support, training and consulting services for the development of local economy and industry. By improving social service ability, teachers can better connect with the industry, introduce the latest technology and demand into teaching, promote the integration of industry and education, and promote the improvement of education quality. At the same time, teachers' social service ability can also enhance the co-operative relationship between schools and enterprises, provide more practice opportunities for students, and improve their employment competitiveness. What's more, teachers' social service ability can enrich the teaching content and improve the practicality and

relevance of the classroom, so as to better meet the needs of students and the industry. Social service ability can bring teachers a deeper insight into the industry, so that they can more effectively convey the latest industry dynamics and practical problems in teaching. On the other hand, in the context of the 'double-high programme' (i.e., the programme for the construction of high-level vocational schools and professions with Chinese characteristics), the enhancement of the social service ability of teachers in higher vocational colleges and universities has become a key factor in promoting the quality of higher vocational colleges and universities in terms of their educational quality and contribution to society. As the core force of technical service and training, the social service ability of teachers in higher vocational colleges and universities plays a crucial role in solving technical problems in the industry, promoting technological innovation and improving students' practical ability. This viewpoint comes from Ding Xin. In her study, Ding Xin (2021) points out that teachers can provide professional support to enterprises and promote their technological progress through technical consulting, skills training and industrial cooperation, and at the same time integrate industry needs and technological frontiers into classroom teaching to provide students with more practical opportunities, thus enhancing students' employability. Despite the growing emphasis on the social service capabilities of teachers in vocational colleges, there are still numerous challenges in the actual implementation. Which is according to the concept of Hu Lina et al. (2020), explained that many vocational colleges, in the process of implementing the "Double-High Plan" (a strategy for building high-level vocational schools and programs with Chinese characteristics), face a generally low level of social service ability among teachers. Issues such as inadequate incentive mechanisms, insufficient depth of school-enterprise cooperation, and a lack of awareness regarding social service responsibilities among teachers persist. These challenges result in social service activities often remaining at a superficial level, with a lack of effective integration with professional teaching, thereby limiting the potential of social service functions. Furthermore, some vocational colleges continue to overly emphasize academic papers and research achievements in their evaluation systems, neglecting the importance of teachers' social service ability in professional title assessments and career development.

In the face of these dilemmas, an ‘incubator’ system for the accumulation of technical skills and social service capacity of teachers in higher vocational colleges and universities should be constructed, and the core of this system is to enhance the social service capacity of teachers through systematic institutional reform. This viewpoint comes from Li Xiaoyang, who (2017) explains that firstly, the motivation and opportunities for teachers to participate in social service should be enhanced through government policy guidance and deepening school-enterprise cooperation. Secondly, the technical service and social service ability of teachers should be enhanced through building practice platforms, such as technology research and development centres and studios of famous teachers. Finally, establish a scientific incentive mechanism, incorporate teachers' social service ability into the title evaluation and performance appraisal system, and motivate teachers to participate in social service activities for a long time. The implementation of these measures not only helps to improve teachers' social service ability, but also promotes the introduction of cutting-edge technology of the industry in teaching, so that the educational content of higher vocational colleges and universities can be more in line with the needs of the society and the industry. It is worth noting that the emphasis on social service capacity in international vocational education has been systematised. In Japan, for example, the ‘industry-academia-government co-operation’ model emphasises the role of teachers as ‘knowledge brokers’, transforming industrial needs into teaching content through participation in corporate R&D projects. This viewpoint comes from academics Kato and Stern. Kato and Stern (2018) found in their study ‘Social Service Capacity in Vocational Education’ that teachers in Japanese higher vocational colleges and universities devote an average of 30% of their time to social service each year, and this deep involvement significantly improves students' practical innovation ability and raises the rate of institutional research transformation to 47%. This data provides an important reference for quantifying the effectiveness of teachers' social service in China's higher vocational institutions. The experience of the United States community college system in building social service capacity is also worth learning from. According to the 2020 report of the American Association of Community Colleges (AACC), more than 80 per cent of institutions have included ‘social service contributions’ in their faculty performance appraisal system and

provided institutional protection for faculty through the establishment of ‘university-enterprise cooperation offices’. Stern (2016) cross-national study shows that the establishment of a clear ‘social service ability development pathway’ can increase teachers' motivation to participate in technical service by two to three times.

3. The program to enhance competence of art teachers in higher vocational colleges in Zhejiang

3.1 The results of program to enhance competence of art teachers in higher vocational colleges in Zhejiang consisting of principles, objectives, content, development process, and evaluation. The Component of a competence of art teachers consisting of teaching ability, professional competence, innovative ability and social service ability. The methods of development to enhance the competence of art teachers in higher vocational colleges in Zhejiang consisting of principles and methods of competence of teacher development by the Learning Model 70:20:10 consisting of case study, peer mutual assistance and observation, Participatory learning and action research ,expert guidance ,training. Evaluating the suitability and feasibility of the Program to Enhance Competence of art teachers in Higher Vocational Colleges in Zhejiang were level overall at the highest, because Teacher competence development requires a study of the needs and necessity in developing teacher competences that need to be developed by studying principles and concepts of teacher development, setting objectives, determining content, and taking the content that needs to be developed to study principles and methods of development, time period, and evaluation of development, Which is according the concept of Armstrong (2010) who stated that the program consists five key components of a teacher professional development programme, including goal setting, content design, implementation methods and evaluation feedback. In particular, he stressed that goal setting should be based on teachers' competence gap analysis to ensure the relevance and usefulness of the programme, while evaluation feedback provides the basis for continuous improvement of the programme by measuring teachers' behavioural changes and learning outcomes. This view is further supported by Desimone (2009), who pointed out in her study that a teacher professional development programme should be content-focused, proactive learning, collaborative, duration, and consistency, among other characteristics. In particular, she emphasised

that the content design should cover subject knowledge and teaching strategies, while assessment needs to be multi-dimensional (e.g. teacher response, learning outcomes and classroom practice) to ensure the effectiveness of the programme. In addition, from the perspective of educational change, teacher development programmes should include clear objectives, research-based content design, effective implementation methods, and systematic evaluation mechanisms. This view comes from Fullan. Fullan (2007) further explains that implementation methods should focus on collaborative learning and reflective practice, for example, through workshops, peer observation and action research to promote continuous learning and competence enhancement among teachers (Fullan, 2007). This is further corroborated by Darling-Hammond's (2017) study point by stating that teacher development programmes should be based on clear principles (e.g. adult learning theory), set specific goals, design practical content, use diverse methods, and ensure continuous improvement of the programme through evaluation. In particular, she stressed that the development of principles should be closely aligned with the actual needs of teachers and the teaching and learning environment to ensure the sustainability of the programme. Finally, Kirkpatrick & Kirkpatrick's (2006) evaluation model provides a comprehensive evaluation framework for teacher development programmes. They emphasise that the design of a programme should include clear objectives, needs-based content, effective implementation methods, and systematic evaluation mechanisms. Their proposed four-level assessment model (response, learning, behaviour change and outcome) provides a scientific basis for programme evaluation and ensures the overall success of the programme. Together, these academics' research suggests that the five core components (principles, objectives, content, methods, and evaluation) of a teacher capacity development programme are scientific and necessary.

The methods and methods of development to enhance the competence of art teachers in higher vocational colleges in Zhejiang consisting of principles and methods of competence of teacher development by the Learning Model 70:20:10 . The theory was first developed in the 1980s by Morgan McCall, Bob Eichinger and Mike Lombardo of CCL (Centre for Creative Leadership), the world's leading leadership development and research organisation. The theory suggests that 70 per cent of adult learning comes from challenging on-the-job tasks, 20 per cent from

collaboration and insight with others, and 10 per cent from formal or virtual classrooms. This model emphasises the importance of experiential and social learning and provides a scientific basis for teacher competence enhancement. Jennings (2015) further validates the applicability of the model in teacher professional development. He noted that teachers are more effective in improving their competence through a combination of actual teaching (70%), collaboration with colleagues (20%) and formal training (10%). He also highlights case studies, peer support and action research as key methods of implementing the model. This is supported by McCall's (2010) research, which found that experiential learning (70%) helps teachers to adapt and solve problems quickly in practice, while social learning (20%) facilitates the sharing of knowledge and innovation through peer support and expert mentoring. Formal training (10%) provided the necessary theoretical underpinning and Argyris & Schön's (1996) theory of 'action science' fits well with the 70:20:10 model. They argue that teachers can achieve sustained competence through a combination of action research (70 per cent), participatory learning (20 per cent) and theoretical training (10 per cent). They also emphasised that reflective practice is at the heart of experiential learning. Finally, Darling-Hammond's (2017) research further supports the application of the model in teacher development. She noted that teachers were able to improve their teaching competences more effectively through a combination of actual teaching (70%), peer support and expert mentoring (20%), and formal training (10%). She also highlighted case studies and action research as important methods for implementing the model. The 70:20:10 learning model provides a comprehensive framework for teacher empowerment, emphasising professional development through experiential learning (70%), social learning (20%) and formal learning (10%). The above theory comes from (Lombardo & Eichinger, 1996). (Yin, 2014) pointed out that in this model, case study, as an important method of experiential learning, can help teachers to refine replicable teaching strategies by analysing success or failure cases in real teaching situations. Meanwhile, (Kemmis & McTaggart, 1988) pointed out that Participatory learning and action research, as a practice-based research method, can help teachers to identify problems, design solutions, and reflect on improvement in real teaching situations through action research, which enables teachers not only to solve specific problems, but also to reflect on the improvement of their teaching.

Through action research, teachers are not only able to solve specific problems in teaching, but also to improve their own professional ability in reflection. In terms of social learning, peer mutual assistance and observation is an effective way to enhance teachers' competence. Showers and Joyce (1996) pointed out that peer mutual assistance can promote the improvement of teaching skills and enhance teachers' collaborative ability through classroom observation and feedback among teachers. For example, art teachers can learn new teaching methods by regularly observing their colleagues' classrooms and improve their own teaching practices through feedback. In addition, EXPERT GUIDANCE plays an important role in teacher development. Hobson et al. (2009) showed that senior teachers or experts in the field, through regular training and mentoring, can help novice teachers to solve practical problems in teaching and provide systematic knowledge and skills support. This mentoring, combined with formal learning in the 70:20:10 model, can provide teachers with comprehensive professional development support. In terms of formal learning, TRAINING is an important way to enhance teachers' competence. Guskey (2002) points out that TRAINING is an important part of teachers' professional development and can help teachers to systematically learn new pedagogical methods and tools and to apply them effectively in practical teaching. He emphasises that effective teacher training is not only about transferring theoretical knowledge, but also about helping teachers to translate what they have learnt into practical teaching skills through practice and reflection. Guskey also points out that the key to the success of teacher training lies in continuity and feedback mechanisms. While short-term training can stimulate teachers' interest in learning, it is only through long-term follow-up and support that we can ensure that teachers truly grasp and apply what they have learnt. He also emphasised the evaluation of training effectiveness. He believes that the ultimate goal of teacher training is to enhance students' learning outcomes, therefore, the assessment of training effectiveness should not only focus on the enhancement of teachers' knowledge and skills, but also on the effectiveness of their application in actual teaching. In summary, the 70:20:10 learning model provides comprehensive theoretical support for teacher competence enhancement, while specific methods such as case studies, action research, peer support, expert guidance, training and

participatory learning can help teachers continuously improve their teaching competence and social literacy in practice.

3.2 The results of the evaluation of the suitability and feasibility of the Program to Enhance Competence of Art Teachers in Higher vocational colleges in Zhejiang . The overall suitability and feasibility were at the highest level. This may be because the researcher created the program to enhance competence of art teachers in Higher Vocational Colleges in Zhejiang. Using a systematic research process according to the steps of the program development model according to the research methodology, there was a study of principles, concepts, and theories related to theoretical concepts and content of 'competence of teachers, components of competence of teachers, principles and methods of teacher development, and concept and theory of program and program development, including a study of the background and problems existing in art teachers in Higher Vocational Colleges in Zhejiang. Interviewing experts to obtain complete information on important issues, necessary to enhance competence of teachers in Higher Vocational Colleges in Zhejiang before developing it into a program and checking and evaluating the program to enhance competence of teachers in Higher Vocational Colleges in Zhejiang.

Suggestions

1. Suggestions for applying the research results :

1.1 The Government should further introduce special policies to provide financial assistance and policy support to encourage art teachers to participate in art creation, art exhibitions, cultural exchanges and other art practice activities, so as to enhance their professionalism and creativity.

1.2 Industries and enterprises should establish long-lasting partnerships with tertiary institutions and provide platforms for project co-operation, industry exchanges and enterprise practice, so as to help art teachers enhance their social service capabilities.

1.3 Higher vocational institutions should optimise the training system for art teachers, strengthen the training modules for social service and innovation ability,

and provide art teachers with multi-level competence enhancement programmes to improve their overall competence.

1.4 The education administration should introduce a clear mechanism for assessing competence of art teachers, establish a scientific and reasonable assessment system taking into account the subject characteristics of art teachers, and provide teachers with concrete suggestions for improvement through the assessment results.

1.5 Art teachers should continue to enhance their self-integrated skills and actively participate in social services and arts programmes to strengthen their practical abilities. Personal development and student growth are promoted through interdisciplinary collaboration and self-reflection.

