

KINDERGARTEN TEACHERS TRAINING MODEL FOR INTEGRATED IT TEACHING METHODS

LIN SUYUN

A thesis submitted in partial fulfillment of the requirements for Doctor
of Philosophy Program in Digital Technology Management for Education

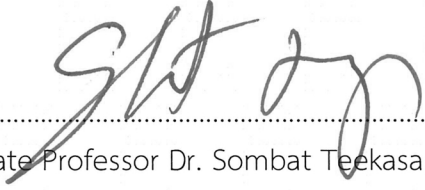
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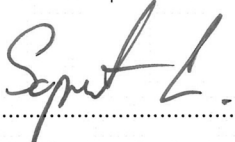
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ABSTRACT

The purpose of this study is firstly to solve problems existing in the current training mode of kindergarten teachers' comprehensive teaching method, The second is to design a Kindergarten Teachers Training Model for Integrated IT Teaching Methods, The third is to evaluate the influence of the Kindergarten Teachers Training Model for Integrated IT Teaching Methods. The sample of this study consisted of 21 Chinese experts with a background in early childhood education, who conducted research on Objective 1 and Objective 2. Nine experts conducted in - depth interviews respectively to achieve Objective 3. The research tools included questionnaires, interviews, strategies, and evaluation forms. Statistical data analysis included median statistics and quartile statistics, enabling them to evaluate the effectiveness of the model.

The results show that: There are five problems in the training model for kindergarten teachers' comprehensive teaching methods: lack of practical and relevant training content, insufficient training resources, outdated educational concepts and methods, absence of personalized training, and lack of a tracking and evaluation mechanism. The training model for kindergarten teachers in comprehensive IT teaching methods encompasses: training needs, training methods and tools, training organization, training content, training strategies, and training evaluation. The

evaluation results regarding the adaptability and feasibility of the strategies are at a high level and the highest level respectively.

Keywords: Teacher training Information technology capacity Training Strategy

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Chapter 1

Introduction

Rationale

In the contemporary educational environment, the use of information technology for teacher training is not only an urgent need but also a clear trend. Through the efficient use of modern information technology, informatization training aims to greatly improve the efficiency and effectiveness of training, thus rapidly promoting the development of teachers' professional skills and educational concepts Liang Yujia (2022). Compared with traditional training modes, information-based training has the significant advantages of breaking through time and space constraints, meeting teachers' individual needs, and updating and disseminating educational innovations. Through online courses, virtual simulation and digital teaching resources, teachers can acquire richer and more innovative knowledge, while promoting communication and collaboration among teachers and forming professional learning communities Wang Tao (2021).

Nonetheless, current kindergarten teacher training is deficient in integrating information technology, especially in terms of relevance and practicality. The training content mostly favors theory, neglecting the practical application of how to apply theory to specific teaching practices and the selection of appropriate technological tools according to the characteristics of young children. In addition, existing training models do not adequately take into account individual teacher differences, such as technological proficiency, teaching style and learning preferences, which are factors that should be emphasized and adapted when designing training Wang Lijuan, Li Lanfang and Dang Aidi (2017).

In the context of globalization, a teacher training model that incorporates local characteristics and needs is particularly important. In this study, a targeted training model was designed specifically for kindergarten teachers in Wenzhou City,

taking into account the region's educational environment, technological infrastructure, and teachers' strengths, with the aim of enhancing the effectiveness of the training.

Empirical research plays a key role in the design and implementation of teacher training models. By scientifically collecting, analyzing, and evaluating the effectiveness of training models in real-world situations, the effectiveness of training can be effectively verified, and problems can be identified and solved in a timely manner, thus promoting the continuous improvement and optimization of training content and methods. This evidence-based cyclic iterative process ensures that the teacher training model can effectively adapt to changing educational needs in the long term.

In summary, through continuous empirical research and constant innovation, the information technology teacher training model is gradually breaking through the limitations of traditional education and training, and exploring new ways for teachers' professional growth and teaching quality improvement. Particularly, in terms of teaching methods integrating information technology, it can not only improve teachers' informatized teaching ability, but also stimulate teachers' innovative thinking and inject new vitality into kindergarten education. Therefore, the development and implementation of a Kindergarten Teacher Training (KTT) model that integrates IT teaching methods is of far-reaching significance for improving the quality of early childhood education and promoting teachers' professional development.

Research Questions

Is the Kindergarten Teacher Training (KTT) model for integrated IT teaching methods created in this study effective in solving problems in kindergarten teacher training?

Research Objectives

- 1) To investigate the current problems on kindergarten teaching training.
- 2) To design a Kindergarten Teachers Training Model for Integrated IT Teaching Methods
- 3) To evaluate the Kindergarten Teachers Training Model for Integrated IT Teaching Methods

Research Hypothesis/Hypotheses

The kindergarten teacher training (KTT) model created in this study can effectively solve the problems in kindergarten teacher training.

Scope of the Research

The Variable

Independent Variable

Kindergarten Teacher Training (KTT)

Dependent Variable

- 1) Teachers' mastery of the training content (measured by changes in pre-test and post-test scores).
- 2) successfully practice the information technology learned in the training in their teaching).

Content (s)

1) Investigating the current problems of kindergarten teacher training: through literature review and questionnaire survey, we analyze the difficulties and challenges encountered in the existing kindergarten teacher training process, which will provide a basis for the subsequent model design.

2) Designing the KTT model: based on the information collected and analyzed in the first step, design a kindergarten teacher training model that integrates information technology teaching methods. The model involves a variety of aspects such as training course content, teaching methods, training strategies, application of information tools, and training cycles.

3) Evaluating the KTT model: The training effectiveness was evaluated by applying the KTT model in the field to selected kindergartens in Wenzhou City and through pre-test and post-test. This step aims to test the actual effect of the training model on the improvement of teachers' professional skills, and at the same time adjust and optimize the course content and teaching strategies to ensure the effectiveness and sustainability of the training model.

Time

The researchers' study period is from March 2023 to August 2024.

Advantages

1) Strong relevance: The study specifically addressed the actual situation of kindergartens in Wenzhou City by designing a kindergarten teacher training (KTT) model that incorporates information technology (IT) teaching methods. This customized design can better meet the needs of teachers in a specific region and improve the relevance and effectiveness of the training.

2) Integrated IT: In the context of the current digital age, integrating IT into teaching is key to improving the quality of education. By integrating innovative IT teaching methods, this study not only provides kindergarten teachers with modern teaching tools, but also develops their ability to apply these tools to meet the needs of future education.

3) Empirical Research Methodology: This study ensured scientific validity and reliability through systematic empirical steps including literature combing, questionnaire design and evaluation, expert review, and pre-test and post-test. This methodology provides a reusable framework that facilitates subsequent related studies.

4) Continuous optimization strategy: The study not only stops at the implementation level of the training model, but also ensures the continuous improvement and adaptation of the training content and teaching strategies through post-course evaluation and optimization. This iterative optimization process is conducive to achieving the long-term effectiveness of the final training model.

5) Enhance teachers' professional development: Based on the results of the empirical study, the training model not only improves kindergarten teachers' IT teaching skills, but also promotes their professional growth, enabling them to use modern educational theories and technologies more effectively to support young children's learning and development.

6) Universality of the model: Although the study was designed specifically for Wenzhou City, the research methodology and the framework constructed for the training model are somewhat universal, providing a reference for designing similar training models for kindergarten teachers in other regions or countries.

Definition of Terms

Kindergarten teacher training: refers to professional development and capacity enhancement courses or activities designed for kindergarten teachers. These training activities aim to help teachers acquire knowledge, teaching methods and skills related to early childhood education and to strengthen their educational philosophy in order to improve the quality of teaching and the learning experience of young children. Kindergarten teacher training may cover areas such as psychological developmental theories, curriculum planning, interactive pedagogy, classroom management, etc. to help teachers support the holistic development of young children more effectively.

Teachers training for Integrated IT Teaching Methods: This refers to a type of teacher training that places special emphasis on the use of information and communication technologies (ICT) to support teaching and learning processes. The aim of the training is to enhance teachers' ability to utilize modern technological tools and resources (e.g. computer software, web-based resources, multimedia, interactive whiteboards, etc.) to enrich the content of teaching and learning, and to improve the interactivity of teaching and students' motivation to learn. This training helps teachers develop and implement innovative teaching strategies that incorporate IT to enhance teaching effectiveness and learning experience.

Learning theory: Learning Theory is a general term for the theories that study the learning process and its influencing factors, and is an important branch of educational psychology. It includes a variety of theoretical perspectives, such as behaviorism, cognitivism, and constructivism, each of which offers different perspectives on how learning occurs, how to improve learning efficiency, and how to design effective teaching strategies. Understanding and applying different learning theories can help teachers scientifically guide students' learning, meet students' individual differences and learning needs, and promote students' cognitive and affective development.

Research Framework

This study analyzes the problems and challenges in existing kindergarten teacher training through literature review and questionnaire survey, develops training objectives in conjunction with the development of national kindergarten teacher training standards and the training needs of kindergarten teachers in Wenzhou City, integrates information technology (IT) teaching methods into the design of the training course model, and creates a Kindergarten Teacher Training (KTT) model under IT. Subsequently, the KTT model was applied in the field, and the effectiveness of the training model was evaluated through pre- and post-tests, and the training content and methods were adjusted and optimized according to the feedback.

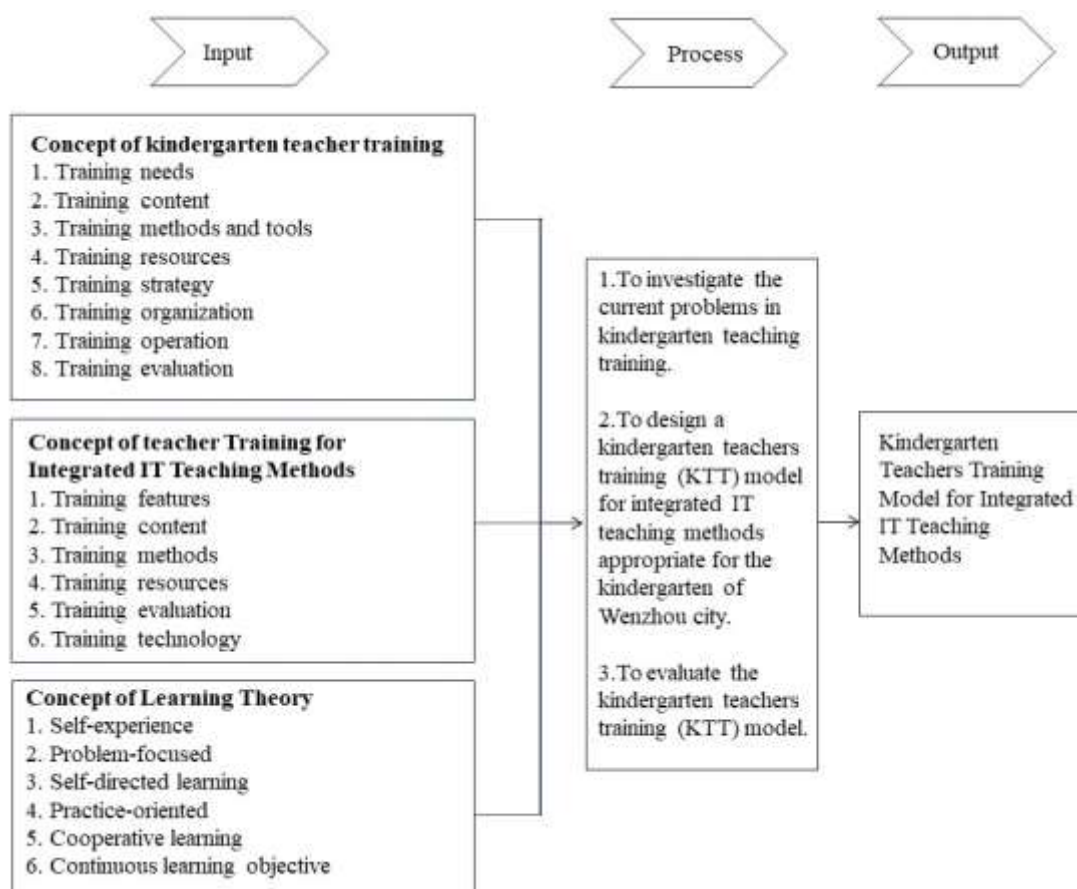


Figure 1.1 The Research Framework

Chapter 2

Literature Review

Focusing on the three research objectives of this study, the literature review will be conducted in the following areas:

- 1) Concept of Kindergarten teacher training.
- 2) Concept of teachers' training for Integrated IT Teaching Methods
- 3) Related research

Concept of Kindergarten teacher training.

1. Training needs

According to Zhao Decheng (2010), training needs analysis, also known as training needs assessment, refers to an activity that involves the adoption of various methods and techniques by the relevant personnel to systematically identify and analyze the knowledge, skills, and attitudes of various organizations and their members before planning and designing a training program to determine the need for training and the content of the training.

Pingfan, Liu Lina and Li Zhenzhen (2013) believe that training needs analysis is a prerequisite for determining training objectives, designing training courses and implementing training programs, as well as the basis for evaluating the effectiveness of training. Whether the training can be carried out smoothly and finally achieve the expected results depends largely on the demand analysis stage, therefore, a good demand analysis is very important for the development of training work.

Song Zhekun (2013) believes that kindergarten teacher training questionnaire content indicators should include training objectives, training content needs, training form needs, trainer needs, training assessment methods and training assessment indicators content needs, based on the resulting training needs to scientifically set up kindergarten teacher training courses.

Zhou Dong'en & Feng Guoli (2015) believe that in order to improve the teaching ability of transferred teachers, we should be based on the actual characteristics and individual needs of transferred teachers, and we should firstly design from the latitude of training needs such as training content, teacher composition, training forms, management methods, etc., and then analyze the needs with scientific principles and tools, and finally innovate the kindergarten teacher training mode for transferred teachers.

Su Xiaojie (2015) believes that training needs include trainees' demand for training capacity, training course demand, training expert type demand, training form demand, which have a guiding role in the curriculum and training decision-making of training organizations. Understanding the training needs of trainees is also a favorable guarantee to improve the quality of training and the professional growth of trainees.

Wang Lijuan, Li Lanfang & Dang Aidi (2017) believe that the current rural kindergarten teacher training exists problems such as lack of targeted content, inappropriate training methods, insufficient practical experience of training experts, and the training evaluation system needs to be improved.

Zhao Yan and Yang Yun (2019) believe that the use of questionnaires, interviews, and auxiliary observation of kindergarten teachers in the form of on-site lectures, etc., to carry out empirical research on the current training needs of kindergarten teachers. Based on the results of the survey, it is clear that the current forms of training that early childhood teachers are willing to accept, the ability that they are eager to improve, and the specific needs for training time and place arrangements, and relevant training reflections and suggestions are put forward in a targeted manner: enriching the forms of early childhood teacher training based on the training needs of early childhood teachers; giving full play to the strengths of experts of various specialties to improve the training courses for early childhood teachers; and combining the characteristics of early childhood teachers in-depth to develop effective The training program for early childhood teachers was developed by combining the characteristics of early childhood teachers in depth and effectively.

Wang Tao (2021) in order to solve the problem of insufficient pre-training research training content needs, proposed the establishment of a pool of experts, the creation of training modules and carry out pre-training research in order to screen the training content, at the same time, it should also be combined with the work experience of the participating teachers, academic qualifications, specialties, geographic location and training acceptance, etc., to adjust the content of the training in a targeted manner.

Huang Xue (2023) believes that the training effect of kindergarten teacher training is not obvious, for this reason, the focus of kindergarten teacher training based on the training needs analysis, the rational design of training content and training methods, planning the learning sequence, to improve the relevance of the training, which can effectively promote the transformation of the training results to the kindergarten actual work scene.

Zhi Yanan (2023) believes that the current kindergarten teacher training is not systematic and planned enough, and the training objectives are not clear. Attention should be paid to the developmental needs of teachers at different levels, for example, teachers in the introductory and developmental stages are more likely to expect training in teaching skills, while those in the maturity stage are more likely to receive training in scientific research and self-improvement.

2. Training content

Liu Houqin and Zhang Sha (2009) believe that the content of early childhood teacher training courses should have the following characteristics: First, it should cover the content of basic courses to make up for the deficiencies in the knowledge structure that teachers have developed during their pre-service education. Secondly, it aims to integrate new knowledge, skills and concepts into the curriculum, combining theoretical, practical, humanistic, social and scientific knowledge organically. Thirdly, it offers courses with regional or garden-specific characteristics in order to meet the training needs of teachers in different regions, in different gardens and at different levels. Fourthly, it emphasizes the combination of education and teaching practice and the training of teachers' teaching experience. Specifically the

training courses can be divided into four major sections: background-based courses, knowledge-based courses, practical courses, and comprehensive courses.

According to Zhang Cha (2009), teacher training is aimed at improving teachers' teaching ability so that they can adapt to the requirements of their positions and meet the needs of education and teaching. The content of training covers teachers' moral cultivation, professional knowledge updating and expansion, modern education theory and practice, education and teaching skills and so on.

Xu Liling (2012) believes that developed countries generally attach importance to the training of professional competence of early childhood teachers, the United Kingdom, the United States, Japan and South Korea have compiled standards of professional competence of early childhood teachers and detailed descriptions, which provide a basis for the selection of the content of training for early childhood teachers. For example, the National Association for the Education of Young Children (NAEYC) has developed standards that include five core professional competencies; Japan requires early childhood teachers to emphasize communication with the community and parents in addition to understanding young children's psychology, activities, and possessing the ability to provide comprehensive guidance, specific care, and practice.

Zhang Manqing (2013) pointed out that the contents of garden-based training for new teachers include teacher ethics education, educational policies and regulations, professional knowledge, professional skills, hot topics of curriculum reform, practical issues of education and teaching, and specialty teaching. Through her research on 59 for teachers in a chain kindergarten, the most popular training contents for new teachers were teacher moral education, professional knowledge and practice issues.

Wang Yanhui (2014) found through questionnaires, interviews and other research methods that the training of kindergarten teachers mainly includes five aspects: teacher ethics training, policies and regulations, teaching practice, professional knowledge and educational research training, with the highest number of professional skills training.

Zhao Yan and Yang Yun (2019) concluded that in terms of training content, kindergarten teachers have more prominent needs in teaching skills, information technology use, and professional scientific research, so Changchun kindergarten teacher training courses are designed to strengthen the content in this area on the basis of training needs.

Using a public kindergarten in Chengdu City as a case study, Jiang Linqin (2021) pointed out that the main contents of garden-based training are professional knowledge and skills and teaching practice. And she believed that the current content of garden-based training is not comprehensive enough and has the following problems, i.e., the content of tiered training is incomplete; the content of courses for teachers' reflective skills is relatively lacking; and the content of training for teachers' mental health is small.

Liu Weimin, Wan Chuanfei and Zhang Kaili (2021) found that the kindergarten training in rural areas is weak in the management of teachers' morality, and the development of theoretical knowledge and skills of early childhood teachers is in a state of imbalance, and the training content and the actual needs of the training is detached from each other, and there is less regional knowledge. The content of the training ignores the stages of professional development, and there are many practical problems such as insufficient personalized teaching.

Ge Xiaoying, Wang Mo, and Yang Dongmei (2021) proposed that the design of kindergarten teacher training content should be combined with the actual situation and focus on individual differences, and that the elements of training content should be multidisciplinary in character, and should go beyond the field of education itself, emphasizing interdisciplinary content design.

Through the analysis of questionnaire data, combined with interviews with kindergarten teachers, Gu Laiting (2022) found that the main reasons why the training content of kindergarten teachers could not meet the individualized needs were: trainers did not combine the training content with the learning situation of kindergarten teachers of different teaching ages; the training department organizes mixed training for kindergarten teachers of different ages; and the trainers did not set

up the training content of the appropriate level of difficulty for kindergarten teachers with different job titles. The training department organizes mixed training for teachers of different ages. In order to solve the problem of individualized training content for kindergarten teachers, it is recommended that the following measures be taken: trainers should set up training content that takes into account the learning situation of kindergarten teachers of different teaching ages; set up multidimensional grouping criteria so that kindergarten teachers of different age groups can be classified into different types of training; and set up training content with different levels of difficulty in order to satisfy the needs of kindergarten teachers of all levels and titles.

3. Training methods and tools

Feng Yajing (2012) argues that the use of case-based, inquiry-based, and discussion-based training methods in preschool integrated education training can help to produce better training results than the lack of practical guidance and experience sharing for teachers in centralized lecture-based training.

Zhang Yunliang et al. (2012), in order to improve the quality of teacher training in rural early childhood education, used a questionnaire survey method to distribute a total of 720 questionnaires to teachers from six counties in five provinces in the central, western and northern regions of China, and 649 questionnaires were recovered, with an effective recovery rate of 90.1%. At the same time, 12 education administrators, 157 kindergarten principals and front-line teachers were interviewed using a combination of individual interviews and focus group discussions. It was found that the prominent problem in training was "insufficient practical training", and the factors that prevented teachers from participating in training included "lack of time to participate in training" and "theoretical training". In terms of training needs, rural kindergarten teachers are most looking forward to training in "professional skills and techniques", "going out to observe", "special teachers, famous teachers" and "expert teachers". The most desired trainers are "special teachers, famous teachers" and "expert professors".

Zhang Huijing (2013) investigated the status quo and demand of "national training for kindergarten teachers" in Jiangxi Province through literature analysis, questionnaire survey, interview and observation method, explored the demand of kindergarten teachers for training and the differences in the training demand of different types of teachers, and put forward corresponding countermeasures according to the results of the study.

Li Shaomei and Wang Hui (2013) Under the support of information technology, a new type of teacher training - video teaching case study - has emerged. Video teaching case is a dynamic generative resource, which plays a particularly obvious role in early childhood teacher training. In the development of curriculum resources, video teaching cases should be produced according to the principles of systematicity, relevance, practicability and participation.

Wang Haixia, Ji Yanhong (2015) argued that in terms of training methods, the specific guidance of experts or master teachers specialized in kindergarten or preschool education, going out to other kindergartens to listen to and evaluate lessons, and case exchanges and discussions have become the most wanted training methods for kindergarten teachers.

Ren Yan (2015) proposed that the garden-based training based on the professional development of new kindergarten teachers should be based on case teaching as the content of training, and through the way of interactive training, it can effectively help new kindergarten teachers to be competent in the organization and implementation of teaching work as soon as possible, improve the new teachers' job competency, and lay a solid foundation for dealing with new challenges and solving problems in the future in teaching practice.

Yang Hongwei (2016) made his own questionnaire, "Tibet Early Childhood Teachers' Training Needs Research Form", which is based on the questionnaire survey method and supplemented by individual interviews. The questionnaire content involves three parts: the basic situation of the survey respondents, the training needs of early childhood teachers and training satisfaction. The survey dimensions were categorized into ten aspects, namely: training frequency, training satisfaction, training

purpose, training mode, training form, training content, trainer, self-teaching skills, self-professional development and dilemmas faced.

According to Zhang Wengui (2017), early childhood teacher training refers to the planned and organized learning activities at various levels and in various forms for teachers who have obtained the qualification certificate for early childhood teachers in order to improve the professionalism of early childhood teachers in accordance with the needs of social development and educational reform, including induction training, garden-based teaching and research activities, various curriculum training courses, project training and exchange seminars, but excluding academic Training.

Yang Mingyue, Wang Shihan, Zhou Qiao and Wei Yonggang (2023) believe that in general, there are three kinds of kindergarten teacher training methods: offline training, online training, and online-offline hybrid training. On this basis, different scholars have refined the training methods according to the training subjects, training themes, training contents, and training purposes, and have come up with different training methods: case-based training, participatory training, inquiry-based training, scenario-based training, discussion-based training, lecture-based training, task-driven training, and forum-based training.

Jiang Xu, Dou Zhi and Liu Shiyi (2023) argued that insufficient attention was paid to the training needs of beginning kindergarten teachers, which resulted in an uneven ratio of theoretical to practical courses, a single training method and poor training results. For this reason, practice-oriented training courses advocate communicative and questioning training methods, and focus on active learning, inquiry learning, and cooperative learning training methods for beginning kindergarten teachers, which are more effective than the previous indoctrination training methods.

4. Training resources

From the perspective of school-based training for teachers' professional development, Ding Gang (2006) suggests that teachers' professional development mainly stems from their own life experiences, which are also reflected in the whole process of daily teaching activities, and that these experiences constitute a constant

source of training content. Therefore, school-based training should create a learning community, emphasize cooperation and communication between teachers and colleagues, and value teachers' self-reflection in the teaching process.

Zhao Decheng, Liang Yongzheng, and Zhu Yuling (2010) believe that the concept of "learner-centered" should be strengthened, and that teacher training should be based on the analysis of teachers' needs to develop curriculum resources, design and implement curriculum programs, and focus on the degree of satisfaction of training needs in the evaluation of the effectiveness of the course after implementation.

Luo Bin (2018) argues that the introduction of the Guidance Standards for Primary and Secondary School and Kindergarten Teacher Training Courses is considered to be a key initiative to enhance the standardization of teacher training and improve the effectiveness of teacher training, as well as providing a guide for the professional development of teachers. Training institutions at all levels should firstly find the training direction and objectives through the standards when conducting teacher training courses, secondly, they need to find the current situation and problems of training through research, and thirdly, they need to design the training contents, determine the training methods, organize the implementation of training and evaluate the training effects according to the training objectives and problems.

According to Zhong Zurong (2021), according to the kindergarten teacher training program standards, the training program standards can be divided into four standards: teacher ethics, teacher professional development, early childhood observation and support, and care and education (early childhood care and education). Teachers' professional standards can be divided into three aspects: professional philosophy, professional knowledge, and professional competence: among them, professional philosophy includes teacher ethics and professional understanding; professional knowledge includes subject knowledge, educational knowledge, and general knowledge; and professional competence includes teaching ability and student education ability. These are the dimensions and indicators that should be referred to when designing kindergarten teacher training.

Tian Jingzheng and Li Wenting (2022) believe that the training of kindergarten teachers should be professional, and the first principle is to follow the requirements of the Professional Standards for Kindergarten Teachers (Trial) issued by the Ministry of Education of China, and set up the training contents of the training of kindergarten teachers from the three dimensions of the professional concepts and teachers' morality, professional knowledge, and professional competence, so as to improve the professionalism of kindergarten teachers.

Tian Dandan (2024) believes that after years of development, Liaoning Province has initially established a systematic and complete training system for primary and secondary school and kindergarten teachers, with provincial, municipal, county, and school-based training as the carriers, and integrating the functions of preliminary research, program design, management and implementation, and performance evaluation. However, there are still the following problems: First, the training management system is not sound enough. On primary and secondary schools, kindergarten teachers' professional development and training management, guidance and a series of provincial-level guiding documents have not been issued or issued for a long time in urgent need of revision. Secondly, the standard of training course system has not been established, there is no unified curriculum framework to support, resulting in a lack of standard reference for training course content resources. Third, there is no high-level primary and secondary schools, kindergartens, training expert team, resulting in training can not make good use of expert resources. Fourth, the training evaluation system is not sound enough. At present, most of the evaluation of the training effect remains at the level of learners' satisfaction with the training, and not enough attention is paid to the evaluation of the knowledge, skills and attitudes they have learned, and the improvement of their work behavior.

5. Training strategy

Zhang Yan (2015) believes that in order to achieve a better training effect, it is an essential principle to stratify the curriculum based on the individual needs of kindergarten teachers, i.e., to construct a model of teacher stratified training courses

for the developmental needs of kindergarten teachers of different ages in response to different training needs.

Cai Yingqi and Zheng Jie (2018) believe that training needs analysis is the starting point of training and the first step in the implementation of kindergarten training. The steps of quality kindergarten teacher training are the analysis of training needs, determination of training objectives, selection of training content, training curriculum, training program design and implementation of the training process and evaluation of training effects. It is also a strong guarantee to promote the professional competence of kindergarten teachers.

Qi Qinglan (2019) believes that the strategies to innovate the garden-based training model include: reforming the induction training methods for kindergarten teachers; encouraging young teachers to innovate their teaching methods: regular training exchanges with other kindergartens.

Peng Geng (2020) believes that based on the perspective of teachers' professional development, the value orientation of standardized teacher training courses should focus on the cultivation of knowledge literacy, the training of practical application ability, and the training content is oriented to the human-centeredness and so on. The practical path is based on the supply of diversified curriculum resources led by standards, the integration of practical courses based on competence diagnosis, and the construction of learner centers based on identity.

Guo Liping, Cao Juan, and He Ting (2022) argue that in order to change the current problems of kindergarten teacher training, kindergartens should strictly implement the national requirement of "implementing a full training system for kindergarten teachers of not less than 360 semester hours in a five-year cycle," ensure that the number of hours of training for teachers and the funding reach the national standard, and focus on meeting the needs of different levels of professional development of teachers. It also focuses on meeting the needs of teachers' professional development at different levels.