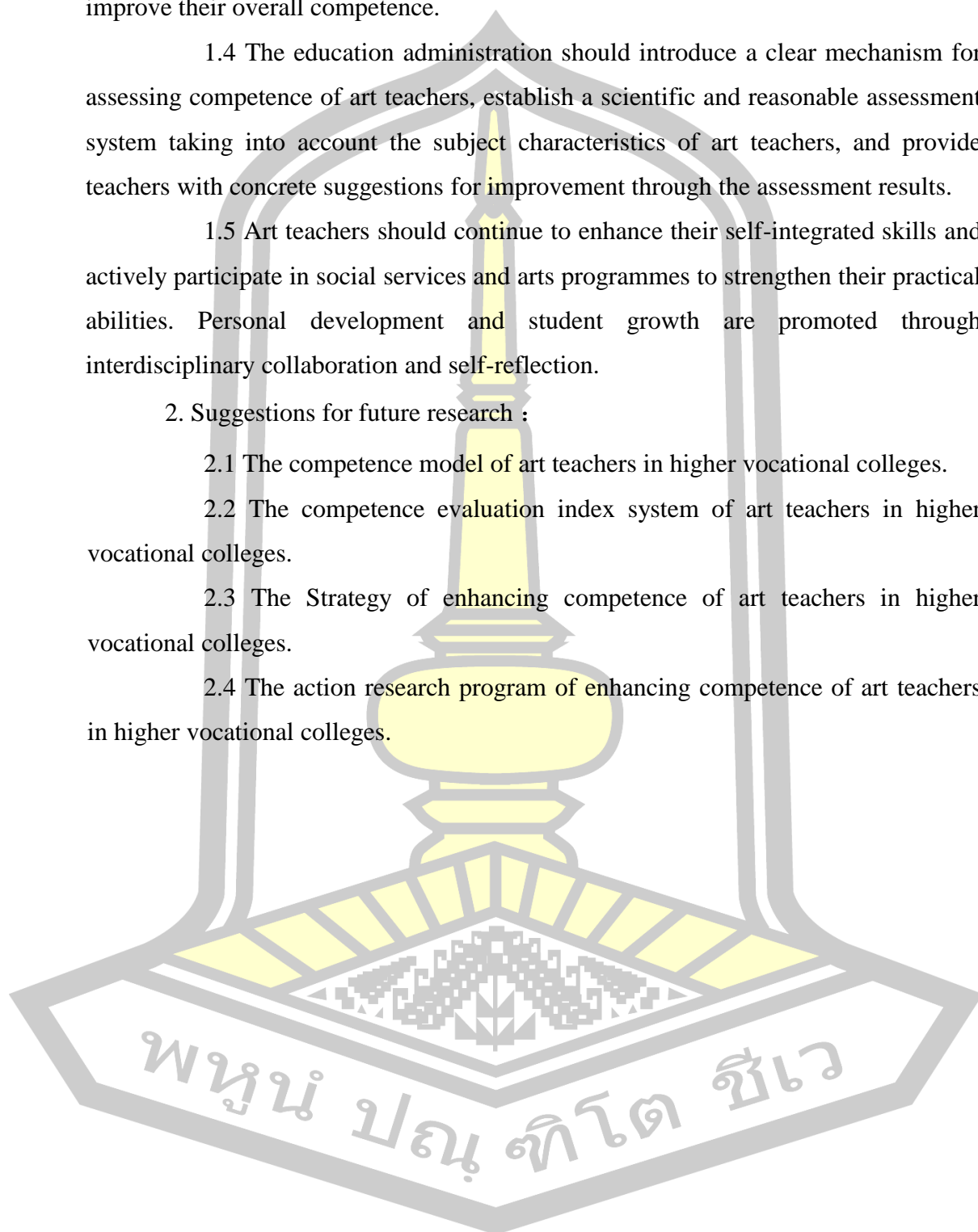
2. Suggestions for future research :

2.1 The competence model of art teachers in higher vocational colleges.

2.2 The competence evaluation index system of art teachers in higher vocational colleges.

2.3 The Strategy of enhancing competence of art teachers in higher vocational colleges.

2.4 The action research program of enhancing competence of art teachers in higher vocational colleges.



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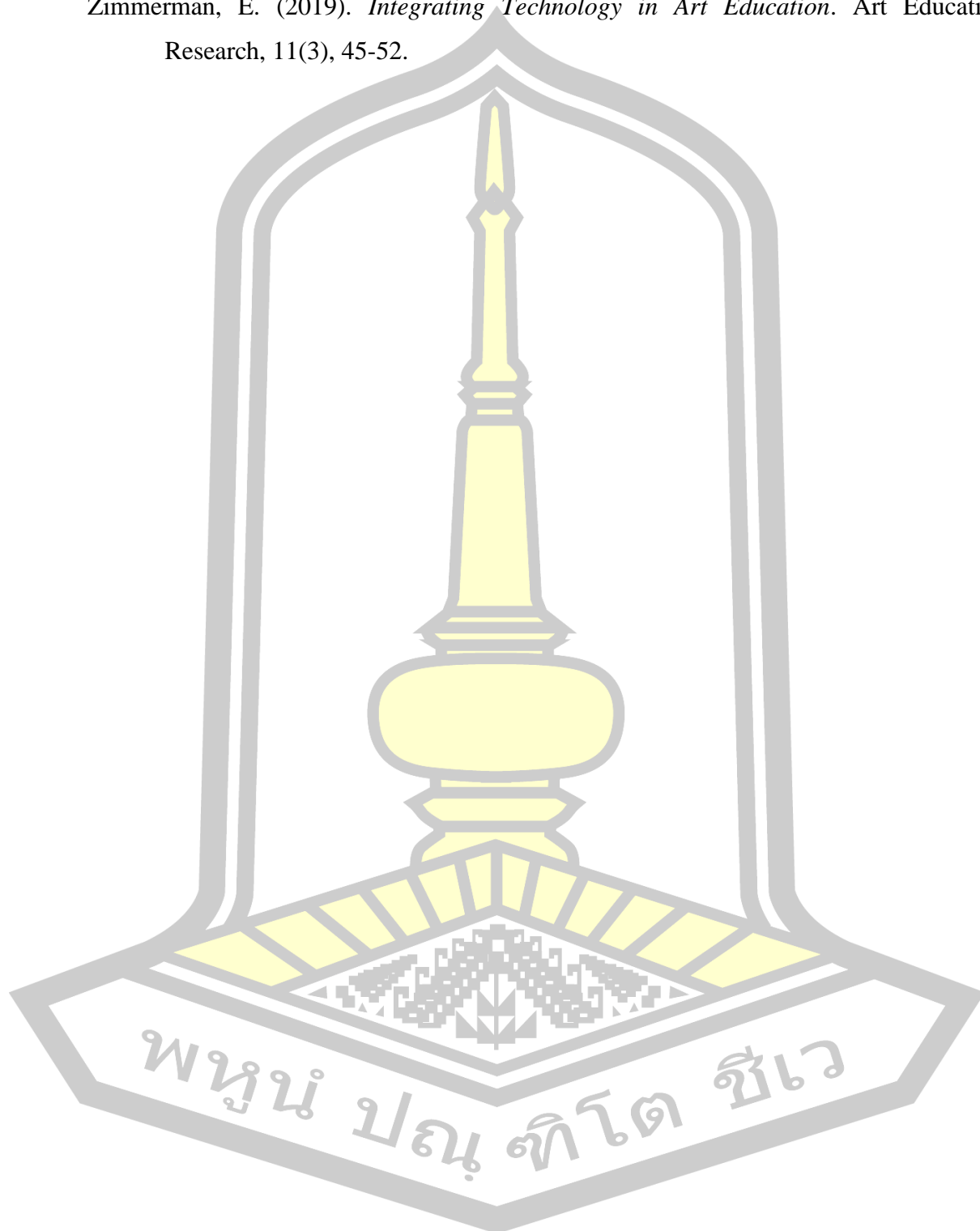
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APPENDIX

Appendix I

List of experts

List of component check experts

Five experts were selected to evaluate and test the effectiveness of the Program to Enhance Competence of art teachers in Higher Vocational Colleges in Zhejiang. Criteria for selecting qualified experts are as follows: 1) Education: The interviewees possess a master's degree or higher ,2) Experience: talents with professional knowledge and experience in Artistic studies,educational research.3)Job position: Arts Research/ educational research. The experts' names and qualification:

1. Professor Mu Ke, Doctor of Fine Arts, Deputy Dean of the International Academy of Fine Arts, Harbin Normal University

2. Professor WangXiaoming, Master of Fine Arts, Supervisor of Master's Students , Department of Basic Professional Teaching,China Academy of Art,

3. Professor Wang Hao, Master of Fine Arts, College of Fine Arts and Design, Tianjin Normal University

4. Professor Zhu Hongliang, Master of Fine Arts , Dean of the Faculty of Arts and Culture , Zhejiang Technical Institute of Economics

5. Professor PanJun, Master of Fine Arts, Faculty of Arts and Culture ,Zhejiang Technical Institute of Economics

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List of experts in the evaluation of research instrument

Based on the components and indicators of Enhance Competence of art teachers in Higher Vocational Colleges in Zhejiang, the questionnaire was designed. The first draft of the questionnaire was submitted to the consultant for correction, with accurate questionnaire and sent to 5 experts, the experts' standards were as follows: 1) Education: The interviewee holds a doctoral degree and an academic title of associate professor or above. 2) Experience: professional knowledge in the field of educational training and educational management; educational research or educational psychology; 3) Job position: experience in teaching and educational teacher competence in the above fields; The experts' names and qualification:

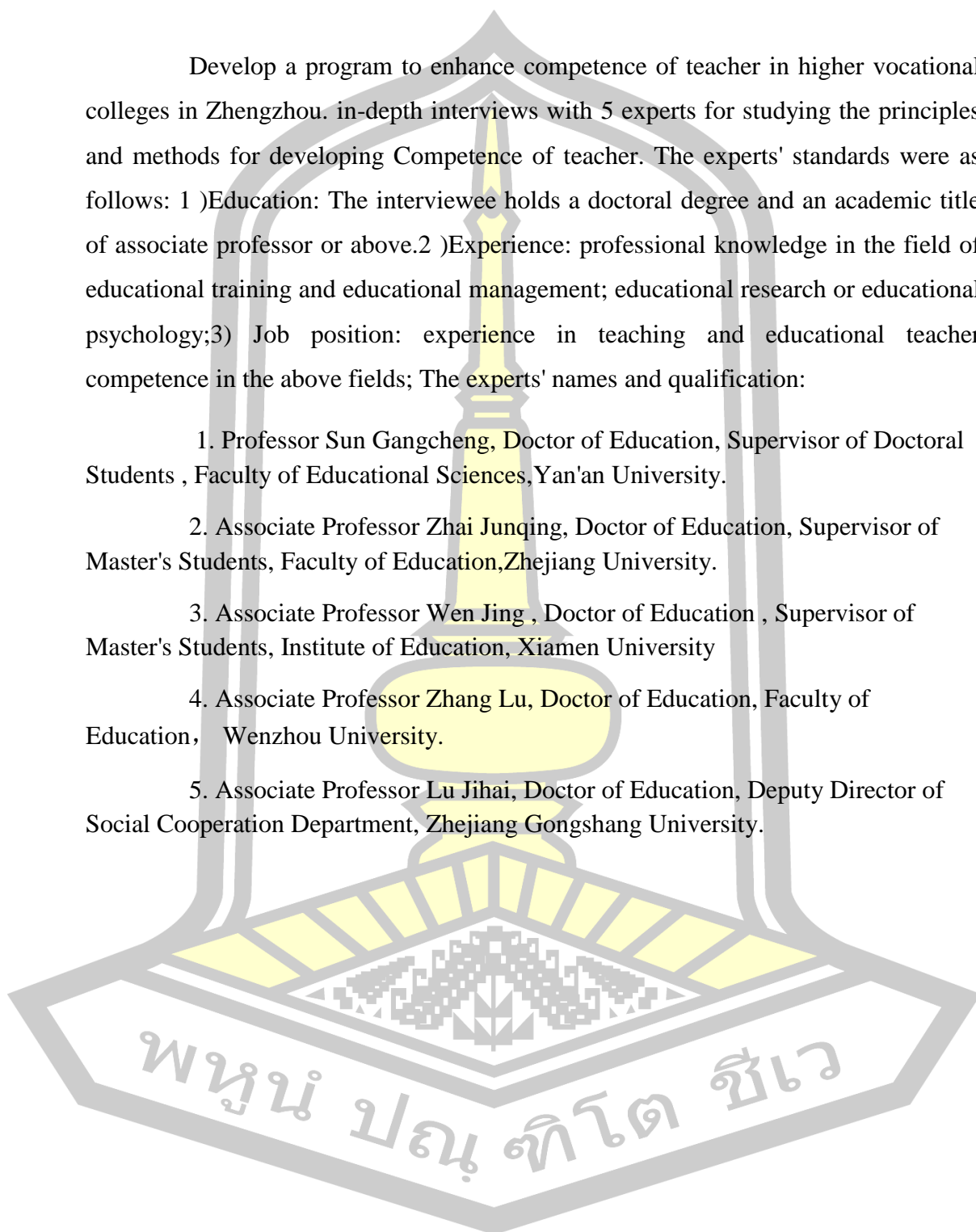
1. Professor Dun Zibin, Doctor of Fine Arts, College of Fine Arts and Design, Tianjin Normal University
2. Associate Professor Feng Wenhua, Doctor of Fine Arts, Faculty of Culture and Arts, Zhejiang Technical Institute of Economics
3. Associate Professor Ye fengquan, Master of Fine Arts, Faculty of Arts and Crafts, Hangzhou Institute of Vocational Technology
4. Associate Professor Sun Yongtai, Doctor of Education, Full-time Associate Editor, Journal of Educational Science, Jimei University
5. Associate Professor Shen Qing, Master of Fine Arts, Director of Tongxiang Campus Management Committee, Zhejiang Media University.

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List of experts participating in the interview

Develop a program to enhance competence of teacher in higher vocational colleges in Zhengzhou. in-depth interviews with 5 experts for studying the principles and methods for developing Competence of teacher. The experts' standards were as follows: 1)Education: The interviewee holds a doctoral degree and an academic title of associate professor or above.2)Experience: professional knowledge in the field of educational training and educational management; educational research or educational psychology;3) Job position: experience in teaching and educational teacher competence in the above fields; The experts' names and qualification:

1. Professor Sun Gangcheng, Doctor of Education, Supervisor of Doctoral Students , Faculty of Educational Sciences, Yan'an University.
2. Associate Professor Zhai Junqing, Doctor of Education, Supervisor of Master's Students, Faculty of Education, Zhejiang University.
3. Associate Professor Wen Jing , Doctor of Education , Supervisor of Master's Students, Institute of Education, Xiamen University
4. Associate Professor Zhang Lu, Doctor of Education, Faculty of Education, Wenzhou University.
5. Associate Professor Lu Jihai, Doctor of Education, Deputy Director of Social Cooperation Department, Zhejiang Gongshang University.



List of experts to evaluate the suitability and feasibility of the program

The key informants were five experts, who had experiences in educational training field or organizing conferences, workshops or training courses was invited to evaluate the possibility and suitability of the program and gave some comments to develop the appropriate program to enhance competence of art teachers in higher vocational colleges in Zhejiang. The experts' standards were as follows: 1) Education: The interviewee holds a doctoral degree and an academic title of associate professor or above; 2) Experience : professional knowledge in the field of educational training and educational management; educational research or educational psychology; 3) Job position : experience in teaching and educational teacher competence in the above fields. The experts' names and qualification:

1. Professor Zhu Huaixin, Doctor of Education, Doctoral Supervisor, Faculty of Education, Zhejiang University.
2. Professor Zhang Feng, Doctor of Education, Doctoral Supervisor , Faculty of Psychology ,Henan University.
3. Professor He Xuelian, Doctor of Education, Deputy Dean, Faculty of Economics and Management ,Quzhou College of Technology.
4. Associate Professor Ma Yuan, Doctor of Education ,Administration of Continuing Education, Zhejiang University.
5. Associate Professor Jiang Jiong ping, Doctor of Education, Director of the Academic Affairs Office at Tourism College of Zhejiang China.

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Appendix II
Research instrument



**MAHASARAKHAM UNIVERSITY ETHICS COMMITTEE FOR
RESEARCH INVOLVING HUMAN SUBJECTS**

Certificate of Approval

Approval number: 503-512/2024

Title : Program to enhance competence of art teachers in higher vocational colleges in zhejiang.

Principal Investigator : Yunshang Wang

Responsible Department : Faculty of Education

Research site : Hangzhou City, Zhejiang, China

Review Method : Expedited Review

Date of Manufacture : 14 August 2024

expire : 13 August 2025

This research application has been reviewed and approved by the Ethics Committee for Research Involving Human Subjects, Maharakham University, Thailand. Approval is dependent on local ethical approval having been received. Any subsequent changes to the consent form must be re-submitted to the Committee.