Jiang Yuting (2022) believes that in order to ensure the quality of kindergarten teacher training, it should follow the principle based on meeting the needs of kindergarten teachers as much as possible, and she sets up questionnaires from the three major parts of kindergarten teachers' basic information, teachers' training and evaluation, and teachers' training needs, from which she identifies the problems and puts forward the training suggestions, so as to make the training of kindergarten teachers more targeted and effective.

Hu Jianmei (2022) analyzes the training needs of new kindergarten teachers from the aspects of training content, training methods, and training time, clarifies the problems of the current training, and proposes that the quality of training should be improved by optimizing the working environment, paying attention to the training needs, and perfecting the training system with the needs of new kindergarten teachers.

Wang Guangxiong (2023) believes that case studies, listening to and evaluating lessons and master teacher demonstrations are the training methods preferred by kindergarten teachers. Therefore, in terms of online training, it is necessary to introduce more courses of practical nature, such as classroom recordings, according to the needs of teachers, and to carry out group seminars as a training method.

Wu Qiong, Wang Guoxia & Li Chang's (2023) empirical study showed that the quality of kindergarten curriculum implementation mediates the relationship between the quality of teacher training, teaching and research activities, and the level of children's development, which suggests that kindergartens can use curriculum implementation as a focus point to test the effectiveness of kindergarten teacher training and teaching and research activities.

Zhou Dan & Zhai Meijia (2023) found that kindergarten teachers as a whole have a high degree of recognition of their work and have certain expectations for their professional development. In this regard, the "four integration" training model should be built to implement training, namely: to build a structure for categorized and layered training, to strengthen the sense of access to training and learning, to

promote the construction of a learning community, and to promote the integration of various training methods and innovations.

Yan Yingjun (2023), in the face of the many educational puzzles and problems of backbone teachers, tried to build several learning steps: first, to optimize independent learning by problem and task orientation; second, to develop practical experience by project-driven guidance; and third, to promote radiation leadership by following up the training.

Yao, Zhiyu, Li, Zhongying & Chen, Zhiqi (2024) argued that, unlike China's current centralized kindergarten teacher training, learning path-based kindergarten teacher training improves the training content by emphasizing the context, the training method by emphasizing the main body, and the quality of training by emphasizing the evaluation, etc. It is based on teaching practice, and is continuously improved and perfected in the course of practice, with formative evaluation running through the whole teacher training process. This approach can effectively improve the quality and level of kindergarten teacher training in China.

6. Training organization

Fang Bin (2014) argues that the purpose of the National Training Program is to train a group of excellent teachers with high quality and professional competence, and to enhance the overall teacher training and driving role of early childhood teachers. Nowadays, the professional quality of early childhood teachers is different, the gap between urban and rural areas is large, and the phenomenon of lagging behind in professional growth is relatively serious. In order to ensure the effective implementation of the "National Training Program", the competent unit responsible for training should take the training needs of participating teachers into full consideration in the overall design of the training courses, so as to achieve a better effect of the training.

Zhou (2017) argues that since 2014, the Ministry of Education has characterized the original National Training Program as a national training program for primary and secondary school kindergarten teachers, which includes "demonstration training programs" and "central training programs". It includes "model training

programs" and "central and western programs and national training programs for kindergarten teachers". Among them, the demonstration kindergarten teacher national training project, organized and implemented directly by the Ministry of Education and the Ministry of Finance, for the provinces (autonomous regions and municipalities) of the organization of kindergarten teachers to carry out demonstration training; kindergarten teacher national training project in the central and western regions, under the overall planning and guidance of the Ministry of Education and the Ministry of Finance, by the Central Government to support the implementation of the central and western provinces of the education and finance departments to organize and implement the rural kindergarten teachers into the cyclical training, and continue to enhance the capacity and quality of rural teachers' ability quality.

Wu Fan (2017) searched the literature related to "kindergarten teachers" and "training" in the past ten years from 2007-2016, trying to truly understand the motivation of teachers' training, teachers' needs for training contents and modes and other information. According to the results of the study, among the institutions that provide kindergarten teacher training, 46% are specialized training institutions, which mainly refer to education colleges and teacher training schools in provinces, cities and counties; 39% are general colleges and universities in provinces, cities and counties; 13% are kindergartens; and 2% are other institutions, which mainly refer to primary and secondary schools, etc. She believes that training institutions have rich practical experience and are able to offer training to kindergarten teachers. She believes that training institutions have rich practical experience, while colleges and universities have a deep theoretical foundation, and kindergartens are the main practice places for teachers' professional development. In the future research, the "university-training institution-kindergarten" trinity research model can be gradually realized, i.e., the university combines the feedback from training institutions and kindergartens to build a system of teachers' training needs, and conducts training for teachers in training institutions, and ultimately follows up the teachers' training needs in kindergartens. In the kindergarten, we can follow up the results of the

implementation and practice of teacher training needs, which can really meet the training needs of kindergarten teachers and serve the development of preschool education.

7. Training operation

Lu Aizhen (2012) describes the development of the teacher training program for primary and secondary schools (including kindergartens) in Pudong New Area, Shanghai, over the past fifteen years in following the Case-Based Practical Educational Research Methods for Primary and Secondary School (Kindergarten) Teachers. She believes that the case-based training approach can make the highly theoretical and difficult to understand training content transformed into vivid, plotted and easy to understand case presentations, and this training approach is very popular among teachers.

Yu Xin (2012) believes that teacher trainers need to be actively engaged in the research of teacher training courses, master the process of course development, techniques and tools, and be good at developing and improving training courses according to the changing needs of trainees, as well as undertaking the following duties: 1. defining the training needs; 2. designing the training courses; 3. developing the course resources; 4. evaluating the course effects; and 5. continuously improving the course content.

Qiao Zheng (2013) believes that a complete training system consists of a number of links, the main links are : First, training needs analysis. The second is the overall design of training and clarification of training objectives. Third, training course design and development. Fourth, training implementation. Fifth, training effect evaluation. These five links are interrelated, each link may have a lot of factors on the training effect, these factors interact with each other. Therefore, the causes of training inefficiency are very diverse and have complex relationships.

Hai Ying and Cai Yingqi (2015) divided the implementation process of the "National Training Program for Kindergarten Teachers" into 12 specific links, including the trainee selection process, research on training needs, expert team, curriculum arrangement, training style, learning environment, provision of learning resources,

classroom management, assessment and evaluation, post-training tracking, accommodation and food conditions, and publicity of the training.

Cai Yingqi & Zheng Jie (2018) According to the learner-centered theory, learner's initiative is a prerequisite for guaranteeing teaching effectiveness. Therefore, in the process of online training for early childhood teachers, the training content, training methods, training management, and training evaluation should reflect the main position of early childhood teachers.

Li Huanhuan and Huang Jin (2019) believe that the training content of kindergarten teachers should strengthen the "personalized" and "hierarchical" needs analysis. The training of kindergarten teachers should include three major models, corresponding to the pre-training - mid-training - post-training, the specific content and steps are "demand matrix" model (pre-training) - "self-training" model (pre-training) - "self-training" model (pre-training). The specific content and steps are "needs matrix" model (pre-training) - "self-organization" early childhood teacher training model (mid-training) - "cognitive diagnosis" evaluation model of early childhood teacher training (post-training).

In order to promote the professional development of new kindergarten teachers, Tan Mingqin (2022) took a kindergarten in Chongqing as an example, and explored the "three-stage, seven-step" model of kindergarten training for new teachers in practice, i.e., the three stages of training, i.e., pre-training, training, and post-training, and the adoption of the "Focus on content" model. Finding resources - Cooperation and discussion - Simulation and practical training - On-site feedback - Practical guidance - Review and reflection" seven steps, so that teachers around their own practical problems to explore, think and act. The seven-step process of "focusing on content-searching for resources-collaborative workshops-simulation and practical training-field feedback-workplace guidance-review and reflection" allows teachers to explore, think, and act on their own practical problems, and is committed to improving new teachers' ability to identify and respond to problematic behaviors in young children, and to exploring a series of effective practices.

Yanan (2023) identified the following problems in garden-based training for kindergarten teachers: insufficient purposefulness, systematicness and relevance of garden-based training; inconsistency between garden-based training and teachers' needs; insufficient motivation and enthusiasm of teachers to participate in training; her solution strategies provide targeted training content for layered training, which meets the needs of different teachers; videotaped reflection helps teachers to identify problems and improve their teaching ability; and the establishment of a virtuous cycle of garden-based training mechanisms. virtuous cycle of garden-based training mechanism stimulated teachers' enthusiasm to participate in the training. Through these measures, this study effectively solved the problems encountered by teachers in teaching and improved their educational and teaching abilities.

Wang Guangxiong (2023) took kindergarten teacher training in Yunnan Province as an example. In terms of training content, preschool teachers and early childhood teaching and researchers have a strong demand for "trainer professional knowledge" and "trainer professional competence", while kindergarten principals and The kindergarten principals and key teachers of early childhood tend to choose the training content of "professionalism in preschool education". Therefore, the effectiveness of training can only be improved if teacher training is set up in a hierarchical manner and different training is provided to different teachers.

According to Tian Dandan (2024), a complete training system should contain at least four sub-systems: a training goal system, a training organization system, a training management system and a training support system. The training goal system determines the starting point and the end point of training, the expected results and the ultimate purpose of training, as well as the resulting social effectiveness; the training organization system is the foundation of the entire training, including the establishment of training organizations, the design of the organizational process, a clear division of responsibilities and the development of the work mechanism, etc.; the training management system refers to the analysis of training needs to the design of the project, to the implementation of the project, and finally performance evaluation of the entire process; the training support system refers to the ability of

training to the project design, to the implementation of the project, and finally performance evaluation. Training management system refers to the whole process from training needs analysis to project design, to project implementation, and finally performance evaluation; training support system refers to ensure the long-term effective operation of training quality evaluation, system construction, teacher training, cost investment, etc.

8.Training evaluation

Tang Jianxin (2014) selected the effectiveness of the curriculum implementation of the National Training Program as the theme of the study, and conducted a case study of the Central and Western Rural Backbone Teacher Training Program in Province H through questionnaires, interviews and other means to reflect on the problems existing in the training of rural primary and secondary school backbone teachers and put forward targeted recommendations. Through questionnaires, interviews and other techniques, we analyze the case of the "Central and Western Rural Backbone Teacher Training Program" in Province H, reflect on the problems in the training of backbone teachers in rural primary and secondary schools, and put forward targeted suggestions. In order to improve the effectiveness of course implementation, it is necessary to do a good job of the needs of the trained teachers, organize a high-level training team, set up targeted course content, and conduct positive evaluation, timely feedback, and find out the main factors affecting the effectiveness of course implementation, in order to improve and update the training concepts, and improve the effectiveness of the national training of rural primary and secondary school teachers.

He Yinghua (2015) studied the national training program with blended research as the main form, focusing on the quality assessment of the web-based training phase in the National Training Program (2014) demonstrative comprehensive reform program. To this end, the authors analyzed the training needs of participating teachers, the deployment of training courses and related research activities through the distribution of questionnaires to explore the effects of teacher training under the National Training Program.

Tang Xiangyu (2016) used qualitative research methods to study the effects of the early childhood teacher training program implemented by H Normal University and its influencing factors, using H Normal University as a case study. The study found that the evaluation of the training effect varied among different subjects, but the overall training effect was gradually changing from "immature" to "more mature"; the "hierarchical" and "chaotic" nature of the participating early childhood teachers was also found to be a major factor in the effectiveness of the training program. The "hierarchical" and "chaotic" nature of participating teachers and the "hierarchical" and "unstable" nature of the team of training experts are important constraints on the effectiveness of the training.

Based on the KIRKPATRICK assessment model, Huang Jin and Zhang Zhijun (2018) used a questionnaire and interviews to assess the reflection layer, combined the trained teachers' PCK pre and post-test data reports and the teachers' real-world application cases of the core experience to assess the learning layer; combined the Kindergarten Teachers' Professional Standards (Trial) and the trainee teachers' CLASS Teacher-Child Interactive Teaching Behavior layer to assess; collected teachers' self-reflective texts; and collected teachers' self-reflective texts to assess the effectiveness of the training. assessment; collected teachers' self-reflective texts and practical cases and used qualitative analysis to implement the effect layer assessment.

Huang Jin and Li Huanhuan (2020) found that theories and researches related to kindergarten teachers' training effectiveness assessment at home and abroad are vague in terms of the object of effectiveness assessment, dispersed in terms of the research direction, lack of assessment tools, and broad assessment indexes, etc. In this regard, they started from the object of effectiveness assessment, the framework of effectiveness assessment, the framework of effectiveness assessment, and the assessment indexes. Here, we discuss and reflect on four aspects, namely, the object of effectiveness assessment, framework and content, assessment methods and tools, and research perspectives, and conduct a research review on the evaluation of future teacher training effectiveness, with a view to further deepening the theoretical

guidance and practical enlightenment on the evaluation of kindergarten teachers' training effectiveness in China.

Concept of teachers' training for Integrated IT Teaching Methods

1. Definition

Yao Xiaolan & Lan Jueming (2013) believe that micro-lessons generally refer to courses that are within 10 minutes. In the production of micro-lessons, the recording methods and tools generally include writing tablets, electronic whiteboards, tablet computers, screen recording software, mobile phones, DV camcorders, digital cameras, etc., and these recording methods all need to be combined with application software. Currently, micro-lessons are mainly applied in teaching and training.

Xue Hongxia (2016) believes that the characteristics of micro-lessons determine that they can be used as classroom teaching resources in teacher training, as well as tutorials for teacher training.

Wu Qiang & Du Yuxia (2018) believe that the development process of micro-lessons for teacher training involves micro-teaching design ability, teaching expression ability, and skills in audio and video recording and editing, multimedia courseware production, and interactive webpage development, usually featuring clear student identity information, enjoyable learning processes, adherence to fragmented learning characteristics, and complementing practical guidance.

Zhu Xudong (2018) believes that the national "Internet+" training system aims to "promote the organic integration of information technology and teacher training, implementing a blended research and training model that combines online and offline methods."

Jin Yunbo, Zhang Yugu, Yang Yan & Liu Hongchao (2024) state in the "Notice of the Ministry of Education and Ministry of Finance on Implementing the National Training Plan for Teachers in Primary and Secondary Schools and Kindergartens (2021-2025)" issued in 2021, it emphasizes the need to promote the integration of artificial intelligence with teacher training, exploring "AI + Teacher Training" to establish a

mechanism for teachers' lifelong learning and continuous development. Currently, strong artificial intelligence technologies represented by ChatGPT are rapidly penetrating various aspects of the education field, hence exploring teacher training in the era of strong AI is the inevitable path to achieve precise teacher training and high-quality professional development in line with the trend of the times.

2. Importance

Wang Shuhao & Cheng Hao (2018) believe that "Internet+" post-professional training for preschool teachers, which utilizes internet resources to conduct various online courses and training, breaks the limitations of traditional lecture-based training, including spatial and temporal constraints.

Huang Wenjing (2021) believes that the "Internet+ Education" training model has become an inevitable demand in the current social development for the cultivation of preschool teachers, showing a trend towards institutionalized development, which is key to enhancing the professional skills and level of preschool teachers, and an essential part of the professional development of teachers.

Ma Fangchao (2022) believes that the design and application of micro-lessons in teacher training should prioritize the development of learning resources, breaking the traditional training model restricted by time and location, utilizing platforms, flipped classrooms, and micro-lessons to integrate online and offline, in-class and extracurricular activities, and using mind maps to modularize knowledge, helping teachers to internalize learning content more quickly.

3. Content or Composition

Liang Xinglian (2018) believes that the UMU interactive learning platform is one of the most popular educational training apps today, allowing students to engage in interactive teaching by scanning the course QR code through WeChat or QQ. It supports sign-in, Q&A, discussion, photography, exams, homework, and various document playbacks, with the expert end, student end, and computer end pushing activities seamlessly through the network. Data is presented in concise, visually

appealing charts, making it easy to use, free to deploy, and widely used in various training sessions.

Chen Lei (2019) believes that teacher training in the era of artificial intelligence is characterized by the efficient use of technologies such as machine learning, natural language processing, and big data analysis. Based on the data of teacher training needs and individual teachers' knowledge, skills, teaching attitudes, and behaviors, customized online training services are provided through algorithms, offering teachers more precise, diverse, personalized, and efficient learning resources and intelligent development paths.

Liang Yujia (2022) believes that the training conducted using "Internet + Preschool Teacher Training" is diverse, such as live-streamed courses and MOOCs. Whether it's live streaming or MOOC training, due to the freedom of time and space and the lack of supervision, it's difficult to grasp the dynamics of teachers participating in training. Such fragmented learning is not conducive to knowledge acquisition.

Wang Guangxiong (2023) believes that in the future application of information technology in kindergarten teacher training, a mixed research and training form of "online research and school-based application practice" can be adopted, which is classroom-based, application-driven, and includes practical guidance training.

Xu Yanyu (2023) believes that against the backdrop of rapid development of digital technology, technologies such as big data, blockchain, and cloud computing are gradually applied in the field of education and teaching. Therefore, it is necessary to build intelligent and informatized teacher training systems.

Zeng Ning (2024) believes that the National Smart Education Public Service Platform, launched in March 2022, centralizes high-quality educational resources nationwide for student learning, teacher teaching, school management, and educational research and training needs. The platform has received more than 3.73 billion views and over 2.5 billion visitors, becoming the world's largest digital center and service platform for educational resources.

4. Principles

Zhang Xiaomei & Xie Xinran (2023) conducted a survey involving 149 teachers from public and private kindergartens in different regions to investigate the issues with online training. They believe that online training programs should be based on the developmental needs of preschool teachers to help them achieve professional development, achieving personalized, differentiated, autonomous, and proactive training.

Li Luming (2023) believes that in an online learning environment, young teacher training should focus on cultivating teachers' teaching thinking and innovation awareness in terms of training content; various methods such as online learning, classroom teaching observation, and seminars can be adopted in terms of training methods; and questionnaires, teaching observation, teaching reflection, and student performance can be used for training evaluation and effectiveness.

Chen Dejun & Ma Xiaoyan (2023) believe that the government should strongly support the establishment and improvement of the preschool teacher training system, carrying out nationwide preschool teacher education cultivation, using the internet to train preschool teachers across the country, promoting experience exchange among teachers in different regions, and providing more opportunities for learning and discussion for all preschool teachers.

5. Process or steps

Chen Qianlan (2016) introduced the application of smartphones in teacher training with examples such as Questionnaire Star, WeChat, and DingTalk: using Questionnaire Star for pre-training research, interactive during training, and post-training evaluation; using "WeChat Official Accounts + WeChat Groups" for solving doubts and conducting exchanges; and using DingTalk for attendance and project management.

Liang Xiaotang (2019) believes that the UMU (Uniximize Universe) interactive learning platform has built a new learning environment supported by the internet, featuring knowledge sharing, interactive communication, participatory learning, and supporting new learning models. She conducted research on the application of the

UMU interactive platform in teacher training activities to explore its support for participatory teacher training, constructed a participatory teacher training model based on the UMU interactive platform, and verified the training effect through examples.

Ge Xiaoying, Wang Mo & Yang Dongmei (2021) believe that using OECD survey tools to conduct online questionnaires with 493 kindergarten teachers and performing word frequency analysis on the needs of respondents using Anaconda software revealed that kindergarten teachers have cross-disciplinary content and cross-temporal training needs. Therefore, they attempted to use OECD survey tools to analyze the training content needs of kindergarten teachers to provide a basis for establishing a kindergarten teacher training network platform.

Song Bei (2022) proposed using the Yike Classroom online platform's self-learning module, classroom training learning module, consolidation learning module, and information feedback module to adopt a blended training model for pre-job teacher training, improving the overall quality of the new teacher workforce.

Liang Yujia (2022) conducted questionnaire surveys and interviews with 113 teachers from 6 kindergartens in Nanning as the main research subjects, finding that there are issues in preschool teacher training under the "Internet +" background, such as lack of enthusiasm for participating in training, unclear training purposes, unreasonable training assessment and evaluation methods, and lack of targeted training content. Consequently, she proposed recommendations to innovate the "Internet + " post-professional training form and enhance the enthusiasm of teachers to participate.

Related Research

With the help of the full-text database of "CNKI", the search was conducted with the keyword "preschool teacher training model", and the number of literature obtained was very limited, only 11 articles. This shows that Chinese scholars have not done enough research on preschool teacher training models, which also provides an innovative point for this study. To this end, this study attempts to search for

relevant literature on "teacher training model" in the full-text database of "CNKI", attempts to analyze the existing teacher training model, and combines information technology to construct a preschool teacher training model and conduct practical research.

According to literature analysis, at present, teacher training models are generally divided into training goal-based models and training evaluation-based models. Models based on training goals mainly focus on teacher job competency models and teacher professional ability models. Models based on training evaluation mainly include Kirkpatrick's Model, CIPP Evaluation Model, etc.

Yang Manman & Yu Yang (2024) used Kirkpatrick's Model as the theoretical basis, and used the hierarchical analysis method and the expert opinion average method to derive a four-level indicator system for the evaluation model of university teacher professional development projects, namely, reaction level, learning level, behavior level, and results level. The model was used to test the implementation effect of the 2022 teacher training project of J University, and it was found that the overall training effect was good, but more efforts should be made to improve the academic level, teacher value recognition, personal quality improvement, and organizational culture construction.

Xie Siying (2022) first analyzed the training needs and understood the current ability characteristics of teachers from aspects such as knowledge ability, technical ability, social roles, self - concept, and representational characteristics. Secondly, based on the theoretical foundation of the competence model, the researcher constructed a teacher competence model for the vocational education group using the five dimensions of the iceberg model. The researcher optimized three major training measures and developed a detailed plan for the entire training process.

Li Yumeng (2022) proposed a triangular pyramid hemisphere structure model of the professional competence elements of open university teachers based on existing research and documents related to the professional competence of teachers in ordinary universities and open universities at home and abroad. The model includes four core professional competence elements, namely teaching ability,

scientific research ability, resource construction ability, and social service ability. She proposed to improve the teaching and student assistance service skills of open university teachers based on school-based training.

Tian Lu (2022) believes that adult learning theory views teachers as having an independent and autonomous self-concept, rich professional experience, and a preference for problem-centered learning methods, which can guide and train teachers in both entry-level and in-service stages, promoting their professional development.

Tang Xinhua (2022) points out that teachers, as adult learners, must follow the regularities of adult learning, which determines that teacher training should be conducted under the guidance of adult learning theory. In the perspective of adult learning theory, teacher training should focus on the adult learning orientation of teachers, promoting effective training to encourage continuous learning, knowledge updating, and ability enhancement for teachers.

Fang Liang, Guan Zhiwei & Cai Yujun (2022) used critical incident interviews, work task analysis, and questionnaire surveys to construct a professional competency model for undergraduate vocational education teachers, including 10 core professional competencies and 43 competency units, and verified the model through exploratory factor analysis and confirmatory factor analysis. It was concluded that the model is intrinsic, comprehensive, practical, academic, innovative, and developmental, and has theoretical and practical value for the cultivation, measurement, and evaluation of the professional competencies of undergraduate vocational education teachers.

Yu Jing & Li Chao (2021) investigated and analyzed the current status and existing problems of open university teacher training, drew on the successful experience of open university teacher training at home and abroad, and based on teacher training practice, built an open university teacher training model, namely the PCGS hybrid training model, based on advanced training concepts such as adult learning theory and social construction theory. This model is used to promote the professional development of open university teachers.

Nie Weijin & Wang Weiping (2021) took Kirkpatrick's Model as the basis, and used the data such as questionnaires and training experience texts of training teachers accumulated by the Jiangsu Higher Vocational Education Teacher Training Center, as well as research and expert opinions on teacher training, to finally form a higher vocational teacher training evaluation index system with four first-level indicators and 19 second-level indicators. This framework can provide a reference for the standardization of higher vocational teacher training evaluation practice and evaluation work.

Zhang Cuiyun (2020) believes that the competency training program is based on the competency characteristics constructed by job analysis, and focuses the training course content on the knowledge, skills, attitudes and personality characteristics that affect work performance, thereby improving the pertinence and scientific nature of the program. By comparing the existing competency level of teachers with the competency model, defining the existing gaps and analyzing the causes of the problems, it is helpful to accurately locate the training needs. According to the competency model, the key competencies required for the position are extracted, so the design of the preschool teacher training program includes three links: needs analysis, plan formulation, and effect evaluation.

Xia Beibei (2020) believes that the implementation of overseas teacher training requires an appropriate evaluation mechanism to evaluate its effectiveness. Based on the CIPP evaluation model, this study evaluates the short-term overseas teacher training program of S University from four aspects: background, input, process, and output through research methods such as document analysis, classroom observation, questionnaire survey, and semi-structured interview. After evaluation by the CIPP evaluation model, short-term overseas training based on Sino-foreign cooperative education is a strong support and effective guarantee for improving the internationalization level of the teaching staff, strengthening the professional learning community of teachers, and promoting the professional development of teachers.

Wang Jiaojiao & Wu Shengnan (2020) guide with the adult transformative learning theory, through empirical research, reflect and analyze the current issues in teacher training methods, construct the overall operational model of teacher training programs, and propose integrated use of task-driven, cooperative, comparative, blended training methods to promote the transformation and application of training outcomes, enhancing the effectiveness of training.

Based on the concept of "Internet + Education", Cai Yingbing (2020) analyzed the current situation and problems of information-based training for primary and secondary school teachers, and then designed from three aspects: the establishment of a training resource library, the construction of a training learning platform, and the information-based training route, and proposed a practical plan for information-based training for primary and secondary school teachers. Finally, the Kirkpatrick Model was used to evaluate the training effect. The results showed that the information-based training for teachers achieved the expected results well. The participating teachers were generally satisfied with the training, and they made great progress in skills, theoretical knowledge, and information literacy. At the same time, students and parents also gave positive feedback. This provides a certain reference for improving the information-based teaching methods of primary and secondary school teachers in my country.

Zhang Jingjing (2019) discusses characteristics of teacher training from Knowles's perspective on adult education: firstly emphasizing the subject participation of teachers in the training process; secondly respecting the social role positioning of teachers; thirdly advocating the practical experience of teachers in classroom teaching.

Hu Duozi (2019) considers preschool teacher training as an important approach to promote teacher professional development, enhance teacher quality, and further advance educational equity and development. Teacher training is essentially a form of continued learning behavior for adults after employment and an important part of adult education. Previous analyses on the ineffectiveness of preschool teacher training have not sufficiently focused on the theoretical

foundation of adult learning. She takes some kindergarten principals and key teachers who participated in the Guizhou Province "National Training Plan" short-term intensive training as research subjects, analyzes the problems in preschool teacher training from the perspective of adult learning theory, and discusses solutions and strategies.

Zhang Jingjing (2019) observes that, despite significant investments by the state and certain achievements in teacher training at all levels, many teacher training programs lack an adult education theory foundation, overlooking the adult identity of teachers. By analyzing Knowles's adult education model, characteristics of teacher training from this perspective are discussed, and several strategies to optimize teacher training are proposed: centering on problems to mobilize teachers' intrinsic motivation; combining various teaching methods, respecting the mission of teacher learning; balancing between preset and generative, unlocking teachers' experience repository; based on full-process evaluation, strengthening the orientation of teacher learning.

Gao Shanyan & He Zhen (2019) used the DACUM job analysis method to develop the professional competence areas and competence units of vocational school teachers, and then used exploratory factor analysis and confirmatory factor analysis to construct the professional competence structure of vocational school teachers. The structure consists of 6 factors and 41 competence items. The 6 factors include teaching ability, professional construction ability, ability to participate in student and school management, ability to conduct scientific research, ability to carry out school-enterprise cooperation and service, and ability to develop one's own professional development. The six-factor structure model has been well tested.

Hu Weiping & Zhang Wei (2018) believe that teachers' professional abilities include basic abilities, teaching abilities, educational abilities, self-development abilities, and teaching innovation abilities. Teacher training should be tailored to the professional ability training model for teachers at different development levels. For example, for newly employed teachers, the training model can be based on the PAA training model, combining offline and online training, mainly focusing on the basic

abilities, teaching design abilities, classroom interaction abilities, classroom questioning abilities, information technology application abilities, etc. of novice teachers, so as to systematically and scientifically strengthen the teaching abilities of novice teachers.

Yin Lei (2018) analyzes the problems and dilemmas in the basic education teacher training work from the perspective of transformative learning theory, such as the difficulty of aligning training content with teacher needs, the failure to play the leading role of learners, the lack of actively thinking learning situations, and the formalization of training evaluation. To solve these, she proposes strategies like dual management of demand investigation and curriculum design to solidify training foundation; using diverse learning methods to stimulate critical reflection; focusing on problem-centric to create actively thinking and rational dialogue learning situations; establishing a comprehensive training evaluation system to monitor the results of training transformation.