Ratree S.

(Assistant Professor Ratree Sawangjit)

Chairman

Approval is granted subject to the following conditions: (see back of this Certificate)

Evaluation Form

The components of competence of are teachers in Higher Vocational Colleges in Zhejiang

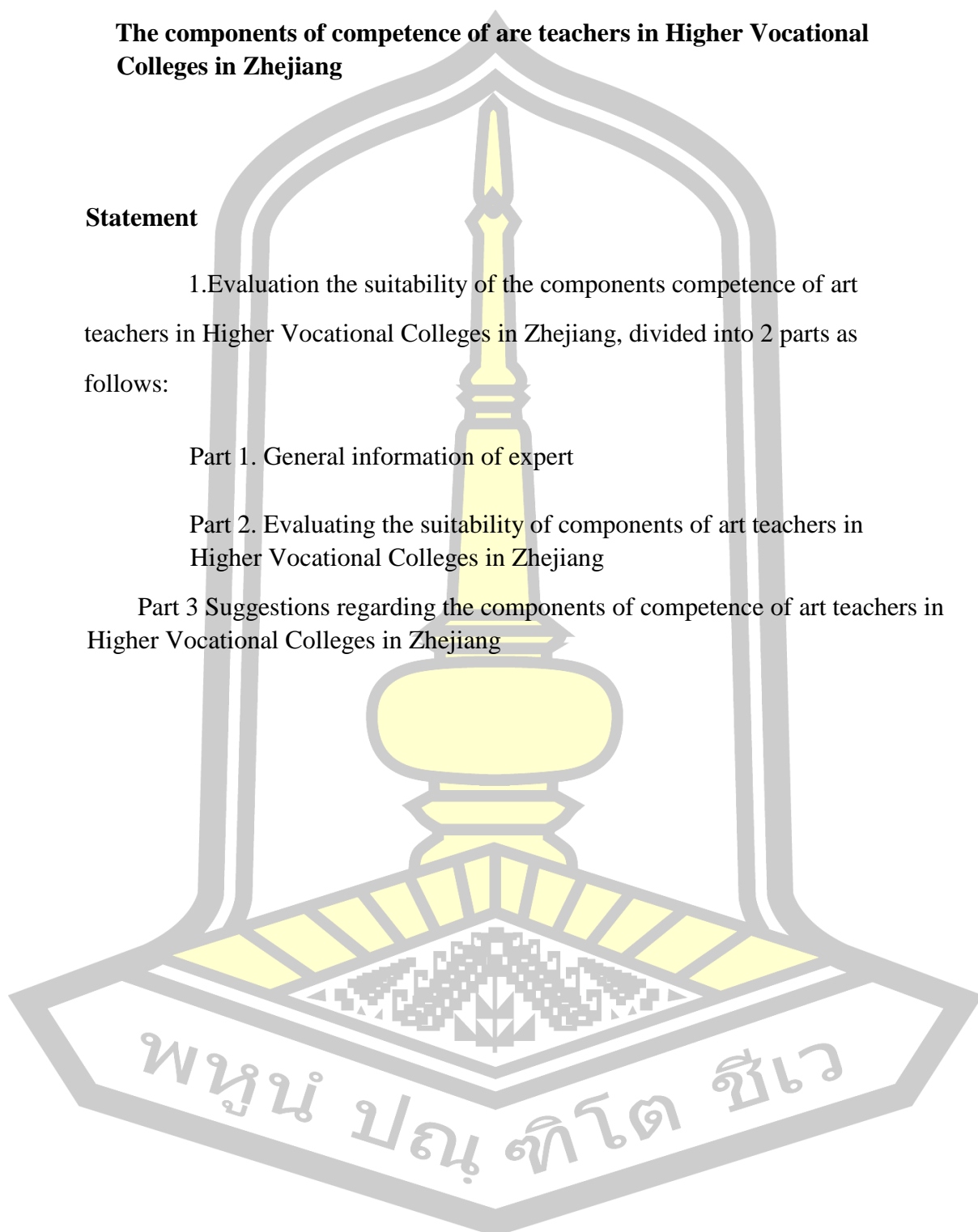
Statement

1.Evaluation the suitability of the components competence of art teachers in Higher Vocational Colleges in Zhejiang, divided into 2 parts as follows:

Part 1. General information of expert

Part 2. Evaluating the suitability of components of art teachers in Higher Vocational Colleges in Zhejiang

Part 3 Suggestions regarding the components of competence of art teachers in Higher Vocational Colleges in Zhejiang



The researcher hopes to receive your kindness, thank you very much.

Yours sincerely

Part 1 General information of expert

1.Name.....

2.Position.....

Part 2. Evaluating the suitability components of competence of art teachers in Higher Vocational Colleges in Zhejiang**Instructions**

please check a mark. ✓ enter in suitability fields. You have taken actions that suitability according to the following criteria:

5 means suitability at the highest level

4 means suitability at the high level

3 means suitability at the medium level

2 means suitability at the low level

1 means suitability at the lowest level

| Orders | Component | Suitability | | | | |
|--------|------------------------|-------------|---|---|---|---|
| | | 5 | 4 | 3 | 2 | 1 |
| 1 | Teaching ability | | | | | |
| 2 | Innovation ability | | | | | |
| 3 | Social service ability | | | | | |
| 4 | Professional ability | | | | | |

Part 3 Suggestions regarding the components of competence of art teachers in Higher Vocational Colleges in Zhejiang

Questionnaire

Research on The Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang

.....
 ...

Statement

Questionnaire aims to study the existent state and desired state of The Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang

The questionnaire consists of 2 parts as follows:

Part 1: General information of the respondents.

Part 2 Existent state and desired state of The Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang

2. Respondents please answer all questions in the questionnaire.
3. Survey results will be used for research purposes only. without any impact on the respondents.
4. Thank you to all respondents. who cooperated in answering the questionnaire

Miss. Yunshang Wang

Doctoral degree students Doctor of Education Program (Ed.D.)

Major: Educational Administration and Development.

Faculty of Education Mahasarakham University

Part 1 General information for the questionnaire responses.

Explanation: This questionnaire is a questionnaire about personal characteristics.

Please mark ✓ in () that matches your status

1. Gender

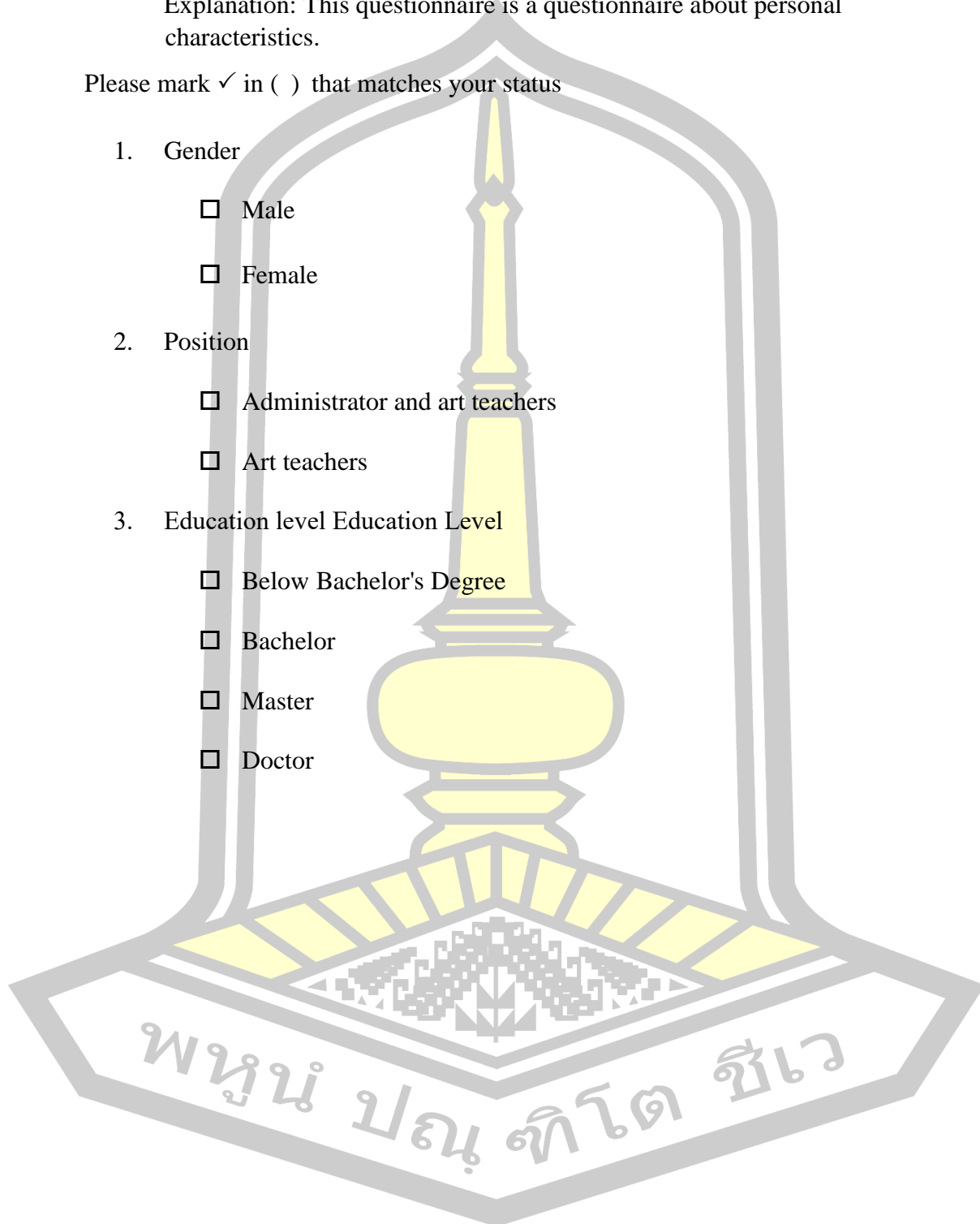
- Male
- Female

2. Position

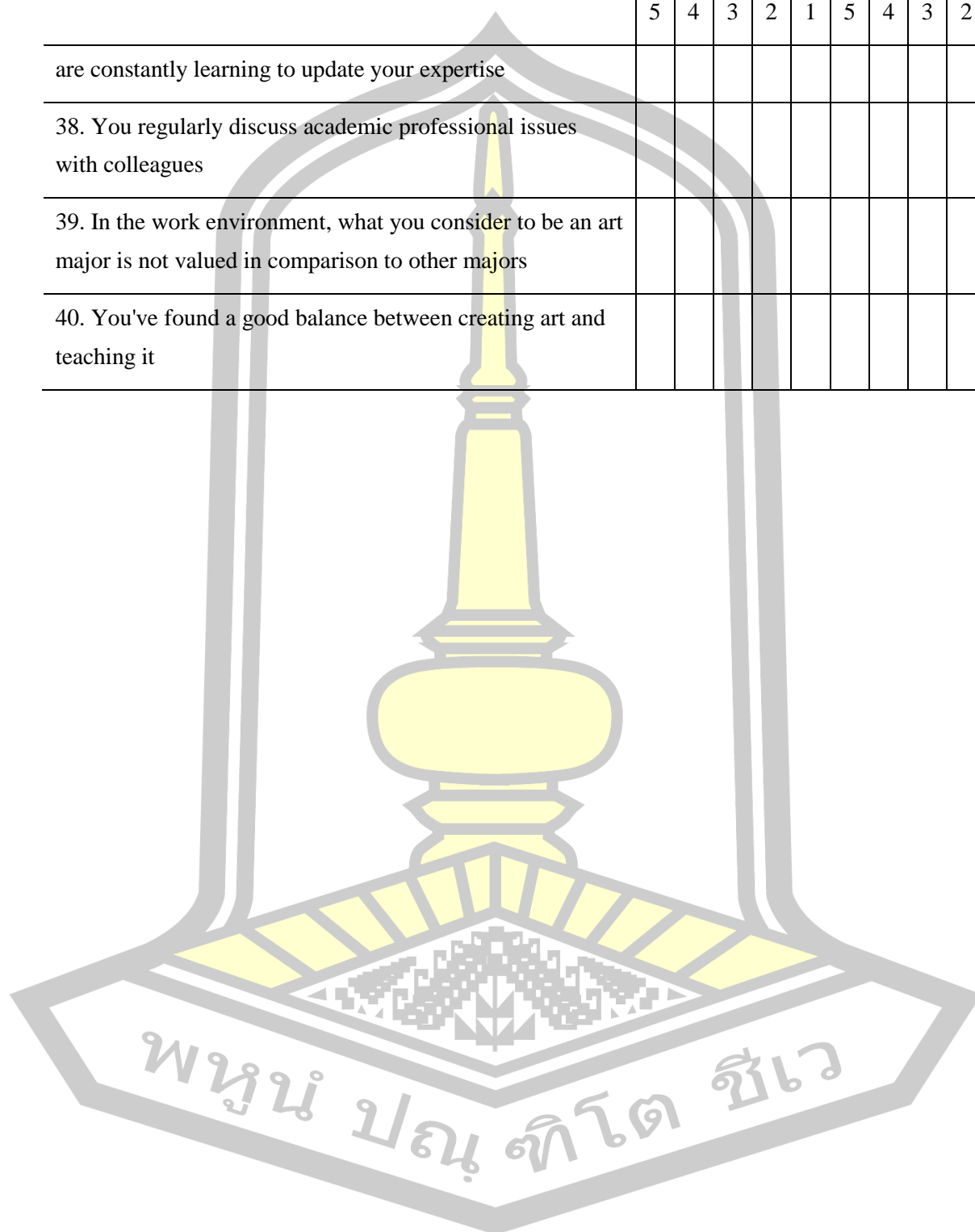
- Administrator and art teachers
- Art teachers

3. Education level Education Level

- Below Bachelor's Degree
- Bachelor
- Master
- Doctor



| Title | Existent state | | | | | Desired state | | | | |
|---|----------------|---|---|---|---|---------------|---|---|---|---|
| | 5 | 4 | 3 | 2 | 1 | 5 | 4 | 3 | 2 | 1 |
| are constantly learning to update your expertise | | | | | | | | | | |
| 38. You regularly discuss academic professional issues with colleagues | | | | | | | | | | |
| 39. In the work environment, what you consider to be an art major is not valued in comparison to other majors | | | | | | | | | | |
| 40. You've found a good balance between creating art and teaching it | | | | | | | | | | |



Interview form

Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang

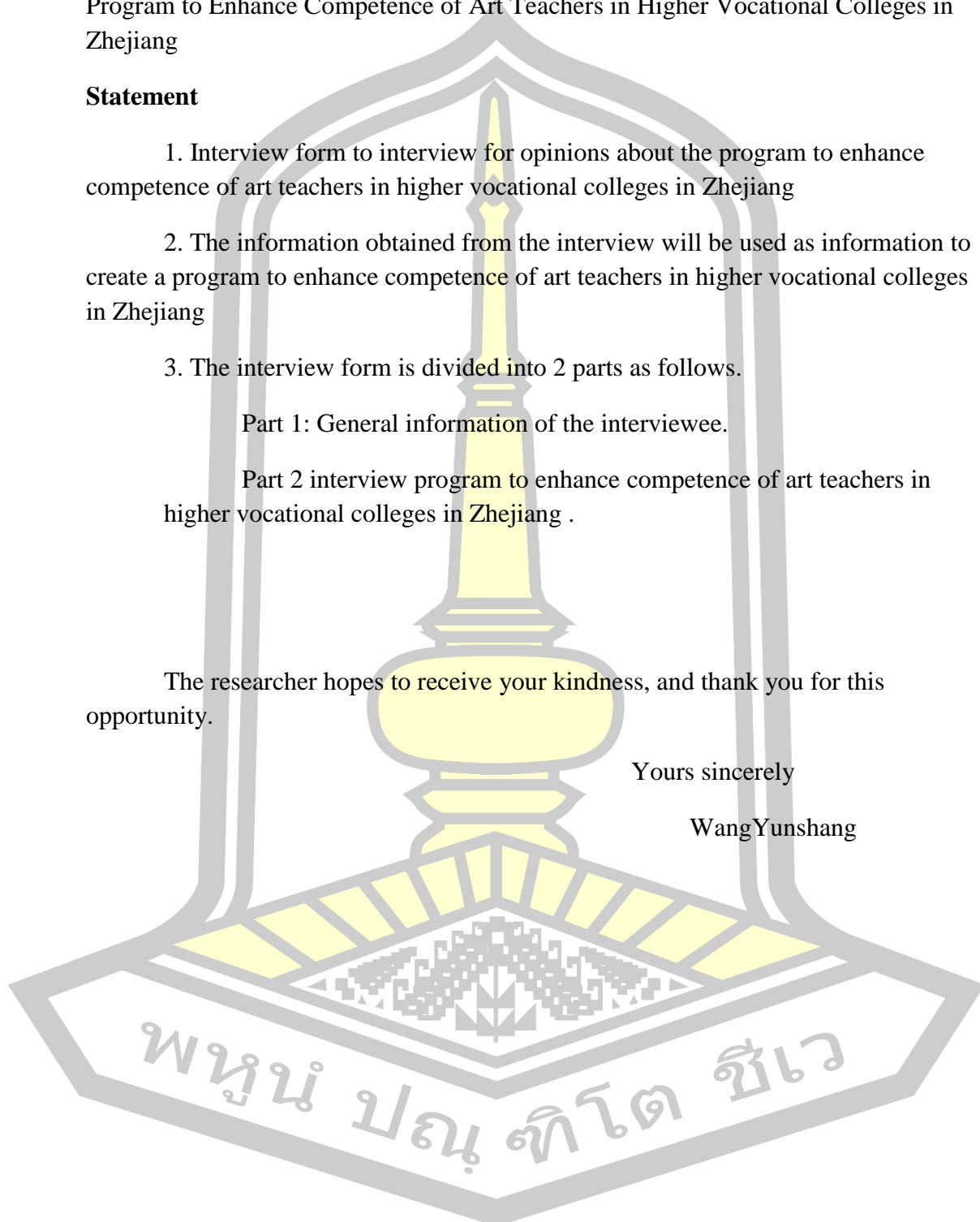
Statement

1. Interview form to interview for opinions about the program to enhance competence of art teachers in higher vocational colleges in Zhejiang
2. The information obtained from the interview will be used as information to create a program to enhance competence of art teachers in higher vocational colleges in Zhejiang
3. The interview form is divided into 2 parts as follows.
 - Part 1: General information of the interviewee.
 - Part 2 interview program to enhance competence of art teachers in higher vocational colleges in Zhejiang .

The researcher hopes to receive your kindness, and thank you for this opportunity.

Yours sincerely

WangYunshang



Part 1 : General information of the interviewee

1. Interviewee.....
2. Position.....
3. Date/month/year of the interview.....

Part 2 : Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang

From the study, documents, textbooks, the components of Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang , it consists of 5 components: 1) Principles 2) objectives 3) contents 4) development process 5) evaluation.

How many opinions and suggestions do the experts have about the principles and methods of development?

1. Teaching ability

1.1 Principles of development professional competence consisting of 70: learning by experience, 20: Learning by others, and 10: learning by courses

1.2 Methods of development professional competence consisting of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training

1.3 Suggestion.....

2. Innovative ability

1.1 Principles of development social competence consisting of 70: learning by experience, 20: Learning by others, and 10: learning by courses

1.2 Methods of development social competence consisting of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training

1.3 Suggestion.....

3. Social service ability

1.1 Principles of development personal competence consisting of 70: learning by experience, 20: Learning by others, and 10: learning by courses

1.2 Methods of development personal competence consisting of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training

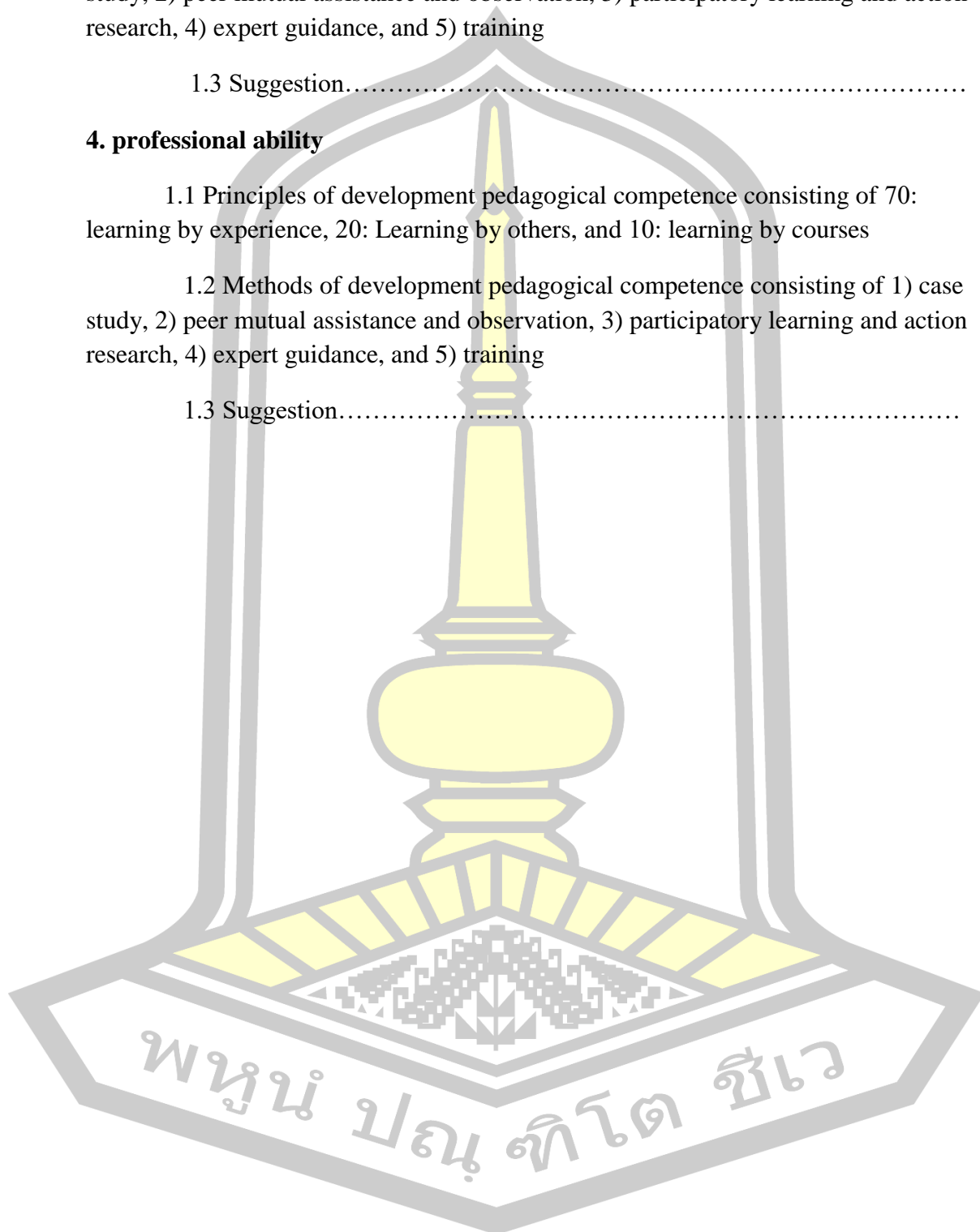
1.3 Suggestion.....

4. professional ability

1.1 Principles of development pedagogical competence consisting of 70: learning by experience, 20: Learning by others, and 10: learning by courses

1.2 Methods of development pedagogical competence consisting of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training

1.3 Suggestion.....



Evaluation Form

The Program to Enhance Competence of art teachers in Higher Vocational Colleges in Zhejiang

Statement

1.Evaluation of suitability and feasibility of The Program to Enhance Competence of art teachers in Higher Vocational Colleges in Zhejiang divided into 2 parts as follows:

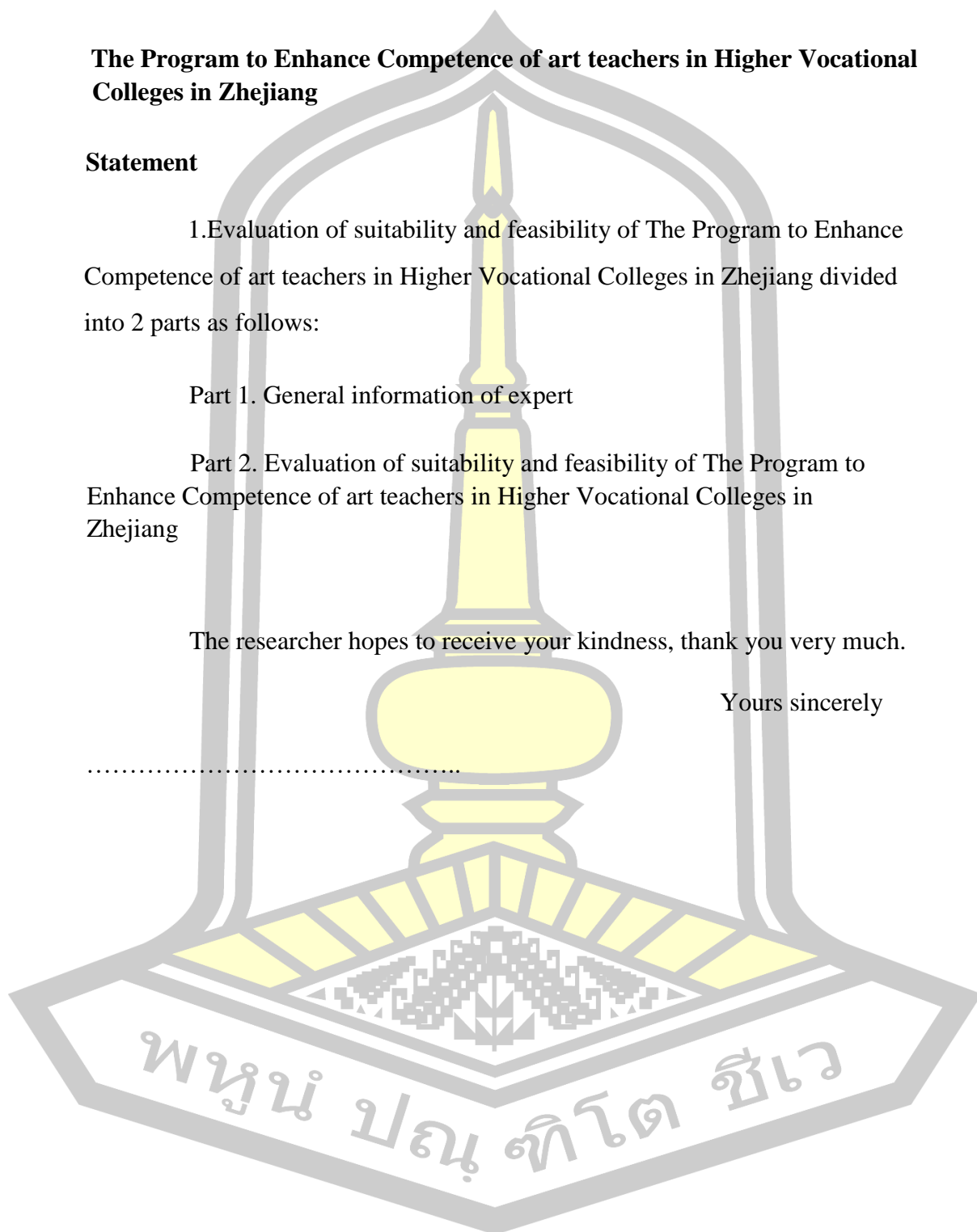
Part 1. General information of expert

Part 2. Evaluation of suitability and feasibility of The Program to Enhance Competence of art teachers in Higher Vocational Colleges in Zhejiang

The researcher hopes to receive your kindness, thank you very much.

Yours sincerely

.....



Part 1. General information of expert

1.Name.....