Li Baomin & Yan Hanbing (2017) believe that scientific evaluation of teacher training needs to rely on a good evaluation model. A good evaluation model can provide a systematic framework and effectively guide the solution of key problems in the evaluation. This study is based on the CIPP evaluation model and takes the evaluation of the Shanghai shared curriculum project as an example. By promoting the systematic evaluation design and implementation of multiple subjects, it integrates diagnostic evaluation, process evaluation, and outcome evaluation. With the support of multiple evaluation methods and evaluation tools, it conducts evaluation aimed at process improvement. Finally, it puts forward specific suggestions for the implementation of the evaluation, which provides guidance for the quality management and evaluation of teacher distance training.

Liu Ying (2016) extracted the characteristics of teacher competency based on literature analysis, combined with interviews and questionnaires, and constructed a comprehensive model of teacher competency elements in Shanghai basic education training institutions based on the two classic models of competency models, the iceberg model and the onion model. The model includes five dimensions, namely:

professional dimension, teaching dimension, personal trait dimension, market dimension and creativity dimension. Each dimension contains several competency elements, totaling 28 competency elements. This model is used to investigate the current status of teacher competency in Shanghai basic education training institutions, identify problems from the current status, and propose optimization strategies.

Pei Miao & Li Xiaoyan (2014) argue that "teacher learning" from an adult learning theory perspective is oriented towards developing an independent self-concept formed on individual experiences; aims for an active and continuous change process; is motivated by internal drives based on problems and real needs; and follows a pathway paralleled with collaborative learning and self-directed learning.

Lu Shaoying (2013) believes that Kirkpatrick Model focuses on the evaluation of trainees and the evaluation of training results, but less on the training process. To this end, she combined Kirkpatrick's four-level evaluation model with the current status of teacher training evaluation and put forward several implementation suggestions for the evaluation model suitable for teacher training projects: first, the demand level evaluation and program level evaluation before training should be increased; second, the implementation time of each level evaluation should be clarified; third, the evaluation indicators should be as specific as possible.

Mao Naijia & Lin Feng (2010) believe that the advantage of the CIPP model is that it truly involves evaluation activities in the entire training process, not only analyzing the necessity and feasibility of training, but also focusing on monitoring the training process. This advantage can effectively make up for the shortcomings of the Kirkpatrick model that focuses on the evaluation of training results but rarely evaluates the training process. Therefore, this study effectively combines the advantages of the Kirkpatrick model and the CIPP model to construct a teacher training evaluation system. Through a comprehensive and systematic analysis of the teacher training process, it makes a useful exploration of the construction of a teacher training evaluation system.

Mezirow (1978) first introduced the transformative learning theory, a branch of adult learning theory. He defined learning as a meaningful creative activity, conceptualizing learning as "the process of using previous interpretations to make new or revised interpretations of the meanings of one's experience to guide future actions." He summarized transformative learning into three stages: The first stage is when learning occurs, originating from a "dilemma" when previous experiences cannot solve a problem, and learning needs arise in the process of self-examination of experiences; The second stage is the exploration stage, where educators guide learners to use their experiences for critical reflection and collectively discuss strategies for resolution; The third stage is the practice and feedback stage, where learners form capabilities and confidence after acquiring new knowledge and skills, applying learning outcomes to practice and guide practice.

Chapter 3

Research Methodology

This study utilized a multi-stage, mixed-method empirical research design that combined qualitative and quantitative means of analysis. The initial phase of the study involved a literature review to identify and sort out existing problems in kindergarten teacher training. Subsequently, an expert questionnaire assessment was designed and implemented around the identified issues as a means of constructing a model of IT-integrated training for kindergarten teachers suitable for Wenzhou City. Based on the questionnaire design, the model was tested and improved through a series of expert reviews (e.g., Delphi method). Ultimately, a sustainable training system is formed by applying and evaluating this model in the field, and adjusting and optimizing it based on pre-and post-training measurements as well as expert feedback. The whole research process aims to verify the effectiveness of the training model through empirical data and to ensure that it can solve the problems faced by kindergarten teachers in reality. This research is divided into 3 steps.

Step 1: To investigate the current problems on kindergarten teaching training.

Step 2: To design a kindergarten teacher training (KTT) model for integrated IT teaching methods appropriate for kindergarten of Wenzhou city.

Step 3: To evaluate the kindergarten teacher training (KTT) model for integrated IT teaching methods appropriate for kindergarten of Wenzhou city.

The three steps are shown in the figure 3.1

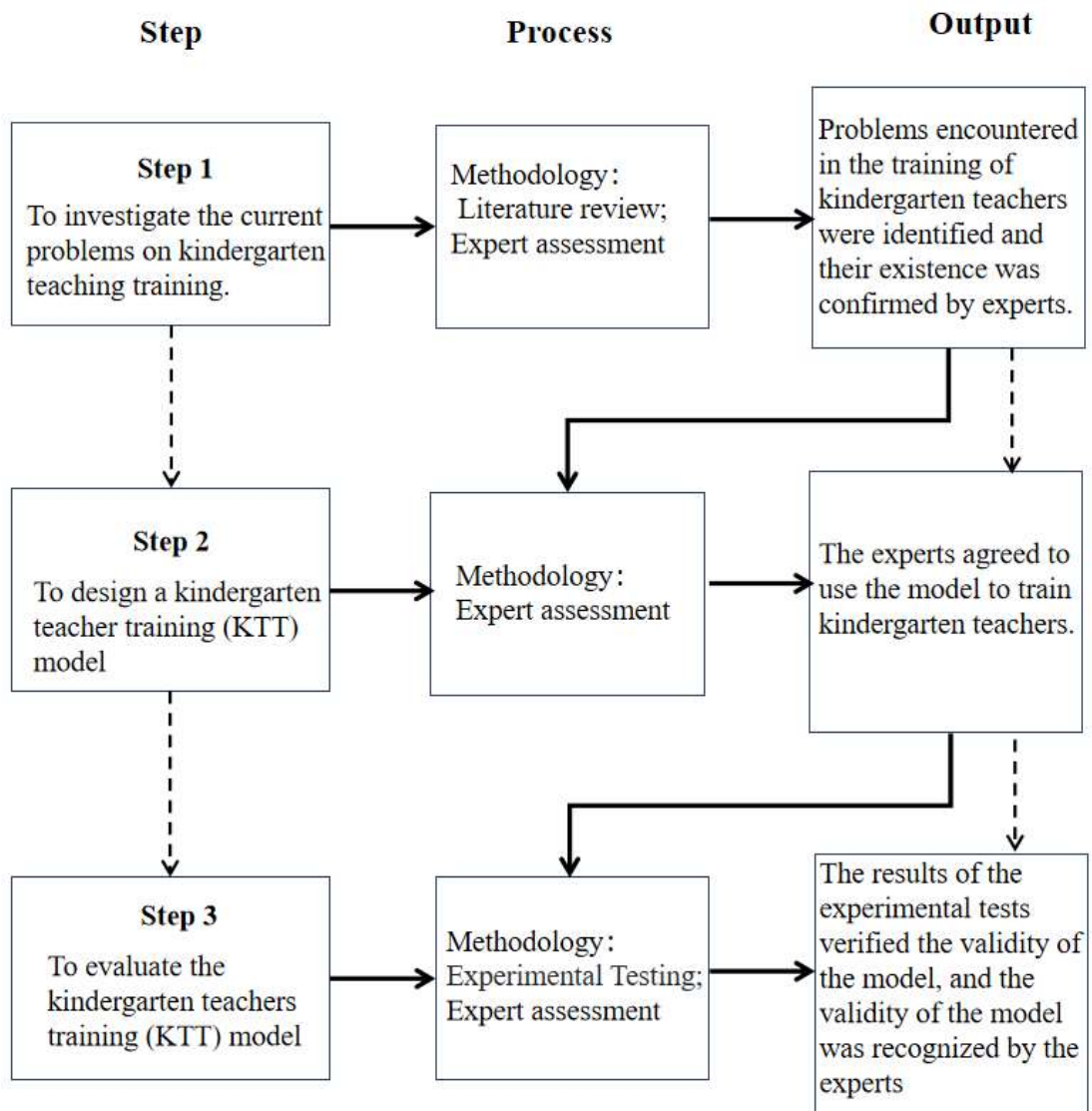


Figure 3.1 Research Process

Step 1: To investigate the current problems on kindergarten teaching training.

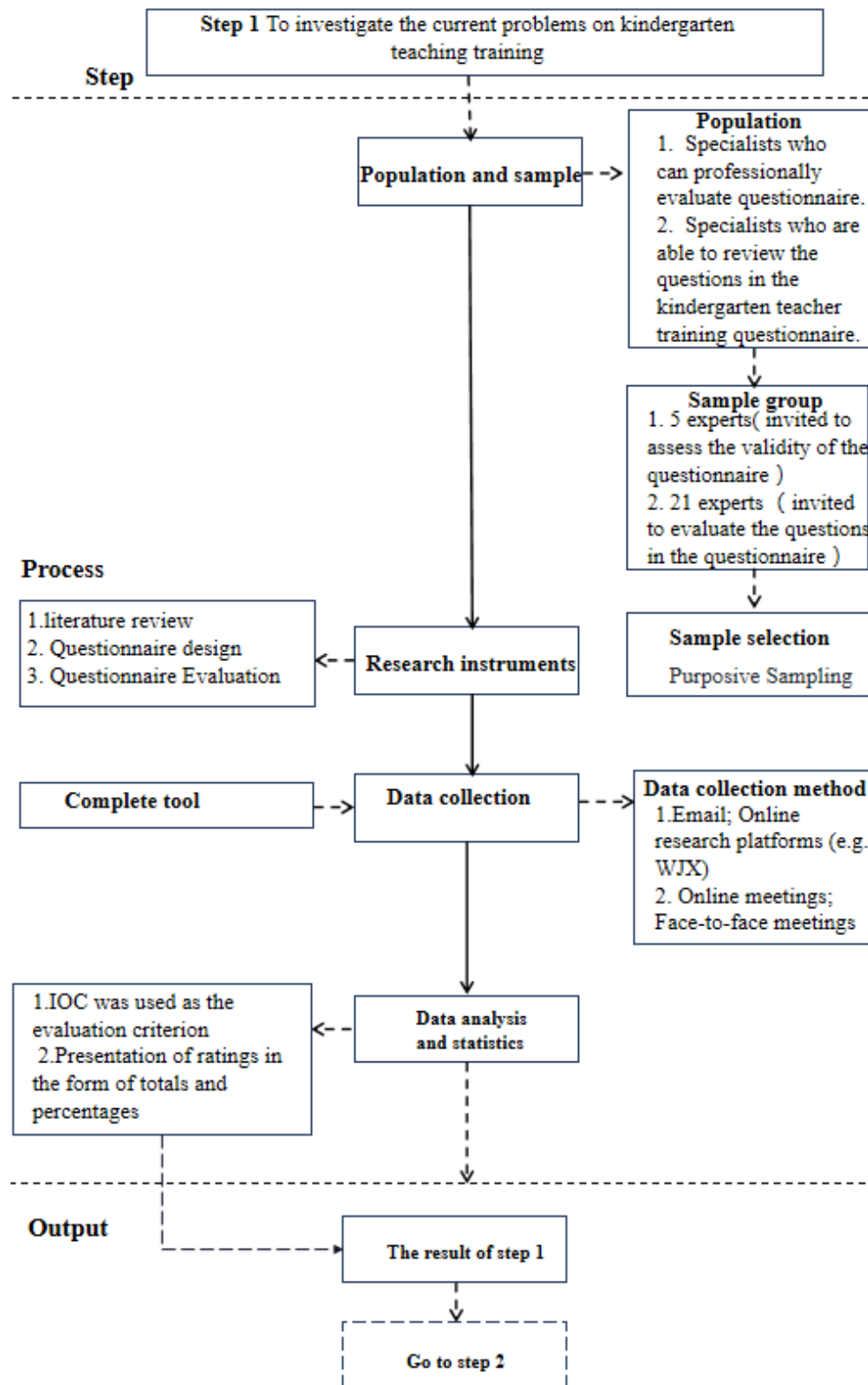


Figure 3.2 Details of step 1 of the research process

This research step consists of four parts in sequence, namely literature review, questionnaire design, assessing the validity of the questionnaire, and evaluating the questions in the questionnaire.

Population and sample group

Population: Experts who are able to assess the questions in the kindergarten teacher training questionnaire. These experts have a deep understanding and rich experience in kindergarten teacher training, and their professional backgrounds include, but are not limited to, professors in higher education institutions and educators who have been engaged in kindergarten teaching or management for a long time.

Sample group:

(1) 5 experts were invited to assess the validity of the questionnaire.

- Experts who have more than 10 years of experience in pre-school education in higher education, are familiar with the business related to kindergarten teacher training that integrates information technology, and have a master's degree or higher and an associate professor title or higher.

- Practicing experts who have more than 10 years of experience in early childhood teaching, are familiar with the business related to kindergarten teacher training that integrates information technology methods, and have a master's degree or higher and a senior title in early childhood education.

(2) 21 experts were invited to evaluate the questions in the questionnaire. These experts must also fulfill the same conditions as the above experts.

Research Tool

1. literature review: used to organize and analyze published literature to identify problems in kindergarten teacher training.

2. Questionnaire design: A detailed questionnaire was custom-designed based on the specific problems identified in the literature review.

3. Questionnaire Evaluation: Experts assessed the questions in the questionnaire. (1) Experts were invited to assess the validity of the questionnaire. (2) Experts were invited to evaluate the questions in the questionnaire.

Data collection

The questionnaire was sent to the experts through an online meeting, a face-to-face meeting or an e-mail and they were invited to evaluate the validity of the questionnaire as well as each of the questions in the questionnaire.

Statistics and analysis of data

1. IOC was used as the evaluation criterion (For "Assessing the validity of the questionnaire")

2. Five experts were invited to assess the validity of the designed questionnaire and IOC (Index of Consistency) was used as the evaluation criterion.

3. Presentation of ratings in the form of totals and percentages (For "Evaluating the questions in the questionnaire")

By applying descriptive statistical tools, the ratings of the 21 experts on the questions in the questionnaire were synthesized and summarized and presented in the form of totals and percentages.

In the ratings, a score of -1 indicates that the expert disagrees, a score of 0 indicates neutrality, while a score of 1 indicates agreement, and for these three different evaluative attitudes, the total number of experts as well as the percentage of the respective experts will be calculated in order to make an intuitive statistical analysis. This will help to identify which issues are supported by expert consensus and which may need to be reconsidered or modified. For issues in the training, I have set a minimum of 70% of the experts to agree in order for the issue to be considered approved by the experts.

Step 2: To design a kindergarten teacher training (KTT) model for integrated IT teaching methods appropriate for kindergarten of Wenzhou city.