2. Position.....

Part 2. Evaluation of **suitability and feasibility** of The Program to Enhance

Competence of art teachers in Higher Vocational Colleges in Zhejiang

Instructions please check a mark ✓ enter in suitability fields. You have taken actions that suitability and feasibility according to the following criteria:

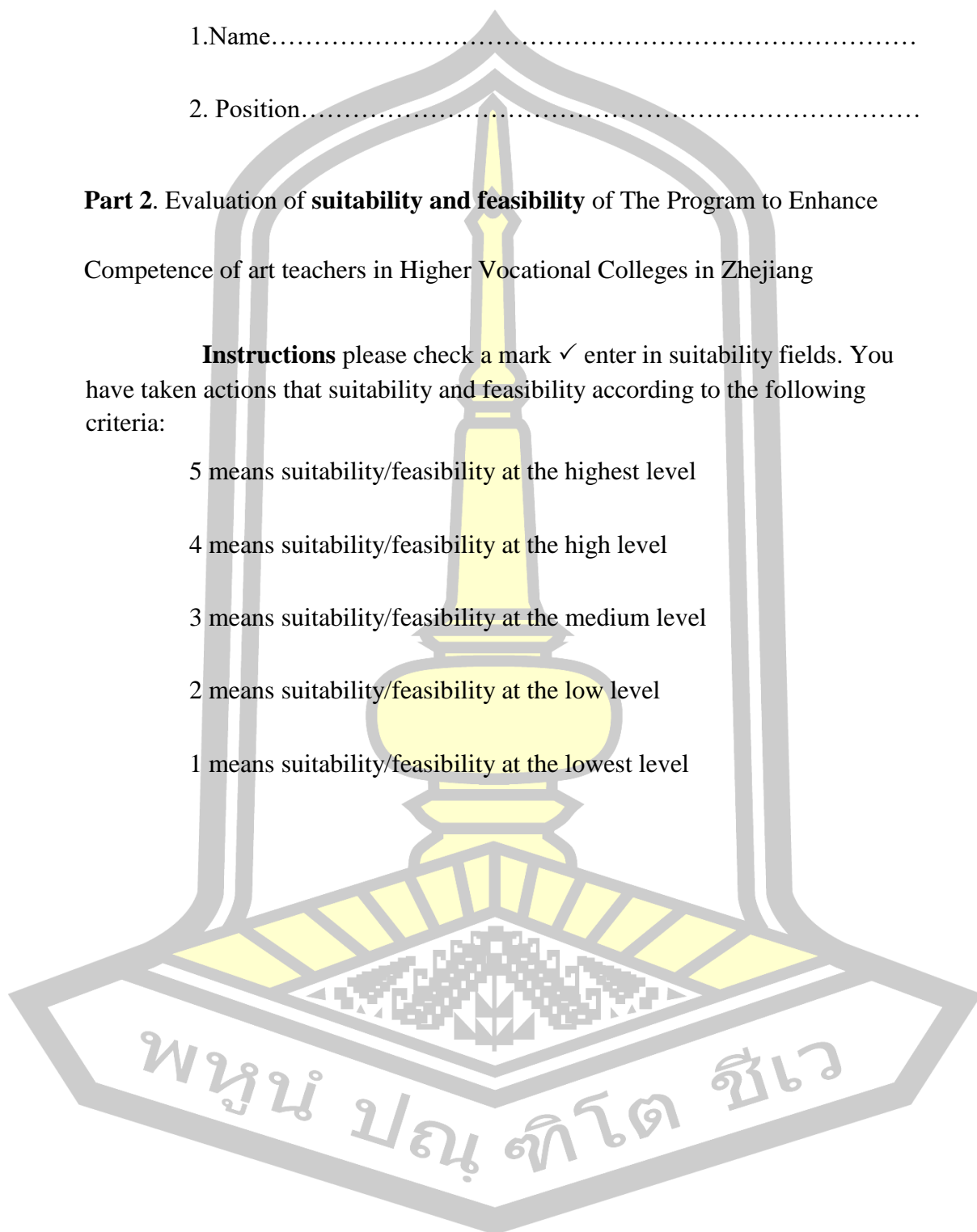
5 means suitability/feasibility at the highest level

4 means suitability/feasibility at the high level

3 means suitability/feasibility at the medium level

2 means suitability/feasibility at the low level

1 means suitability/feasibility at the lowest level



Appendix III

Manual

**Program to enhance competence of art teachers
in higher vocational colleges in Zhejiang**



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Wang Yunshang

Introduction

The manual of program to enhance competence of art teachers in higher vocational colleges in Zhejiang was developed as a document for organizing activities for teacher which is part of the thesis according to the Doctor of Philosophy Program in Educational Administration and Development, Faculty of Education, Mahasarakham University, focusing on teachers having teaching ability , innovation ability , social service ability, and professional ability. Users of the program should study the purpose, methods, and steps in using the program to understand every step in order for the operation to be efficient and effective. Furthermore, the researcher sincerely hopes that this program will be useful for educational personnel and those interested in applying it to create benefits in the future.

Yunshang

Wang

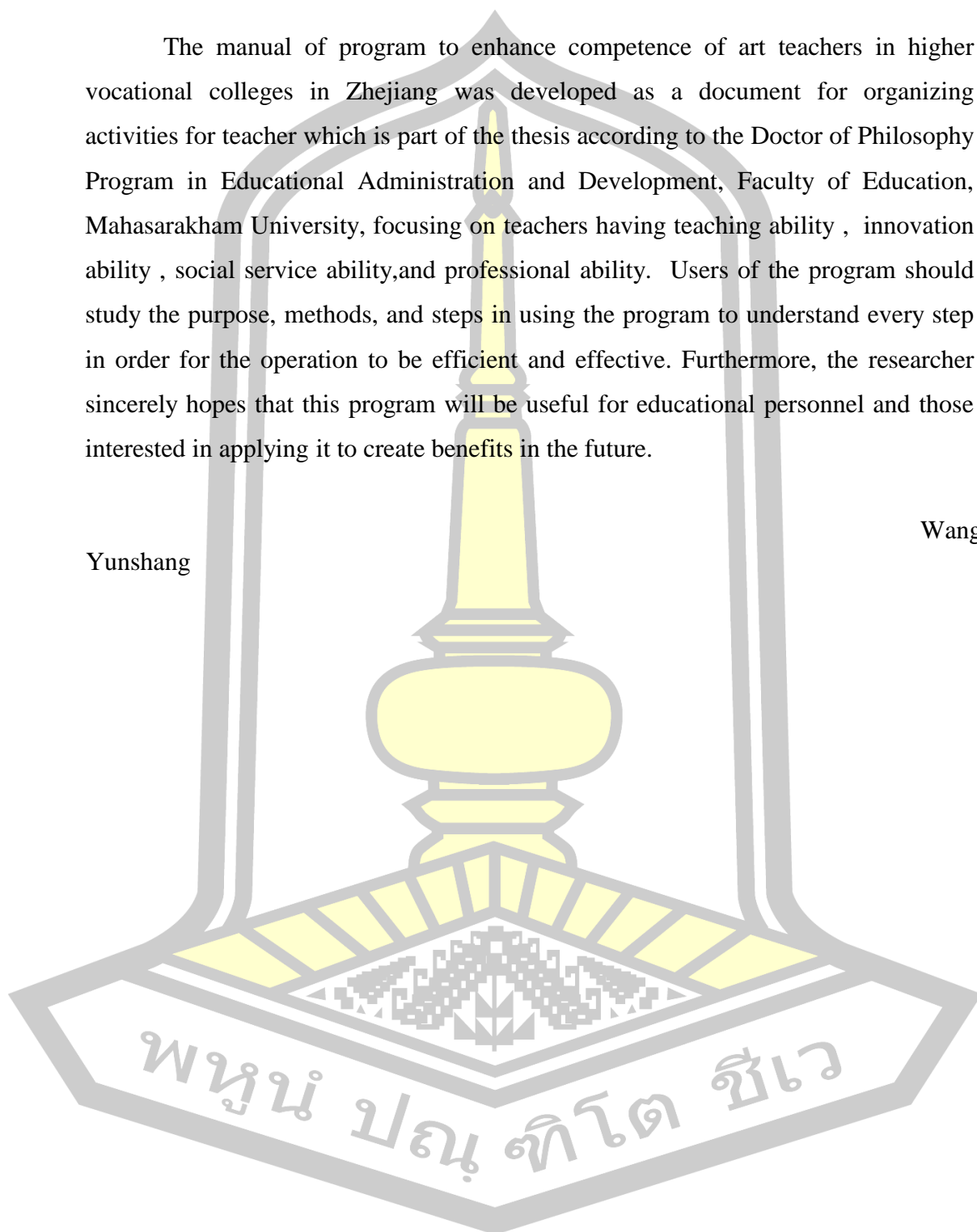
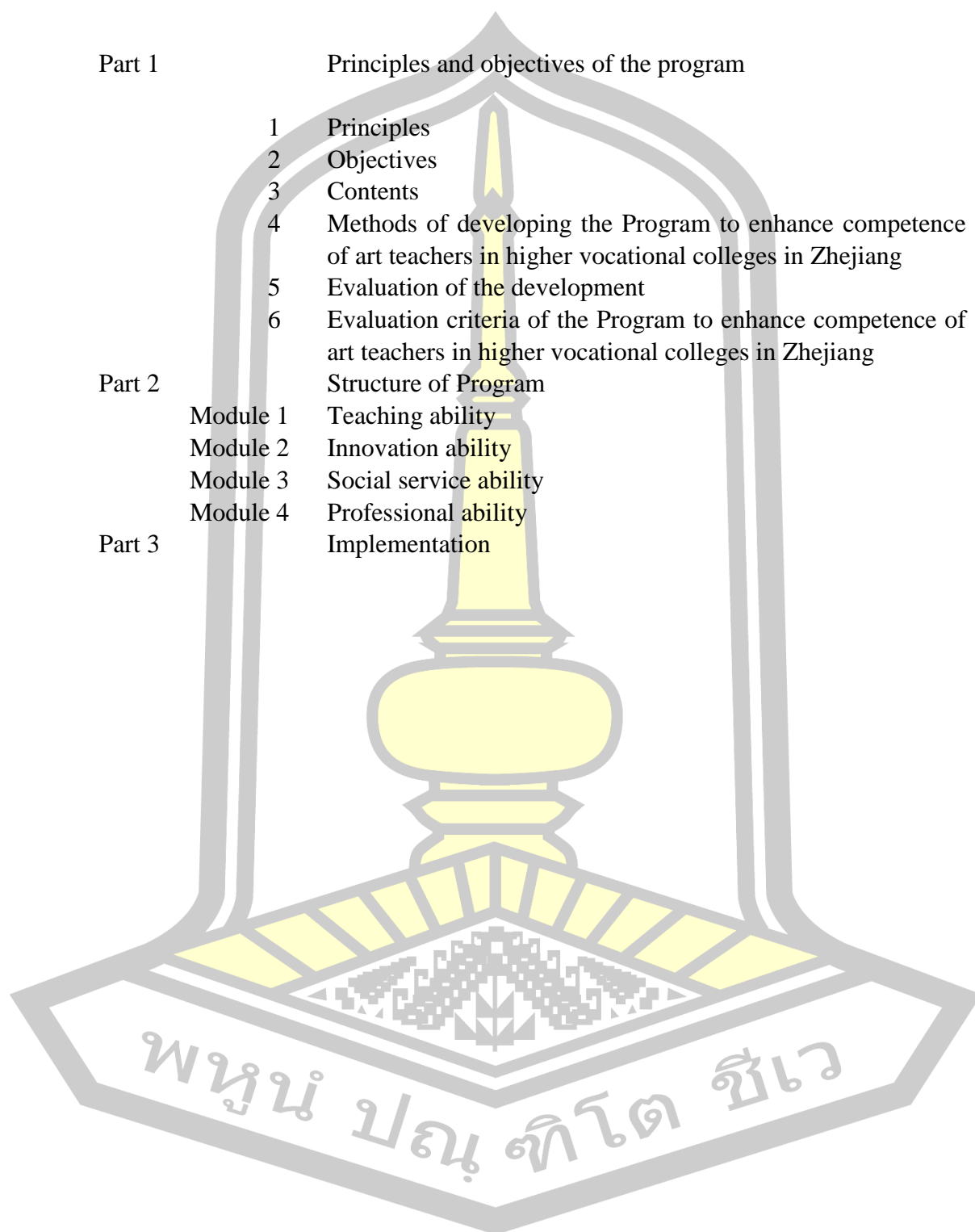


Table of Content

| | |
|--------|--|
| Part 1 | Principles and objectives of the program |
| | 1 Principles |
| | 2 Objectives |
| | 3 Contents |
| | 4 Methods of developing the Program to enhance competence of art teachers in higher vocational colleges in Zhejiang |
| | 5 Evaluation of the development |
| | 6 Evaluation criteria of the Program to enhance competence of art teachers in higher vocational colleges in Zhejiang |
| Part 2 | Structure of Program |
| | Module 1 Teaching ability |
| | Module 2 Innovation ability |
| | Module 3 Social service ability |
| | Module 4 Professional ability |
| Part 3 | Implementation |



Statement

1. Manual for using program to enhance competence of art teachers in higher vocational colleges in Zhejiang, divided into 3 parts:

Part 1 Principles and objectives of the program

Part 2 Program content structure

Part 3 Program implementation

2. Manual for using program to enhance competence of art teachers in higher vocational colleges in Zhejiang. This is a document for developing competence of art teachers in higher vocational colleges in Zhejiang, which specifies the details of the content, consisting of 4 modules:

Module 1 Teaching ability

Module 2 Innovation ability

Module 3 Social service ability

Module 4 Professional ability

3. The participants study and understand the content in the document (Self-study Learning) to use in the development activities, which consist of case study, peer mutual assistance and observation, participatory learning and action research, expert guidance and training

4. Development time: 145 hours

Principles and objectives of the program

Program to enhance competence of art teachers in higher vocational colleges in Zhejiang

1. Principles

The program aims to enhance competence of art teachers in higher vocational colleges Zhejiang by integrating teaching, innovation, social service, and professional expertise. Teacher competence is defined as the ability to effectively apply knowledge, skills, and teaching strategies to achieve educational goals, adapt to challenges, and foster student development. Guided by the 70:20:10 framework, the program emphasizes learning through practice (70%), collaboration (20%), and structured training (10%), ensuring a well-rounded and practical approach to teacher development.

2. Objective

To enhance competence of art teachers in higher vocational colleges in Zhejiang

3. Content

Program to enhance competence art teachers in higher vocational colleges in Zhejiang has content scope divided in to 4 modules include :

Module 1: Teaching ability:

Focused on equipping teachers with the skills to design, implement, and evaluate educational practices, leveraging digital tools and reflective methods to foster student growth.

Module 2: Innovative ability:

Aimed at cultivating creativity in teaching, research, and artistic practice to meet the challenges of modern education and drive instructional transformation.

Module 3: Social service ability:

Encouraging teachers to engage in school-enterprise cooperation, community education, and cultural services, enhancing their real-world experience and societal impact.

Module 4: Professional abilities

Developing art-specific expertise, interdisciplinary integration, and lifelong learning skills to elevate the quality of art education and students' creative abilities.

4. Development methods

4.1 Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table.