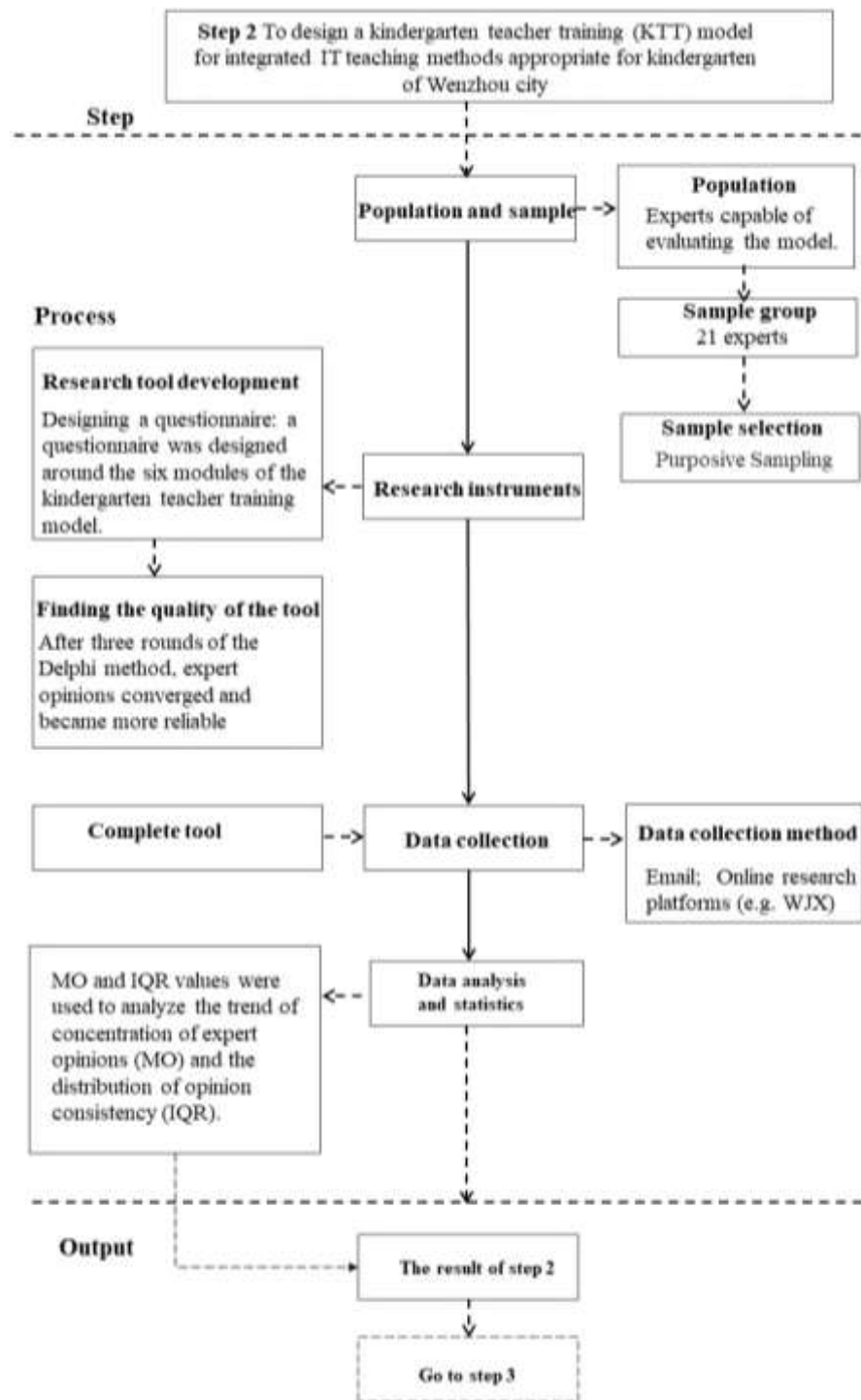


Figure 3.3 Details of step 2 of the research process

This step consists of two parts, namely model construction, and expert Delphi method review.

KTT model construction

(1) Methods of model construction

- Literature review: through the review of existing literature, to understand the current status and problems of kindergarten teacher training, to determine the theoretical basis and practical needs of the study.

- Questionnaire survey: design and distribute questionnaires to collect the training needs and current situation of kindergarten teachers in Wenzhou City. The questionnaire should be designed to cover training content, training methods, and the application of information technology.

- Delphi method review: invite kindergarten teacher training experts with rich experience to review and give feedback on the preliminary designed model. Through multiple rounds of expert opinion collection and collation, the model is continuously optimized and improved.

- Testing and comparison experiment: The optimized model is piloted and applied in some kindergartens in Wenzhou City to assess the effectiveness and feasibility of the model through pre- and post-training measurements.

(2) Theories of model construction

Learning theory: In kindergarten teacher training, the use of information technology tools to create an interactive and cooperative learning environment helps teachers construct new pedagogical knowledge and skills.

The Population and sample group

Population: Experts who can evaluate the model. These experts have a deep understanding and rich experience in kindergarten teacher training, and their professional backgrounds include, but are not limited to, professors in higher education institutions and educators with a long history of kindergarten teaching or management.

Sample Group: 21 experts who evaluated the indicators of the model using the Delphi method. The conditions of the experts are as follows:

- Experts with more than 10 years of experience in pre-school education in higher education, familiar with the business related to kindergarten teacher training integrating information technology, and possessing a master's degree or higher and the title of associate professor or higher;

- Practical experts who have more than 10 years of experience in early childhood teaching, are familiar with the business related to kindergarten teacher training that integrates information technology methods, and have a master's degree or above and a senior title in early childhood education.

Research Tool

(1) Research Tool Development

Designing a Questionnaire: A questionnaire was designed around the six modules of the kindergarten teacher training model, i.e., Training content, Training methods and tools, Training Needs, Training strategy, Training Organization, and Training Evaluation, a questionnaire was designed. This questionnaire combines open-ended questions, which are designed to obtain detailed feedback, and closed-ended questions, which facilitate quantitative analysis.

To ensure scientific validity and accuracy, the questionnaire was based on a widely recognized Likert scale, and 21 experts were invited to rate the importance of each level of indicators on a five-point Likert scale, with 1 representing "strongly disagree", 2 representing "disagree", 3 representing "neutral", 4 representing "agree", and 5 representing "strongly agree".

(2) Finding the Quality of the Tool

- The first round of consultation was conducted by explaining the background, content and purpose of the study to the experts and sending an electronic version of the evaluation questionnaire with the evaluation scoring criteria. The content of the questionnaire is the evaluation of indicators in accordance with the 5-point scale for the first-level indicators to assess the scoring and propose modifications.

- Collect the first round of questionnaires and summarize and analyze the data, improve the initial evaluation index system according to the analysis results

and modification opinions, and form the second questionnaire, which will be distributed to experts for the second round of evaluation.

- Collect the second round of questionnaires and summarize and analyze the data, and the experts' opinions converge and are more reliable, so as to establish the final evaluation index system.

Data Collection

A questionnaire was sent to 21 education experts via email and online survey platforms (e.g. WJX) to collect their opinions and suggestions on the KTT model. According to the research objectives and methodological steps, the 21 experts were invited to explain to the experts what they would like to accomplish in the research collaboration and distribute questionnaires such as open surveys and Likert scales about the model to the experts and request their cooperation in completing the questionnaires. After receiving the questionnaires, the experts completed the questionnaire evaluation and open-ended answers based on the research objectives and experience. The researcher collects the questionnaires submitted by the experts and analyzes and integrates their suggestions and experiences.

Statistics and Analysis of Data

MO and IQR values were used to analyze the central tendency and consistency of expert opinions. The median (MO) can be used to determine the central tendency of the expert opinions, i.e., the level of common opinion or assessment of a particular issue by the majority of the experts. The IQR is used to measure the degree of dispersion of the data, i.e., the consistency or dispersion of the expert opinions. In the Delphi method, a small IQR indicates a high degree of agreement among experts, while a large IQR indicates a large divergence of opinion.

Step 3: To evaluate the kindergarten teachers training (KTT) model

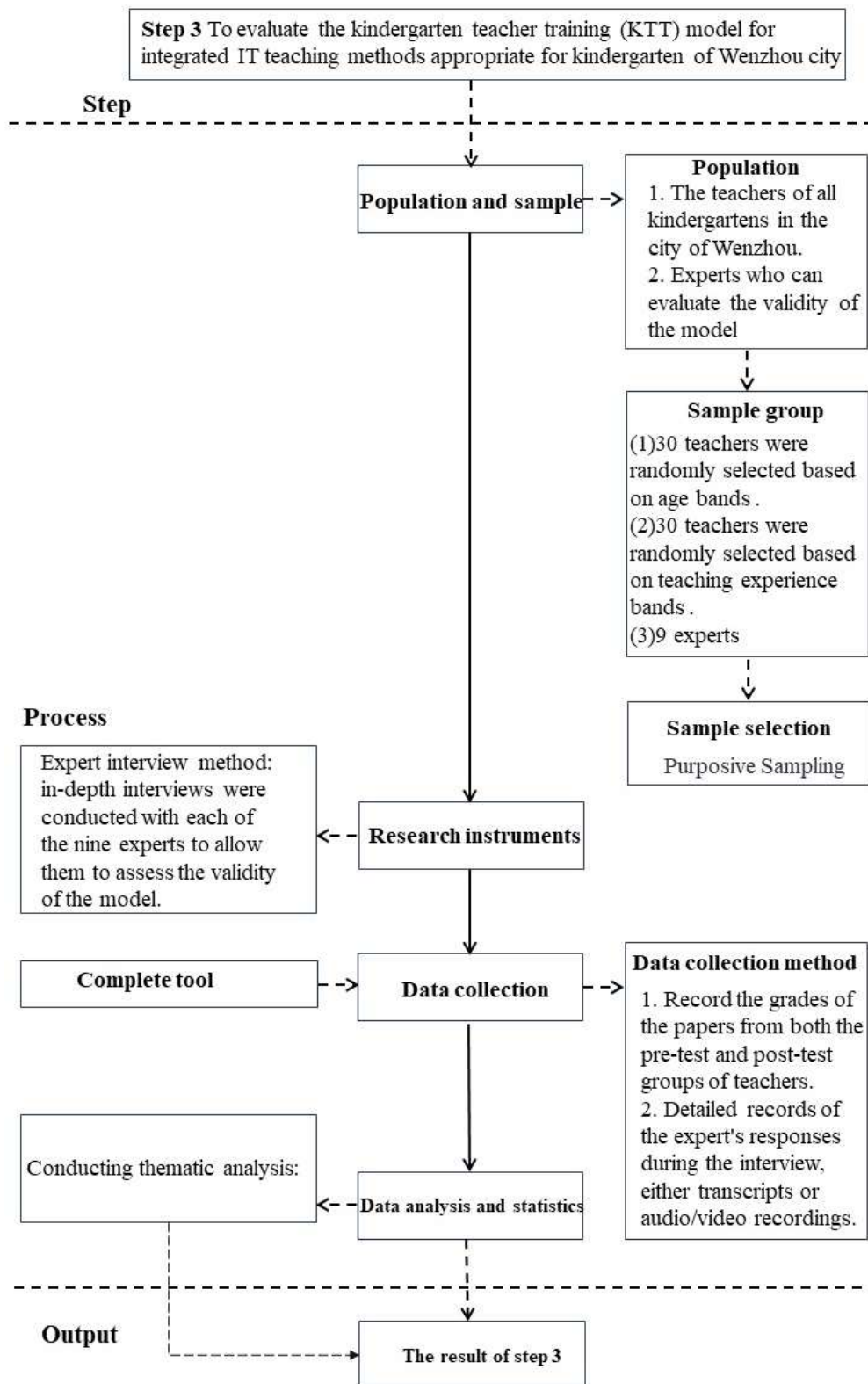


Figure 3.4 Details of step 3 of the research process

In this step, the KTT model is first to be applied to train teachers in five selected kindergartens, and then two groups of teachers are approached for a pre- and post-test. Finally, nine experts are invited to conduct a comprehensive assessment of the effectiveness of the model.

The Population and sample group

1. Population

- The teachers of all kindergartens in the city of Wenzhou. (For "Curriculum pre-test" and "Curriculum post-test")
- Experts who can evaluate the validity of the model. (For "Expert evaluation") These experts have a deep understanding and rich experience in kindergarten teacher training, and their professional backgrounds include, but are not limited to, professors from higher education institutions and educators with a long history of kindergarten teaching or management.

2. Sample Group:

- 30 teachers were randomly selected from 5 kindergartens in Wenzhou City according to age groups 20-25 years old, 25-30 years old, and 30 years old and above, and 10 teachers in each age group. In addition, 30 teachers were randomly selected according to the teaching age group 1-5 years, 5-10 years, and more than 10 years, with 10 teachers in each age group. (For "Curriculum pre-test" and "Curriculum post-test")
- 9 experts were invited to evaluate the validity of the model (For "Expert evaluation").

Research Tools

Expert interview method: in-depth interviews were conducted with each of the nine experts to allow them to assess the validity of the model.

Data Collection

1. Record the grades of the papers from both the pre-test and post-test groups of teachers. (For "Curriculum pre-test and Curriculum post-test")
2. Detailed records of the expert's responses during the interview, either transcripts or audio/video recordings. (For "Expert evaluation")

Statistics and Analysis of Data

Conducting thematic analysis: Through systematic coding and analysis of the interview data, the main themes, ideas and recommendations that emerged from the experts' evaluations were identified. This step was done by summarizing the commonalities and differences in the experts' opinions.

Chapter 4

Results of Analysis

The purpose of this study is to explore the development of a model for comprehensive information technology teaching method training for kindergarten teachers.

The objectives of this study are:

1. To discuss the problems existing in the current training mode of kindergarten teachers' comprehensive teaching method
2. To design a kindergarten teacher training (KTT) model for integrated IT teaching methods appropriate for the kindergarten of Wenzhou city
3. To evaluate the Kindergarten Teachers Training Model for Integrated IT Teaching Methods

The data analysis results of the study are as follows:

1. Symbols and Abbreviations.
2. Data Analysis.
3. Data Analysis Results.

Symbol and Abbreviation

IQR Interquartile Range, which refers to the range between the first and third quartiles.

Md Median, which refers to the middle value in a dataset.

Mo Mode, which refers to the most frequently occurring value in a dataset.

Presentation of Data Analysis

Part One: Analysis of Respondents' Personal Information Classified by Gender and Educational Background. The researchers provided these data based on frequency and percentage.

Part Two: Analysis of Interview Data on Current Issues in Kindergarten Teacher Training.

Part Three: Analysis of Questionnaire Data on the Comprehensive Information Technology Teaching Method Training Model for Kindergarten Teachers in Wenzhou City, classified by median, mode, and interquartile range.