4.2 Implementation

Duration of art teachers development with a program to enhance competence art teachers in higher vocational colleges in Zhejiang, totaling 145 hours.

| Component | Principle | Methods | Hours |
|--------------------|--|---|-------|
| Teaching ability | 70% experiential learning | -Participatory learning and action research - Case study | 24 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 7 |
| | 10% learning through formal curriculum | Training | 3 |
| Subtotal | | | 34 |
| Innovative ability | 70% experiential learning | -Participatory learning and action research | 29 |

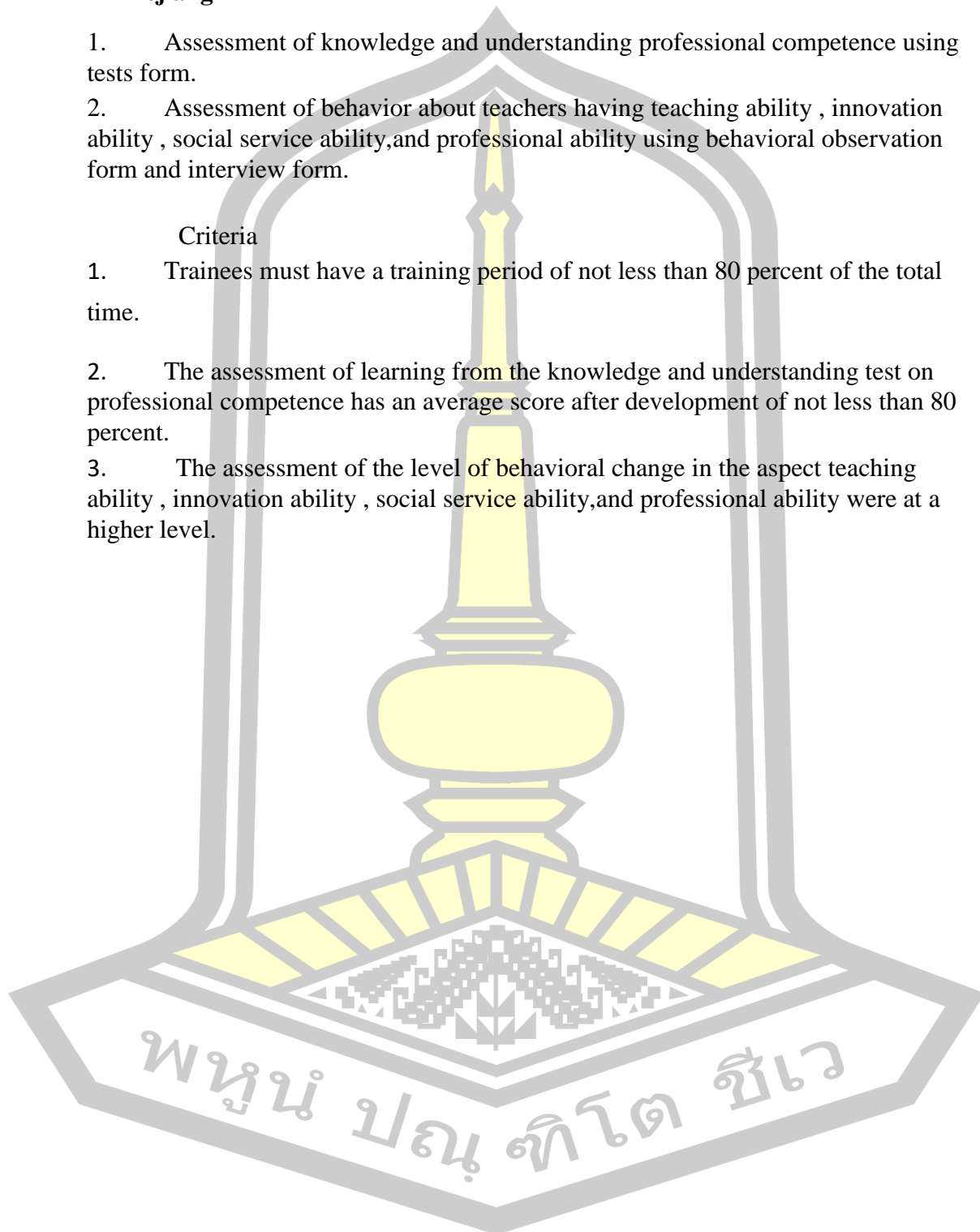
| | | | |
|------------------------|--|---|-----|
| | | - Case study | |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 8 |
| | 10% learning through formal curriculum | Training | 4 |
| Subtotal | | | 41 |
| Social service ability | 70% experiential learning | -Participatory learning and action research - Case study | 32 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 9 |
| | 10% learning through formal curriculum | Training | 5 |
| Subtotal | | | 46 |
| professional ability | 70% experiential learning | -Participatory learning and action research - Case study | 17 |
| | 20% learn from others | -Peer mutual assistance and observation -Expert guidance | 5 |
| | 10% learning through formal curriculum | Training | 2 |
| Subtotal | | | 24 |
| Total | | | 145 |

5. Evaluation of competence of art teachers in higher vocational colleges in Zhejiang

1. Assessment of knowledge and understanding professional competence using tests form.
2. Assessment of behavior about teachers having teaching ability , innovation ability , social service ability, and professional ability using behavioral observation form and interview form.

Criteria

1. Trainees must have a training period of not less than 80 percent of the total time.
2. The assessment of learning from the knowledge and understanding test on professional competence has an average score after development of not less than 80 percent.
3. The assessment of the level of behavioral change in the aspect teaching ability , innovation ability , social service ability, and professional ability were at a higher level.



Part 2

Program content structure

The program content to enhance competence of art teachers in higher vocational colleges in Zhejiang is divided into 4 Modules:

Module 1: Teaching ability

1.1 Principles

Teaching ability refers to the ability of teachers to use professional knowledge, skills and teaching methods in the process of education and teaching to effectively complete teaching tasks, achieve teaching goals and promote the overall development of students. This includes many aspects such as teacher character building, teaching design ability, teaching implementation ability, network information use and media technology ability, teaching evaluation and reflection ability, etc. Teachers are required to have correct values and comprehensive teaching literacy, and teaching competence is the core competence of teachers in the field of education and teaching, which is of great significance in improving teaching effectiveness and promoting the all-round development of students.

1.2 Objectives

This module aims to enhance the teaching ability of art teachers in higher vocational colleges in Zhejiang Province by strengthening their professional knowledge, instructional design, classroom implementation, and reflective evaluation practices. The goal is to improve teaching effectiveness, foster the holistic development of students, and support teachers in addressing the evolving challenges of vocational education.

1.3 Content

Teaching ability represents the fundamental competence for teachers in fulfilling instructional tasks, achieving educational objectives, and fostering the comprehensive development of students. In the context of Zhejiang's higher vocational art colleges, it encompasses various dimensions such as lesson design, classroom implementation, the application of digital and media tools, and reflective evaluation practices. This capacity also extends to embodying ethical values and

cultivating professional teaching literacy, which collectively contribute to improving teaching effectiveness and nurturing students' holistic growth.

This training program employs the 70:20:10 learning model to enhance the teaching competences of art teachers systematically. Key methodologies include participatory learning and action research, case study, peer mutual assistance and observation, expert guidance, and training. Through participatory action research, teachers design and reflect on experimental teaching practices to address classroom challenges. Case studies allow for the analysis of exemplary teaching scenarios to derive innovative strategies. Peer mutual assistance fosters collaborative reflection and professional support through mutual feedback. Expert guidance provides tailored advice on research, teaching methods, and professional applications. Finally, targeted training equips teachers with the necessary technical and methodological skills to elevate their instructional quality. The details of these activities are illustrated in the accompanying table.

1.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table...

Teaching ability

| Principles | Methods | Details of activities |
|---|---|--|
| | subtotal hours: 24 hours | |
| 70: Learning by Experience (24 hours.) | Participatory learning and action research (14 hours) | 1. Classroom teaching simulation: for teachers to conduct simulated classroom teaching, experiment with different teaching methods on the spot, and reflect on and improve them. 2. Problem-Based Learning (PBL): Improve problem-solving skills by designing and solving practical |

| | | |
|---|--|--|
| | | <p>problems in teaching and learning.</p> <p>3. Cooperative Group Learning (CGL): in which teachers discuss pedagogy, feedback and improvement among themselves.</p> |
| | Case study (10 hours) | <p>1. Teaching Case Discussion: Provide cases of different teaching scenarios, such as successful experiences in dealing with classroom management problems, for teachers to analyse and discuss solutions.</p> <p>2. Video case studies: videos of effective classrooms are shown for teachers to observe and learn from excellent teaching methods.</p> <p>3. Outstanding Teachers' Experience Sharing: Outstanding teachers are invited to share their successful experience in teaching.</p> |
| | subtotal hours: 7 hours | |
| 20: Learning by Others (7hours.) | Peer mutual assistance and observation (4 hours) | <p>1. Teachers' Workshop: Themes (e.g. classroom questioning techniques, time management, etc.) are assigned within the group, and each teacher is responsible for sharing his/her own experience to promote mutual learning and support.</p> <p>2. Observation: Observe senior teachers' classes, record and analyse the effectiveness of their teaching strategies.</p> |
| | Expert guidance (3 hours) | <p>1. Expert Lectures: Educational experts provide teachers with specific guidance that combines theory and practice.</p> <p>2. Teaching counselling: Experts are regularly invited to the classroom to listen to lessons and provide one-on-one feedback.</p> |
| | subtotal hours: 3 hours | |
| 10: learning by course (3 hours.) | Training (3 hours) | 1. Technical support courses: Teachers will be taught how to use digital technology to enhance classroom effectiveness (e.g. using online learning platforms or interactive tools). |
| Total | 34 hours | |

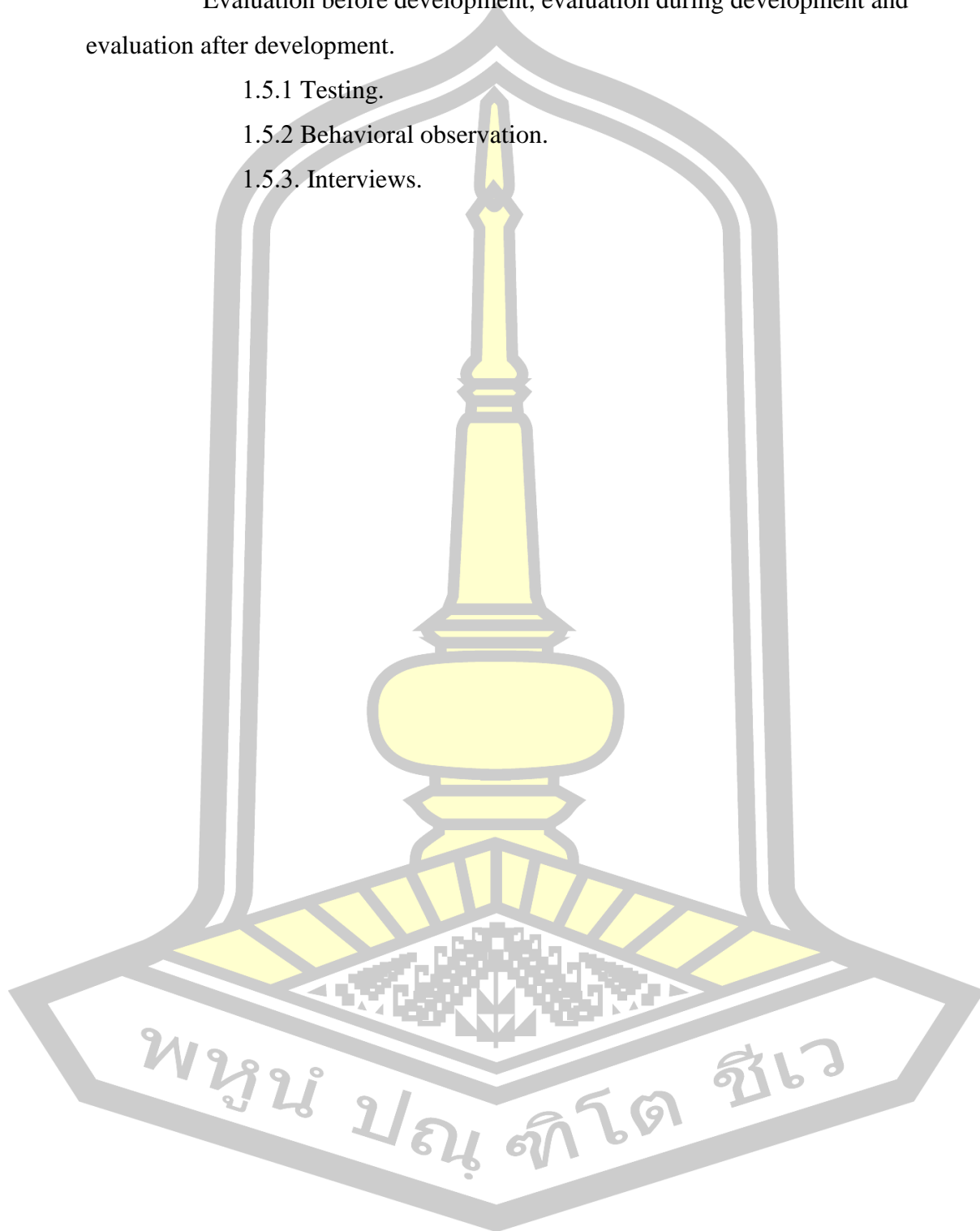
1.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development.

1.5.1 Testing.

1.5.2 Behavioral observation.

1.5.3. Interviews.



2. Module 2: Innovative ability

2.1 Principles

Innovative ability refers to teachers' capacity for creativity and innovation in both teaching practices and their professional fields, particularly in the arts. This involves the ability to develop and apply novel teaching methods, design personalized educational strategies, and engage in academic research and technological advancement within their specialized fields. Additionally, it encompasses the ability to create and express artistic ideas. The cultivation and enhancement of these abilities require teachers to engage in ongoing learning, consistent practice, and maintaining a keen sense of insight and originality. Innovative ability is a key competence that fosters educational progress and elevates the overall quality of education.

2.2 Objectives

This module aims to enhance the innovative ability of art teachers in higher vocational colleges in Zhejiang Province by cultivating their creativity in teaching methods, academic research, and professional artistic practices. The goal is to enable teachers to address complex educational challenges, improve teaching quality and research capabilities, and contribute to the holistic development of students.

2.3 Content

Innovative ability is the core driving force for promoting transformation and development in the field of education, especially in the context of art education in higher vocational colleges. This capability is not only related to the innovation of teaching methods and the optimization of educational strategies but also encompasses the comprehensive enhancement of teachers' academic research, technological application, and artistic creation skills. By cultivating innovative abilities, teachers can address complex problems in teaching practices in a more scientific manner, thus meeting the demands of improving education quality and fostering the holistic development of students.

This training program adopts a multi-dimensional approach to systematically enhance teachers' innovative abilities, including case study, peer mutual assistance and observation, participatory learning and action research, expert

guidance, and training. Through case studies, teachers analyze successful academic achievements and teaching cases to draw valuable lessons. Peer mutual assistance and observation provide opportunities for collaborative learning and improvement. Participatory learning and action research involve designing and implementing small-scale research projects, applying research findings to practice. Expert guidance offers personalized suggestions for academic papers, project applications, and other professional tasks. The training equips teachers with basic skills in research design, data analysis and application of tools, enabling them to continuously improve their research capacity and use of innovative thinking in educational practice and professional creativity.

2.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table.

| Innovative ability | | |
|--|---|--|
| Principles | Methods | Details of activities |
| | subtotal hours: 29 hours | |
| 70: Learning by Experience (29 hours.) | Participatory learning and action research (19 hours) | 1. Art Research Proposal and Implementation: Design small-scale art research projects and develop them into formal research proposals to enhance the ability to apply for art-related research topics. 2. Art Research Paper Writing: Conduct research on art topics and write academic papers to improve skills in art research paper writing. 3. Focusing on the transformation of research results: helping to upgrade teachers to patent their research results (e.g., inventions and designs in their areas of specialisation) and transforming them into practicable projects. |
| | Case study (10 hours) | 1. Case studies of high-quality papers: Providing high-level academic papers in different fields, teachers learn |

| | | |
|-----------------------------------|--|--|
| | | <p>about their research design, data analysis and writing structure.</p> <p>2. Case studies of successful project submissions: analyse successful project submissions in the field of education and refine the core components of topic selection and design.</p> <p>3. Case studies of innovative teaching results: learn how teachers at home and abroad effectively transform research results into teaching content and improve students' innovative ability.</p> |
| | subtotal hours: 8 hours | |
| 20: Learning by Others (8hours.) | Peer mutual assistance and observation (4 hours) | <p>1. Teachers observe their peers' classroom teaching, pay attention to the use of innovative teaching methods and record the inspiration;</p> <p>2. Research exchange and sharing sessions: peers discuss their experiences in writing papers.</p> |
| | Expert guidance (4 hours) | <p>1. Academic paper writing and journal selection: expert guidance to optimise the structure of the paper, improve the quality of the content, and select suitable journals for submission.</p> <p>2. One-on-one counselling for project declaration: provide specific guidance and improvement suggestions for teachers' research projects.</p> <p>3. Suggestions and evaluation of results transformation: experts provide optimisation and practical suggestions for the transformation and application of teachers' academic results.</p> |
| | subtotal hours: 4hours | |
| 10: learning by course (4 hours.) | Training (4 hours) | <p>1. Academic paper writing methods: learning research methods, data analysis, and other academic writing techniques.</p> <p>2. Research project proposal course: explaining the methods for writing research proposals and common issues.</p> |
| Total | 41hours | |

2.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

2.5.1. Behavioral observation.

2.5.2. Interviews.

3. Module 3: Social service ability

3.1 Principles

Social service ability emphasizes the active involvement of teachers in community and professional initiatives by integrating their expertise and skills. This includes the application of technology, the development and implementation of school-enterprise cooperation projects, as well as providing training services and contributing to community education and cultural programs. By engaging in these activities, art teachers in higher vocational colleges enhance their practical abilities, gain valuable real-world experience, and strengthen the application of practical teaching methods. Furthermore, such participation promotes professional growth while simultaneously amplifying the social influence and value of higher vocational education.