Part Four: Through qualitative analysis, the kindergarten teacher training (KTT) model for integrated IT teaching methods for the kindergarten of Wenzhou city.

Part Five: Description of the kindergarten teacher training (KTT) model for integrated IT teaching methods for the kindergarten of Wenzhou city.

Data Analysis Results.

Research Objectives To discuss the problems existing in the current training mode of kindergarten teachers' comprehensive teaching method

The researchers divided the data into the following 5 sections for analysis:

Part One: Analysis of Respondents' Personal Information Classified by Gender and Educational Background. The researchers provided these data based on frequency and percentage.

Table 4.1 Respon' Personal of Respondents

	Personal Information	Frequency	%
Gender	Man	8	38.0%
	Woman	13	62.0%
	Total	21	
Age	Age 40-49	9	43.0%
	Over 50 years old	12	57.0%
	Total	21	
Working life	10-20 Years	11	53.0%
	More than 20 years	10	47.0%
	Total	21	
Professional title	Adjunct professo	13	62.0%
	Professor	8	38.0%
	Total	21	
Educational background	Master	16	76.0%
	Doctor	5	24.0%
	Total	21	
Professional field	Preschool education and early childhood teaching experience	14	67.0%
	Information technology	7	33.0%
	Total	21	

According to Table 4.1, there were 8 male participants, accounting for 38.0%, and 13 female participants, accounting for 62.0%. In terms of age distribution, 9 participants were aged 40-49, representing 43.0%, while 12 participants were aged 50 and above, representing 57.0%. Regarding years of work experience, 11 participants had 10-20 years of experience, accounting for 53.0%, and 10 participants had over 20 years of experience, accounting for 47.0%. Additionally, there were 13 associate professors among the participants, making up 62.0%, and 8 professors, making up

38.0%. In terms of educational background, 16 participants had a master's degree, accounting for 76.0%, while 5 participants had a doctoral degree, accounting for 24.0%. In terms of professional fields, 14 participants had experience in early childhood education and teaching, accounting for 67.0%, while 7 participants were involved in information technology, accounting for 33.0%.

Part Two: Analysis of Interview Data on Current Issues in Kindergarten Teacher Training.

IOC was used as the evaluation criterion (For "Assessing the validity of the questionnaire")

Five experts were invited to assess the validity of the designed questionnaire and IOC (Index of Consistency) was used as the evaluation criterion. A threshold value of 0.65 was set to measure the statistical index of the degree of consistency of the experts on the questions of the questionnaire. When the IOC value reaches or exceeds 0.65, it indicates a high degree of agreement among the majority of experts on a particular questionnaire question, thus proving that the questionnaire question has good reliability and validity. If the IOC value is below 0.65, the questions in that questionnaire are adjusted.

Through data analysis and literature review, a discussion outline on current issues in kindergarten teacher training was developed, and five experts were invited to conduct an IOC test on the discussion outline. The five experts reached a consensus on the composition of the 8 elements related to current issues in kindergarten teacher training.

In order to study the elements of effective current issues in kindergarten teacher training, interviews were conducted with 21 experts, yielding the following results.

Table 4.2 Current Situation Analysis of problems in kindergarten teacher training

Item	High/%	Middle/%	Low/%	Unspecified/%
1.Training needs	21 /100%	0 /0.00%	0 /0.00%	0 /0.00%
2.Training content	19 /90.5%	2 /9.5%	0 /0.00%	0 /0.00%
3.Training methods and tools	18/ 85.7%	3 /14.3%	0 /0.00%	0 /0.00%
4.Training resources	12 /57.2%	6 /28.6%	3 /14.2%	0 /0.00%
5.Training strategies	19 /90.5%	2 /9.5%	0 /0.00%	0 /0.00%
6.Training organization	21 /100%	0 /0.00%	0 /0.00%	0 /0.00%
7.Training operations	10 /47.6%	7 /33.4%	4 /19.0%	0 /0.00%
8.Training evaluation	18 /85.7%	3 /14.3%	0 /0.00%	0 /0.00%

According to Table 4.2, the survey results reflect the current status analysis of issues in kindergarten teacher training in terms of comprehensive information technology teaching methods. What are the current problems in kindergarten teachers' training on comprehensive information technology teaching methods? The investigation of current issues includes eight factors: training needs, training content, training methods and tools, training resources, training strategies, training organization, training operations, and training evaluation. Each aspect is assessed at a high, medium, low, or uncertain level. 100.0% of respondents consider the overall level of training needs to be high; 90.5% of respondents believe that the overall level of research on training content is high, with 9.5% rated as medium; 85.7% of respondents think the overall level of training methods and tools is high, with 14.3% rated as medium; 57.2% of respondents believe the overall level of training resources is high, with 28.6% rated as medium, and 14.2% rated as low; 90.5% of respondents consider the overall level of training strategies to be high, with 9.5% rated as medium; 100% of respondents rate the overall level of training organization as high; 47.6% of respondents believe the overall level of training operations is high,

with 33.43% rated as medium, and 19.0% rated as low; 85.7% of respondents think the overall level of training evaluation is high, with 14.3% rated as medium.

Data analysis results of the current issues in kindergarten teacher training, focusing on the dimension of training needs.

Table 4.3 Current situation of problems in kindergarten Teacher Training: Dimensions of training needs

NO.	Dimensions of training needs	Freq	%
1	Professional knowledge and skills	21	100.0
2	Teaching resources and tools	21	100.0
3	Individual differences and feedback	20	95.2
4	Updates on teaching methods and strategies	19	90.4
5	Personal development needs	18	85.7
6	Social demands	17	81.0
7	Professional development and career planning	14	66.6
8	Child development and educational theory	13	64.9
9	Curriculum design and assessment abilities	12	57.1
10	Education policies and regulations	11	52.3

Based on the data analysis from Table 4.3, the dimensions of training needs defining the current status of issues in kindergarten teacher training were identified. The top three indicators are professional knowledge and skills (100%), teaching resources and tools (100%), and individual differences and feedback (95.2%). The bottom three indicators are child development and educational theory (64.9%), curriculum design and assessment abilities (57.1%), and education policies and regulations (52.3%).

For the data analysis results of the current status elements in kindergarten teacher training, the dimension of training content.

Table 4.4 Current situation of problems in kindergarten Teacher Training: Dimension of training content

NO.	Dimension of training content	Freq	%
1	Multicultural education	21	100.0
2	Teaching methods and techniques	20	95.2
3	Special education needs	19	90.4
4	Child mental health and behavior management	18	85.7
5	Early childhood education theory	17	81.0
6	Professional competence enhancement	17	81.0
7	Principles of early childhood education	15	71.4
8	Creative education and artistic expression	14	66.6
9	Curriculum design and evaluation	12	57.1
10	Curriculum design and instructional planning	11	52.3

Based on the data analysis from Table 4.4, the dimensions of training content defining the current status of issues in kindergarten teacher training were identified. The top three indicators are multicultural education (100%), teaching methods and techniques (95.2%), and special education needs (90.4%). The bottom three indicators are creative education and artistic expression (66.6%), curriculum design and evaluation (57.1%), and curriculum design and instructional planning (52.3%).

For the data analysis results of the current status elements in kindergarten teacher training, the dimension of training methods and tools.

Table 4.5 Current situation of problems in kindergarten Teacher Training: Dimension of training methods and tools.

NO.	Dimension of training methods and tools.	Freq	%
1	Practical activities and observation classes	21	100.0
2	Training manuals and teaching materials	19	90.4
3	Group discussions and collaboration	19	90.4
4	Practice teaching	18	85.7
5	Assistive technology	16	76.1
6	Learning communities and discussion platforms	15	71.4
7	Video teaching and demonstrations	14	66.6
8	Workshops and lectures	12	57.1
9	Peer support	12	57.1
10	Case analysis and sharing	10	47.6

Based on the data analysis from Table 4.5, the dimensions of training methods and tools defining the current status of issues in kindergarten teacher training were identified. The top three indicators are practical activities and observation classes (100%), training manuals and teaching materials (90.4%), and group discussions and collaboration (90.4%). The bottom three indicators are workshops and lectures (66.6%), peer support (57.1%), and case analysis and sharing (47.6%).

For the data analysis results of the current status elements in kindergarten teacher training, the dimension of training resources.

Table 4.6 Current Issues in Kindergarten Teacher Training: Dimension of Training Resources

NO.	Dimension of Training Resources	Freq	%
1	Educational institutions and professional organizations	21	100.0
2	Online platforms and resource repositories	19	90.4
3	Practical training sites and observation opportunities	18	85.7
4	Teaching materials and tools	17	81.0
5	Educational technology support	17	81.0
6	Experts, scholars, and lecturers	16	76.1
7	Educational books and journals	14	66.6
8	Assessment and feedback	12	57.1
9	Teaching resource libraries	12	57.1
10	Learning communities and interactive platforms	11	52.3

According to Table 4.6, the dimensions of training resources defining the current status of issues in kindergarten teacher training were identified. The top three indicators are educational institutions and professional organizations (100%), online platforms and resource repositories (90.4%), and practical training sites and observation opportunities (85.7%). The bottom three indicators are assessment and feedback (57.1%), teaching resource libraries (57.1%), and learning communities and interactive platforms (52.3%).

For the data analysis results of the current status elements in kindergarten teacher training, the dimension of training strategies.

Table 4.7 Current Issues in Kindergarten Teacher Training: Dimension of training strategies.

NO.	Dimension of training strategies	Freq	%
1	Diversified training formats	21	100.0
2	Progressive training	20	95.2
3	Incentive mechanisms	19	90.4
4	Participatory training	18	85.7
5	Targeted curriculum design	17	81.0
6	Peer support and sharing	16	76.1
7	Feedback and evaluation	12	57.1
8	Continuous monitoring	11	52.3
9	Practice-oriented	9	42.8
10	Needs analysis	9	42.8

Based on the data analysis from Table 4.7, the dimensions of training strategies defining the current status of issues in kindergarten teacher training were identified. The top three indicators are diversified training formats (100%), progressive training (95.2%), and incentive mechanisms (90.4%). The bottom three indicators are continuous monitoring (52.3%), practice-oriented (42.8%), and needs analysis (42.8%).

For the data analysis results of the current status elements in kindergarten teacher training, the dimension of training organization.

Table 4.8 Current Issues in Kindergarten Teacher Training: Dimension of training organization.

NO.	Dimension of Training Organization	Freq	%
1	Training Plans and Objectives	21	100.0
2	Management Mechanisms	21	100.0
3	Financial Support	19	90.4
4	Incentive Mechanisms	17	81.0
5	Training Resources	15	71.4
6	Training Activities	15	71.4
7	Training Evaluation	14	66.6
8	Training Courses	12	57.1
9	Training Facilities	11	52.3
10	Training Staff	10	47.6

Data analysis from Table 4.8 revealed that the dimensions of training organization defining the current status of issues in kindergarten teacher training were Training Plans and Objectives (100%), Management Mechanisms (100%), and Financial Support (90.4%) as the top three indicators, while Training Courses (57.1%), Training Facilities (52.3%), and Training Staff (47.6%) were the bottom three indicators.

Data analysis of the elements of the current status of issues in kindergarten teacher training, Training Operation Dimension.

Table 4.9 Current Issues in Kindergarten Teacher Training: Training Operation Dimension.

NO.	Dimension of Training Operation	Freq	%
1	Developing Training Plans	21	100.0
2	Selecting Training Formats	20	95.2
3	Practical Guidance	19	90.4
4	Follow-up Coaching	18	85.7
5	Training Needs Assessment	17	81.0
6	Sharing and Communication	16	76.1
7	Staff Preparation	12	57.1
8	Feedback Evaluation	11	52.3
9	Ongoing Support	11	52.3
10	Continuous Monitoring	10	47.6

Data analysis from Table 4.9 revealed that the dimensions of training operation defining the current status of issues in kindergarten teacher training were Developing Training Plans (100%), Selecting Training Formats (95.2%), and Practical Guidance (90.4%) as the top three indicators, while Feedback Evaluation (52.3%), Ongoing Support (52.3%), and Continuous Monitoring (47.6%) were the bottom three indicators.

Data analysis of the elements of the current status of issues in kindergarten teacher training, Training Evaluation Dimension.

Table 4.10 Current Issues in Kindergarten Teacher Training: Training Evaluation Dimension.

NO.	Dimension of Training Evaluation	Freq	%
1	Participation Assessment	21	100.0
2	Content Evaluation	19	90.4
3	Formative Assessment	18	85.7
4	Training Effectiveness Evaluation	17	81.0
5	Satisfaction Evaluation	16	76.1
6	Continuous Monitoring Evaluation	15	71.4
7	Goals and Standards	12	57.1
8	Teaching Effectiveness Evaluation	12	57.1
9	Evaluation Period	10	47.6
10	Feedback and Improvement	9	42.8

From Table 4.10, the data analysis results were used to define the dimensions of training evaluation that characterize the current issues in kindergarten teacher training. The top three indicators were Participation Assessment (100%), Content Evaluation (90.4%), and Formative Assessment (85.7%), while the bottom three indicators were Teaching Effectiveness Evaluation (57.1%), Evaluation Period (47.6%), and Feedback and Improvement (42.8%).

Prior to conducting the expert questionnaire survey, 5 experts were invited to confirm the Index of Objectivity Consistency (IOC) of the questionnaire. After analysis, these five experts did not raise any consistency issues throughout the entire category.

Research Objectives 2 To design a Kindergarten Teachers Training Model for Integrated IT Teaching Methods

Part Three: Analysis of Questionnaire Data on the Comprehensive Information Technology Teaching Method Training Model for Kindergarten Teachers in Wenzhou City, classified by median, mode, and interquartile range.

The basic process and results of the second round of expert consultation are as follows:

(1) Basic Process.

The research process of this round is divided into five steps.

process 1: Researchers invited experts via email, WeChat, phone calls, and other social media platforms. WeChat and phone calls were typically used to invite experts known personally to the researchers, while email was used to invite experts known unilaterally.

process 2: The data from the analysis of the current issues in kindergarten teacher training previously constructed were transformed into the “Questionnaire Standard Framework for Consultation on the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers in Wenzhou City.”

process 3: Based on the “Questionnaire Standard Framework for Consultation on the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers in Wenzhou City,” a “Research Expert Consultation Questionnaire on the Standard Framework of the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers in Wenzhou City” was developed.

process 4: The questionnaire, along with its theoretical basis and relevant explanations, was sent directly, via email, or electronically to the selected 21 experts for assessment, seeking their opinions on the framework.

process 5: Collecting experts’ opinions, tabulating, analyzing, and summarizing them.

(The process of the third round of expert consultation is as described above.)