3.2 Objectives

This module aims to enhance the Social service ability of art teachers in higher vocational colleges in Zhejiang Province by strengthening their practical skills in school-enterprise cooperation, community education, and cultural services, ensuring education better aligns with social and industry demands.

3.3 Content

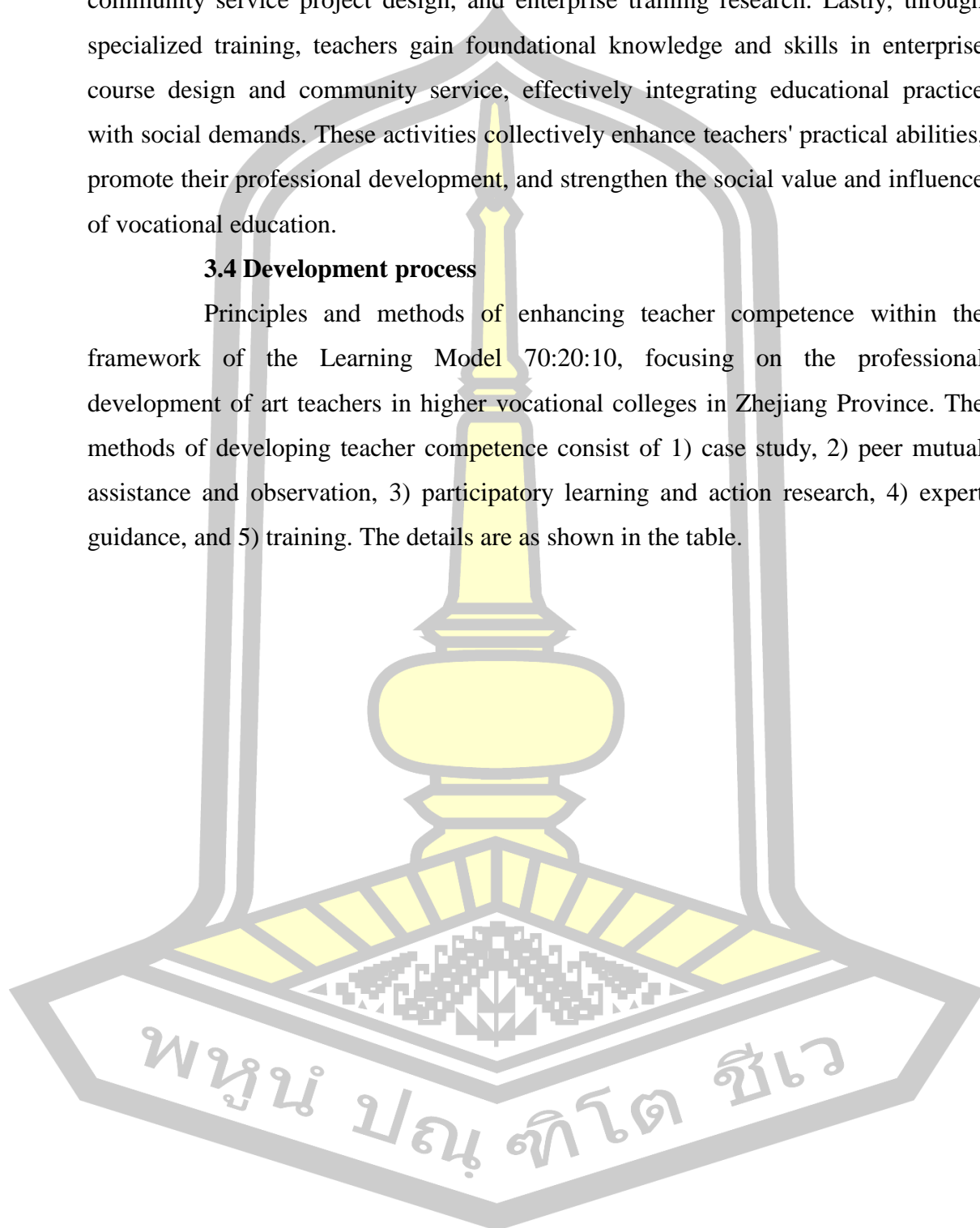
Social service ability emphasizes the integration of teachers' professional knowledge and skills into professional fields and community-related activities, aligning with the principles of vocational education. This includes school-enterprise cooperation, enterprise project research, and the design and implementation of educational and cultural projects tailored to community needs. Through participatory learning and action research, teachers collaborate with enterprises to understand industry demands, participate in curriculum development, and address practical issues in teaching and research. Case studies analyze successful examples of school-enterprise cooperation and community service practices, providing essential references for optimizing curriculum design and enhancing practical teaching strategies.

Additionally, peer mutual assistance and observation encourage teachers to share and evaluate their experiences in school-enterprise cooperation and community service, fostering mutual learning and improvement. Expert guidance provides

targeted support in areas such as school-enterprise cooperation model innovation, community service project design, and enterprise training research. Lastly, through specialized training, teachers gain foundational knowledge and skills in enterprise course design and community service, effectively integrating educational practice with social demands. These activities collectively enhance teachers' practical abilities, promote their professional development, and strengthen the social value and influence of vocational education.

3.4 Development process

Principles and methods of enhancing teacher competence within the framework of the Learning Model 70:20:10, focusing on the professional development of art teachers in higher vocational colleges in Zhejiang Province. The methods of developing teacher competence consist of 1) case study, 2) peer mutual assistance and observation, 3) participatory learning and action research, 4) expert guidance, and 5) training. The details are as shown in the table.



| Principles | Methods | Details of activities |
|--|---|--|
| 70: Learning by Experience (32 hours.) | subtotal hours: 32hours | |
| | Participatory learning and action research (20 hours) | 1. University-enterprise co-operation in curriculum development: Teachers work with enterprises to research industry needs and design and implement enterprise-oriented curricula and teaching contents. 2. Enterprise project practice: Participate in enterprise project practice to understand the operation mode of enterprises and transform practical problems into teaching and research topics. 3. Community service project implementation: plan and implement educational or cultural activities to promote social contribution in accordance with the needs of the local community. |
| | Case study (12 hours) | 1. Case analysis of school-enterprise cooperation: study successful projects of school-enterprise cooperation and summarise the experience of matching the curriculum design with the needs of enterprises. 2. Successful cases of enterprise training: analyse typical cases of enterprise talent training and learn how to optimise the content and form of training. 3. Typical Community Service Practices: Summarise the excellent practical experiences in community education activities and explore ways to enhance social influence. |
| 20: Learning by Others (9hours.) | subtotal hours: 9 hours | |
| | Peer mutual assistance and observation (4 hours) | 1. School-Enterprise Cooperation Seminar: Teachers share their experiences of school-enterprise cooperation projects and discuss the integration of curriculum development with the needs of enterprises. 2. Community Service Observation: Organise observation of other teachers' community service activities, record highlights and make suggestions for improvement. |
| Expert guidance (5 hours) | 1. Guidance on optimisation of school-enterprise cooperation: experts are invited to explain the model innovation and implementation methods of school-enterprise cooperation, and provide suggestions on curriculum development. 2. Coaching on enterprise project research: experts help teachers optimise teaching and research content in enterprise projects. 3. Advice on community service project design: experts guide how to carry out influential educational activities in line with the actual needs of the community. | |
| 10: learning by course | subtotal hours: 5hours | |
| | Training | 1. School-enterprise co-operation course design: learn the |

| | | |
|------------|-----------|--|
| (5 hours.) | (5 hours) | basic principles, implementation process and evaluation methods of school-enterprise co-operation course development. 2. Methods of developing school-enterprise co-operation projects: forms and path development strategies for school-enterprise co-operation projects |
| Total | 46 hours | |

3.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

3.5.1. Behavioral observation.

3.5.2. Interviews.

4. Module 4: Professional ability

4.1 Principles

Art professional qualities and skills are at the core of enhancing competence of art teachers in higher vocational colleges, encompassing subject knowledge, artistic practice, interdisciplinary integration, and continuous learning abilities. These competences serve as the foundation for promoting teachers' professional growth, improving teaching quality, and fostering students' creativity, while providing crucial support for the diversified development of vocational education.

4.2 Objectives

This module aims to enhance the professional abilities of art teachers in higher vocational colleges in Zhejiang Province by cultivating their expertise in art subject knowledge, artistic practice, interdisciplinary integration, and continuous learning abilities. The goal is to empower teachers to improve their professional teaching quality, foster student creativity, and contribute to the diversified development of vocational education.

4.3 Content

Professional ability are essential for the growth and effectiveness of art teachers in higher vocational colleges. This module emphasizes the integration of art subject knowledge, artistic practice, interdisciplinary teaching, and continuous learning to enhance teachers' ability to deliver high-quality education and foster

student creativity. The program also focuses on the application of advanced teaching tools and innovative methodologies to improve classroom practices.

The training employs methods such as participatory learning and action research, case studies, peer mutual assistance and observation, expert guidance, and specialized training. Key activities include art creation workshops, research integration projects, peer teaching observations, expert-led mentoring on teaching and artistic development, and skill-building sessions on digital teaching tools. These activities aim to systematically develop teachers' professional abilities, aligning their skills with the demands of modern vocational education.

4.4 Development process

Principles and methods of pedagogical competence of teacher development by the Learning Model 70:20:10 and methods of developing social competence, consisting of 1) case study 2) peer mutual assistance and observation 3) Participatory learning and action research 4) expert guidance 5) training. The details are as shown in table.

| Professional ability | | |
|--|---|---|
| Principles | Methods | Details of activities |
| | subtotal hours: 17 hours | |
| 70: Learning by Experience (17 hours.) | Participatory learning and action research (12 hours) | 1. Practical training in art creation: In-depth creation in individual art fields, regular sharing and discussion. 2. Academic Exchange Activities :Participate in academic exchange activities organised by industry associations on a regular basis to share art creation experience with peers, understand industry dynamics, and learn new art creation concepts. |
| | Case study (5 hours) | 1. In-depth analyses of art creation and practical experience: Famous artists are invited to give in-depth analyses of their art creation process, share their creative ideas and techniques. 2. Path of Artistic Ability Enhancement: Outstanding artists are invited to explain how to enhance one's comprehensive artistic ability, including techniques, theory application and self-breakthrough. |
| 20: Learning by | subtotal hours: 5 hours | |
| | Peer mutual | 1. Art Exhibition and Competition Guidance: Teachers |

| | | |
|---|--|--|
| Others (5hours.) | assistance and observation (3 hours) | share their experiences of participating in art exhibitions and competitions. This includes discussing how to prepare artwork, understanding the judging criteria, and exploring effective strategies for showcasing art. 2. Peer observation of art exhibitions: Organise observation of art exhibitions. Teachers should note the highlights of the exhibitions, identify areas for improvement and share insights on how to improve artistic expression. |
| | Expert guidance (2 hours) | 1. Expert guidance on artistic creation: experts regularly guide artistic creation and research and development content. |
| 10: learning by course (2 hours.) | subtotal hours: 2 hours | |
| | Training (2 hours) | 1. Enhancement of Core Artistic Skills: Learn the latest theories and methods in the art profession. |
| Total | 24 hours | |

4.5 Evaluation

Evaluation before development, evaluation during development and evaluation after development

4.5.1. Behavioral observation.

4.5.2. Interviews.

5. Implementation

In using the program content to enhance competence teachers in higher vocational colleges in Zhengzhou in development competence teachers, users must study and understand the details of the principles, development methods, use of supporting media, evaluation results that demonstrate the competence of the person receiving development and be able to adjust activities, supporting media for development, and measurement and evaluation results to be appropriate for the context of the organization and the person receiving development.

Appendix IV

Research Tool Evaluation Form

Expert Index of Concordance Assessment Form(IOC)

Illustration:

This evaluation form is designed to test the validity of the research questionnaire on Program to Enhance Competence of art teachers in Higher Vocational Colleges in Zhejiang.

2. Please tick "✓" in the corresponding box according to the degree of consistency between the question and the term definition. The numerical values represent the following meanings:

+1 means that the question meets the definition of the term

0 means not sure whether the question meets the definition of the term

-1 means it is determined that the question does not meet the definition of the term

| Items | Opinion | | | Suggestion |
|--|---------|---|----|------------|
| | 1 | 0 | -1 | |
| Teaching ability | | | | |
| 1. You have the ideal ambition in line with the development of society and education career and are willing to strive for it continuously. | | | | |
| 2. You have beliefs, positive attitudes and correct values | | | | |
| 3. You have a passion for education | | | | |
| 4. You have the ability to model and coach students to improve their professional competence, work ethic and professionalism. | | | | |
| 5. You've been trained in professional ethics. | | | | |

| Items | Opinion | | | Suggestion |
|---|---------|---|----|------------|
| | 1 | 0 | -1 | |
| 6. You have the ability to design instruction based on the needs of higher vocational education. | | | | |
| 7. You can guide students to value the experience of the learning process through scientific assessment methods | | | | |
| 8. You have strong theoretical and practical teaching skills. | | | | |
| 9. You focus on practical teaching skills and are good at developing students' hands-on skills. | | | | |
| 10. You have the ability to manage a classroom and students are highly motivated to interact in your classroom. | | | | |
| 11. You have the ability to apply emerging information technologies to teaching and learning. | | | | |
| 12. You regularly summarise and reflect on your teaching. | | | | |
| Innovation ability | | | | |
| 13. You value academic research skills and regularly write or publish academic papers | | | | |
| 14. You regularly apply for research projects in the field of teaching or academia | | | | |
| 15. You value the translational application of your academic achievements and apply for patents for them. | | | | |

| Items | Opinion | | | Suggestion |
|--|---------|---|----|------------|
| | 1 | 0 | -1 | |
| 16. You have a creative mind and are good at coming up with new ideas and approaches in your work and artistic creation. | | | | |
| 17. You focus on the development of students' innovative thinking and have the ability to guide students to apply innovative thinking in their learning. | | | | |
| 18. You are good at developing new teaching methods and courageous in making teaching reforms. | | | | |
| 19. You are creative, observant and insightful. | | | | |
| Social service ability | | | | |
| 20. You are good at working with companies on curriculum development and instructional design. | | | | |
| 21. You regularly declare corporate research projects. | | | | |
| 22. You often visit the company for research and study. | | | | |
| 23. You have undertaken and completed many university-enterprise co-operation projects | | | | |
| 24. You can provide professional consulting and diagnostic services to companies and participate in R&D or management innovation projects. | | | | |
| 25. You actively participate in corporate training and help companies develop talent. | | | | |
| 26. You conduct regular training for the community | | | | |

| Items | Opinion | | | Suggestion |
|---|---------|---|----|------------|
| | 1 | 0 | -1 | |
| 27. You regularly participate in and contribute to educational and cultural activities in your community | | | | |
| Professional ability | | | | |
| 28. You have a high level of professional research interest in the arts | | | | |
| 29. You have high general artistic qualities. | | | | |
| 30. You have expertise in an artistic discipline. | | | | |
| 31. You have practical skills in the arts . | | | | |
| 32. In addition to your teaching job, you stick to your creative art in your spare time. | | | | |
| 33. You take an active part in competitions or exhibitions in your field of artistic specialisation. | | | | |
| 34. You have a high level of concentration and artistic insight | | | | |
| 35. You regularly participate in academic exchange activities organised by industry associations | | | | |
| 36. You proactively seek out opportunities for professional learning and exchange training | | | | |
| 37. You follow the latest knowledge of your profession and are constantly learning to update your expertise | | | | |
| 38. You regularly discuss academic professional issues with colleagues | | | | |

| Items | Opinion | | | Suggestion |
|---|---------|---|----|------------|
| | 1 | 0 | -1 | |
| 39. In the work environment, what you consider to be an art major is not valued in comparison to other majors | | | | |
| 40. You've found a good balance between creating art and teaching it | | | | |

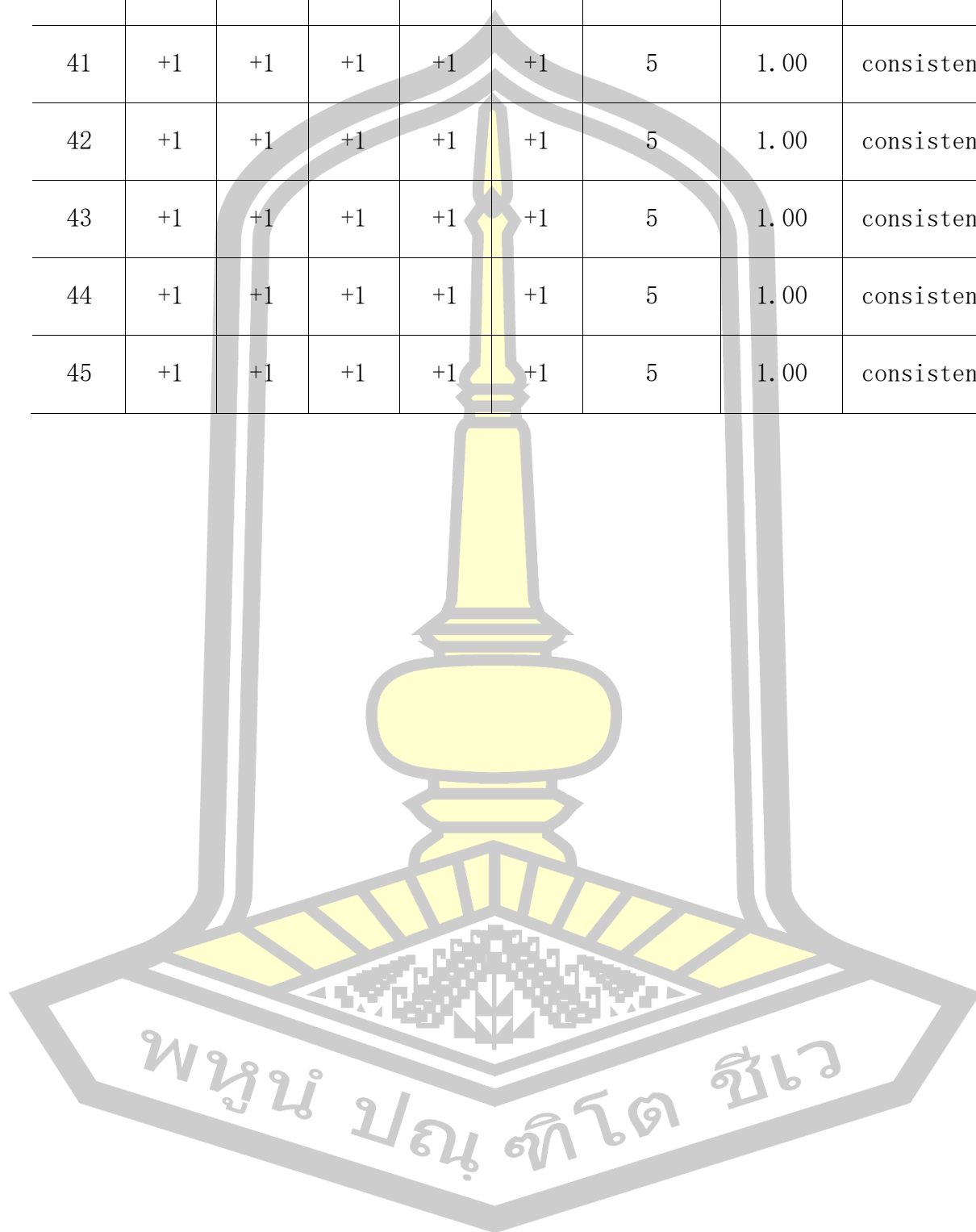
Conformity index (IOC), the content of the questionnaire

| Article | Expert | | | | | Together | IOC | Results of consideration |
|---------|------------|------------|------------|------------|------------|----------|------|--------------------------|
| | 1st person | 2nd person | 3rd person | 4th person | 5th person | | | |
| 1 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 2 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 3 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 4 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 5 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 6 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |

| | | | | | | | | |
|----|----|----|----|----|----|---|------|------------|
| 7 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 8 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 9 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 10 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 11 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 12 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 13 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 14 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 15 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 16 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 17 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 18 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 19 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 20 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 21 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |

| | | | | | | | | |
|----|----|----|----|----|----|---|------|------------|
| 22 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 23 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 24 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 25 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 26 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 27 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 28 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | Consistent |
| 29 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 30 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 31 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 32 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 33 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 34 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 35 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 36 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 37 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 38 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 39 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |

| | | | | | | | | |
|----|----|----|----|----|----|---|------|------------|
| 40 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 41 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 42 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 43 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 44 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |
| 45 | +1 | +1 | +1 | +1 | +1 | 5 | 1.00 | consistent |



**Reliability and Validity Analysis of the Components of Competence
for Art Teachers in Higher Vocational Colleges in Zhejiang**

Analysis of Existent State

Reliability Analysis

| Dimension | Cronbach's Alpha | N of Items |
|------------------------|------------------|------------|
| Teaching ability | 0.924 | 12 |
| Innovation ability | 0.867 | 7 |
| Social service ability | 0.907 | 8 |
| Professional ability | 0.936 | 13 |

Validity Analysis

| | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.767 |
| | Approx. Chi-Square | 1665.124 |
| Bartlett's Test of Sphericity | df | 780 |
| | Sig. | 0.000 |

Analysis of Desired state:

Reliability Analysis

| Dimension | Cronbach's Alpha | N of Items |
|------------------------|------------------|------------|
| Teaching ability | 0.926 | 12 |
| Innovation ability | 0.864 | 7 |
| Social service ability | 0.900 | 8 |
| Professional ability | 0.938 | 13 |

Validity Analysis

| | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.713 |
| | Approx. Chi-Square | 1851.357 |
| Bartlett's Test of Sphericity | df | 780 |
| | Sig. | 0.000 |



Appendix V

Letter requesting assistance



FACULTY OF EDUCATION
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Center for International Affairs

MHESRI No. 0605.5 (2) / CL2526

Date: September 10, 2024

To: **Prof. Dr.Dun Zibin**
College of Fine Arts and Design, Tianjin Normal University
Assoc. Prof. Dr.Feng Wenhua
Faculty of Culture and Arts, Zhejiang Technical Institute of Economics
Assoc. Prof. Ye Fengquan
Faculty of Arts and Crafts, Hangzhou Institute of Vocational Technology
Assoc. Prof. Dr.Sun Yongtai
Full-time Associate Editor, Journal of Educational Science, Jimei University
Assoc. Prof. Shen Qing
Director of Tongxiang Campus Management Committee, Zhejiang Media University

Subject: Expert Invitation

Our student, **Ms.Yunshang Wang**, student ID **65010561025**, majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled "**Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang**" under the supervision of Assoc. Prof. Suwat Julsuwan.

To ensure the successful execution and the highest quality of this research project, we are seeking your valuable expertise and experience. Therefore, I am sending a formal invitation to you to serve as the expert reviewer for the research instrument designed for this thesis project.

Your participation in this academic endeavor is highly valued and appreciated. Should you require any further information or have questions regarding this invitation, please do not hesitate to contact us by email.

Yours sincerely,

(Assoc. Prof. Chowwalit Chookhampaeng)
Dean, Faculty of Education,
Mahasarakham University



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MAHASARAKHAM UNIVERSITY

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44000, THAILAND
Tel/fax +66 43 713 174
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Center for International Affairs

MHESRI No. 0605.5 (2) / CL2526

Date: September 10, 2024

To: Prof.Dr. Sun Gangcheng
Doctoral Supervisor, Faculty of Educational Sciences, Yan'an University
Assoc.Prof.Dr. Zhai Junqing
Faculty of Education, Zhejiang University
Assoc.Prof.Dr. Wen Jing
Institute of Education, Xiamen University
Assoc.Prof .Dr. Zhang Lu
Faculty of Education, Wenzhou University
Assoc.Prof.Dr. Lu Jihai
Deputy Director of Social Cooperation Department, Zhejiang Gongshang University.

Subject: Expert Invitation

Our student, **Ms.Yunshang Wang**, student ID **65010561025**, majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled "**Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang**" under the supervision of Assoc. Prof. Suwat Julsuwan.

To ensure the successful execution and the highest quality of this research project, we are seeking your valuable expertise and experience. Therefore, I am sending a formal invitation to you to serve as the expert reviewer for the research instrument designed for this thesis project.

Your participation in this academic endeavor is highly valued and appreciated. Should you require any further information or have questions regarding this invitation, please do not hesitate to contact us by email.

Yours sincerely,

(Assoc. Prof. Chowwalit Chookhampaeng)
Dean, Faculty of Education,
Mahasarakham University



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Center for International Affairs

MHESRI No. 0605.5 (2) / CL2526

Date: September 10, 2024

To: Prof. Dr. Mu Ke
Deputy Dean of the International Academy of Fine Arts, Harbin Normal University
Prof. Wang Xiaoming
Department of Basic Professional Teaching, China Academy of Art
Prof. Wang Hao
College of Fine Arts and Design, Tianjin Normal University
Prof. Zhu Hongliang
Dean of the Faculty of Arts and Culture, Zhejiang Technical Institute of Economics
Prof. PanJun
The Faculty of Arts and Culture, Zhejiang Technical Institute of Economics

Subject: Expert Invitation

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MHESRI No. 0605.5 (2) / CL2526

Date: September 10, 2024

To: **Assoc. Prof. Pacharawit Chansirisira**
Faculty of Education, Maharakham University
Asst. Prof. Thatchai Chittranun
Faculty of Education, Maharakham University
Dr. Surachet Noirid
Faculty of Education, Maharakham University
Assoc. Prof. Tharinthorn Namwan
Faculty of Education, Maharakham University
Assoc. Prof. Songsak Phusee-On
Faculty of Education, Maharakham University

Subject: Expert Invitation

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Center for International Affairs

MHESRI No. 0605.5 (2) / CL2526

Date: September 10, 2024

To: Prof. Dr.Zhu Huaixin
Doctoral Supervisor, Faculty of Education, Zhejiang University
Prof. Dr.Zhang Feng
Doctoral Supervisor, Faculty of Psychology, Henan University
Prof. Dr.He Xuelian
Deputy Dean, Faculty of Economics and Management, Quzhou College of Technology
Assoc. Prof. Dr.Ma Yuan
Administration of Continuing Education, Zhejiang University
Assoc. Prof. Dr.Jiang Jiong ping
Director of the Academic Affairs Office at Tourism College of Zhejiang China

Subject: Expert Invitation

Our student, **Ms.Yunshang Wang**, student ID **65010561025**, majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled **"Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang"** under the supervision of Assoc. Prof. Suwat Julsuwan.

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MHESRI No. 0605.5 (2) / 2525

Date: September 10, 2024

Data Collection Permission Request

To: Whom It May Concern
Zhejiang Technical Institute of Economics,
Hangzhou City, Zhejiang Province, China

Subject: Data Collection Permission Request

Our student, **Ms. Yunshang Wang**, student ID **65010561025** majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled "Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang" under the guidance of Assoc. Prof. Suwat Junsuwan.

To ensure the success and quality of this project, we are seeking your permission to allow our students to process data collection within your institution.

The details of the data collection are as follows:

Thesis title: Program to Enhance Competence of Art Teachers in Higher Vocational Colleges in Zhejiang
Period of data collection: September 2024 to November 2024
Thesis advisor: Assoc. Prof. Suwat Junsuwan

We believe that your institution provides a valuable environment and resources that are essential for the successful execution of this research. The data collection process will be carried out diligently and with the utmost respect for your institution's policies and procedures. We acknowledge that the student has made the necessary preparations, including obtaining the Thesis title approval from our institution.

Should you require any further information or clarification regarding this permission, please feel free to contact us by email.

Yours sincerely,

Assoc. Prof. Chowwalit Chookhampaeng
Dean, Faculty of Education,
Maharakham University

Appendix VI

Expert Interview Photographs



Experts evaluate research instrument and listen carefully to and record expert advice



Expert interviews to assess the soundness of the programme



Expert interviews for process development, careful listening and recording of expert advice



Expert interviews for process development, careful listening and recording of expert advice

BIOGRAPHY

| | |
|-----------------------|---|
| NAME | Yunshang Wang |
| DATE OF BIRTH | 08-03-1983 |
| PLACE OF BIRTH | ZiBo, ShanDong, China |
| ADDRESS | Qiyue International, Masang Street, Zhangdian District, Zibo City, Shandong Province |
| POSITION | Teacher |
| PLACE OF WORK | Zhejiang Technical Institute of Economics |
| EDUCATION | 2003-2007 (B.S.) Fine Arts Major, Shandong University of Arts, China 2008-2011 (M.A.) Fine Arts Major, Hangzhou Normal University, China 2022-2025 (Ed.D.) Faculty of Education at Mahasarakham University, Thailand |