(2) Research findings.

The results of the round 2 survey are as follows:

Table 4.11 Second Round Survey Results: Elements of the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers in Wenzhou

Item	Elements of the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers	Md	Mo	IOR	Consensus
1.	Training needs	5.0	5.0	0.0	Hight
2.	Training content	4.0	4.0	0.0	Medium
3.	Training methods and tools	5.0	5.0	0.5	Hight
4.	Training resources	3.0	4.0	1.0	Low
5.	Training strategies	5.0	5.0	0.5	Hight
6.	Training organization	5.0	5.0	0.0	Hight
7.	Training operations	3.0	4.0	1.0	Low
8.	Training evaluation	5.0	5.0	0.5	Hight

According to Table 4.11, in the second round of research, 21 experts reached a consensus on 8 effective strategies for the elements of the training model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers in Wenzhou City. The ranking from high to low is as follows:

Training Needs (Md=5.0, Mo=5.0, IQR=0.0), Training Organization (Md=5.0, Mo=5.0, IQR=0.0), Training Methods and Tools (Md=5.0, Mo=5.0, IQR=0.5), Training Strategies (Md=5.0, Mo=5.0, IQR=0.5), Training Evaluation (Md=5.0, Mo=5.0, IQR=0.5), Training Content (Md=4.0, Mo=4.0, IQR=0.0), Training Resources (Md=3.0, Mo=4.0, IQR=1.0), Training Operations (Md=3.0, Mo=4.0, IQR=1.0). Among these factors, Training Resources and Training Operations had a consensus level of less than 70%.

Table 4.12 Results of the Round 2 Survey: Training Needs

Item	Training Needs	Md	Mo	IOR	Consensus
1.	Professional Knowledge and Skills	5.0	5.0	0.0	Hight
2.	Teaching Resources and Tools	5.0	5.0	0.5	Hight
3.	Professional Development and Career Planning	3.0	4.0	1.0	Low
4.	Updating Teaching Methods and Strategies	4.0	5.0	0.5	Medium
5.	Child Development and Educational Theories	3.0	4.0	1.0	Low
6.	Curriculum Design and Evaluation Abilities	3.0	4.0	1.0	Low
7.	Education Policies and Regulations	3.0	4.0	1.0	Low
8.	Personal Development Needs	5.0	5.0	0.5	Hight
9.	Social Needs	4.0	5.0	0.5	Medium
10.	Individual Differences and Feedback	5.0	5.0	0.5	Hight

According to Table 4.12, in the second round of research, 21 experts reached a consensus on 10 effective strategies for the elements of training needs. The ranking from high to low is as follows: Professional Knowledge and Skills (Md=5.0, Mo=5.0, IQR=0.0), Teaching Resources and Tools (Md=5.0, Mo=5.0, IQR=0.5), Personal Development Needs (Md=5.0, Mo=5.0, IQR=0.5), Individual Differences and Feedback (Md=5.0, Mo=5.0, IQR=0.5), Updating Teaching Methods and Strategies (Md=4.0, Mo=5.0, IQR=0.5), Social Needs (Md=4.0, Mo=5.0, IQR=0.5), Professional Development and Career Planning (Md=3.0, Mo=4.0, IQR=1.0), Curriculum Design and Evaluation Abilities (Md=3.0, Mo=4.0, IQR=1.0), Education Policies and Regulations (Md=3.0, Mo=4.0, IQR=1.0), Child Development and Educational Theories (Md=3.0, Mo=4.0, IQR=1.0).

Among these factors, Child Development and Educational Theories, Professional Development and Career Planning, Curriculum Design and Evaluation Abilities, and Education Policies and Regulations had a consensus level of less than 70%.

Table 4.13 Results of round 2 survey: training content

Item	Training Content	Md	Mo	IOR	Consensus
1.	Curriculum Design and Assessment	3.0	4.0	1.0	42.86%
2.	Teaching Methods and Techniques	5.0	5.0	0.5	Medium
3.	Curriculum Design and Teaching Plans	3.0	4.0	1.0	Low
4.	Child Psychological Health and Behavior Management	5.0	5.0	0.5	Hight
5.	Early Childhood Education Theory	5.0	5.0	0.0	Hight
6.	Professional Competence Enhancement	5.0	5.0	0.5	Hight
7.	Principles of Early Childhood Education	3.0	4.0	1.0	Low
8.	Creative Education and Artistic Expression	3.0	4.0	1.0	Low
9.	Multicultural Education	5.0	5.0	0.0	Medium
10.	Special Education Needs	5.0	5.0	0.0	Hight

According to Table 4.13, in the second round of the study, 21 experts reached a consensus on 10 effective strategies for training content elements. The rankings from highest to lowest are as follows:

Early childhood education theory (Md=5.0, Mo=5.0, IQR=0.0), special education needs (Md=5.0, Mo=5.0, IQR=0.0), children's mental health and behavior management (Md=5.0, Mo=5.0, IQR=0.5), professional competence improvement

(Md=5.0, Mo=5.0, IQR=0.5), early education principles (Md=5.0, Mo=5.0, IQR=0.5), multicultural education (Md=5.0, Mo=5.0, IQR=0.0), curriculum design and lesson planning (Md=3.0, Mo=4.0, IQR=1.0), creative education and artistic performance (Md=3.0, Mo=4.0, IQR=1.0), curriculum design and assessment (Md=3.0, Mo=4.0, IQR=1.0), curriculum design and lesson planning (Md=3.0, Mo=4.0, IQR=1.0). Among these factors, curriculum design and assessment, curriculum design and lesson planning, early education principles, and creative education and artistic performance had a consensus level below 70%.

Table 4.14 Round 2 Survey Results: Training methods and tools

Item	Training methods and tool	Md	Mo	IOR	Consensus
1.	Practical activities and observation lessons	5.0	5.0	0.5	Hight
2.	Training manuals and textbooks	5.0	5.0	0.5	Hight
3.	Group discussions and collaboration	5.0	5.0	0.0	Medium
4.	Practical teaching	5.0	5.0	0.0	Hight
5.	Case studies and sharing	3.0	4.0	1.0	Low
6.	Workshops and seminars	3.0	4.0	1.0	Low
7.	Video tutorials and demonstrations	3.0	4.0	1.0	Low
8.	Learning communities and discussion platforms	4.0	5.0	0.5	Medium
9.	Peer assistance	3.0	4.0	1.0	Low
10.	Assistive technology	5.0	5.0	0.0	Hight

According to Table 4.14, in the second round of the study, 21 experts reached a consensus on 10 effective strategies for training methods and tools elements. The rankings from highest to lowest are as follows:

Practical teaching (Md=5.0, Mo=5.0, IQR=0.0), assistive technology (Md=5.0, Mo=5.0, IQR=0.0), practical activities and observation lessons (Md=5.0, Mo=5.0,

IQR=0.5), training manuals and textbooks (Md=5.0, Mo=5.0, IQR=0.5), group discussions and collaboration (Md=5.0, Mo=5.0, IQR=0.5), learning communities and discussion platforms (Md=5.0, Mo=5.0, IQR=0.0), workshops and seminars (Md=3.0, Mo=4.0, IQR=1.0), video tutorials and demonstrations (Md=3.0, Mo=4.0, IQR=1.0), peer assistance (Md=3.0, Mo=4.0, IQR=1.0), case studies and sharing (Md=3.0, Mo=4.0, IQR=1.0). Among these factors, workshops and seminars, video tutorials and demonstrations, peer assistance, and case studies and sharing had a consensus level below 70%.

Table 4.15 Round 2 Survey Results: Training resources

Item	Training resources	Md	Mo	IOR	Consensus
1.	Teaching Resource Library	3.0	4.0	1.0	Low
2.	Online Platforms and Repositories	5.0	5.0	0.0	Hight
3.	Learning Communities and Interactive Platforms	5.0	5.0	0.0	Medium
4.	Teaching Materials and Tools	5.0	5.0	0.5	Hight
5.	Educational Technology Support	5.0	5.0	0.5	Hight
6.	Assessment and Feedback	3.0	4.0	1.0	Low
7.	Educational Books and Journals	3.0	4.0	1.0	Low
8.	Experts, Scholars, and Lecturers	3.0	4.0	1.0	Low
9.	Educational Institutions and Professional Organizations	4.0	5.0	0.5	Medium
10.	Practice Bases and Observation Opportunities	4.0	5.0	0.5	Medium

According to Table 4.15, in the second round of research, 21 experts reached a consensus on the 10 effective strategies for training resource elements, ranked from highest to lowest as follows:

Online Platforms and Repositories (Md=5.0, Mo=5.0, IQR=0.0), Teaching Materials and Tools (Md=5.0, Mo=5.0, IQR=0.5), Educational Technology Support (Md=5.0, Mo=5.0, IQR=0.5), Learning Communities and Interactive Platforms (Md=5.0, Mo=5.0, IQR=0.5), Educational Institutions and Professional Organizations (Md=4.0, Mo=5.0, IQR=0.5), Practice Bases and Observation Opportunities (Md=5.0, Mo=5.0, IQR=0.0), Educational Books and Journals (Md=3.0, Mo=4.0, IQR=1.0), Teaching Resource Library (Md=3.0, Mo=4.0, IQR=1.0), Experts, Scholars, and Lecturers (Md=3.0, Mo=4.0, IQR=1.0), Assessment and Feedback (Md=3.0, Mo=4.0, IQR=1.0). Among these factors, Educational Books and Journals, Teaching Resource Library, Experts, Scholars, and Lecturers, and Assessment and Feedback had a consensus below 70%.

Table 4.16 Round 2 Survey Results: Training strategies

Item	Training strategies	Md	Mo	IOR	Consensus
1.	Diversified Training Formats	4.0	5.0	0.5	Medium
2.	Practice-Oriented	3.0	4.0	1.0	Low
3.	Needs Analysis	3.0	4.0	1.0	Low
4.	Participatory Training	5.0	5.0	0.0	Hight
5.	Targeted Curriculum Design	5.0	5.0	0.5	Hight
6.	Peer Support and Sharing	4.0	5.0	0.5	Medium
7.	Feedback and Evaluation	3.0	4.0	1.0	Low
8.	Continuous Monitoring	3.0	4.0	1.0	Low
9.	Progressive Training	5.0	5.0	0.0	Hight
10.	Incentive Mechanisms	5.0	5.0	0.5	Hight

According to Table 4.16, in the second round of research, 21 experts reached a consensus on the 10 effective strategies for training strategy elements, ranked from highest to lowest as follows:

Participatory Training (Md=5.0, Mo=5.0, IQR=0.0), Progressive Training (Md=5.0, Mo=5.0, IQR=0.0), Targeted Curriculum Design (Md=5.0, Mo=5.0, IQR=0.5), Incentive

Mechanisms (Md=5.0, Mo=5.0, IQR=0.5), Diversified Training Formats (Md=4.0, Mo=5.0, IQR=0.5), Peer Support and Sharing (Md=4.0, Mo=5.0, IQR=0.5), Practice-Oriented (Md=3.0, Mo=4.0, IQR=1.0), Needs Analysis (Md=3.0, Mo=4.0, IQR=1.0), Feedback and Evaluation (Md=3.0, Mo=4.0, IQR=1.0), Continuous Monitoring (Md=3.0, Mo=4.0, IQR=1.0). Among these factors, Practice-Oriented, Needs Analysis, Feedback and Evaluation, and Continuous Monitoring had a consensus below 70%.

Table 4.17 Results of Round 2 survey: Training organization

Item	Training organization	Md	Mo	IOR	Consensus
1.	Training Plans and Objectives	5.0	5.0	0.0	Hight
2.	Management Mechanisms	4.0	5.0	0.5	Medium
3.	Trainer Resources	3.0	4.0	1.0	Low
4.	Incentive Mechanisms	5.0	5.0	0.5	Hight
5.	Training Facilities	3.0	4.0	1.0	Low
6.	Training Activities	5.0	5.0	0.5	Hight
7.	Training Evaluation	3.0	4.0	1.0	Low
8.	Training Courses	3.0	4.0	1.0	Low
9.	Training Resources	4.0	5.0	0.5	Medium
10.	Financial Support	5.0	5.0	0.5	Hight

According to Table 4.17, in the second round of research, 21 experts reached a consensus on the 10 effective strategies for training organization elements, ranked from highest to lowest as follows:

Training Plans and Objectives (Md=5.0, Mo=5.0, IQR=0.0), Incentive Mechanisms (Md=5.0, Mo=5.0, IQR=0.5), Training Activities (Md=5.0, Mo=5.0, IQR=0.5), Financial Support (Md=5.0, Mo=5.0, IQR=0.5), Management Mechanisms (Md=4.0, Mo=5.0, IQR=0.5), Training Resources (Md=4.0, Mo=5.0, IQR=0.5), Training Facilities (Md=3.0, Mo=4.0, IQR=1.0), Training Courses (Md=3.0, Mo=4.0, IQR=1.0), Training Evaluation (Md=3.0, Mo=4.0, IQR=1.0), Trainer Resources (Md=3.0, Mo=4.0, IQR=1.0).

Among these factors, Training Facilities, Training Courses, Training Evaluation, and Trainer Resources had a consensus below 70%.

Table 4.18 Results of Round 2 survey: Training operation

Item	Training Operations	Md	Mo	IQR	Consensus
1.	Developing Training Plans	3.0	4.0	1.0	Low
2.	Selecting Training Formats	4.0	5.0	0.5	Medium
3.	Practical Guidance	5.0	5.0	0.5	High
4.	Ongoing Support	5.0	5.0	0.0	High
5.	Training Needs Assessment	4.0	5.0	0.5	Medium
6.	Trainer Preparation	3.0	4.0	1.0	Low
7.	Sharing and Communication	5.0	5.0	0.5	High
8.	Feedback and Evaluation	3.0	4.0	1.0	Low
9.	Tracking and Coaching	4.0	5.0	0.5	Medium
10.	Continuous Monitoring	3.0	4.0	1.0	Low

According to Table 4.18, in the second round of research, 21 experts reached a consensus on the 10 effective strategies for training operation elements, ranked from highest to lowest as follows:

Ongoing Support (Md=5.0, Mo=5.0, IQR=0.0), Sharing and Communication (Md=5.0, Mo=5.0, IQR=0.5), Practical Guidance (Md=5.0, Mo=5.0, IQR=0.5), Tracking and Coaching (Md=4.0, Mo=5.0, IQR=0.5), Training Needs Assessment (Md=4.0, Mo=5.0, IQR=0.5), Selecting Training Formats (Md=4.0, Mo=5.0, IQR=0.5), Developing Training Plans (Md=3.0, Mo=4.0, IQR=1.0), Feedback and Evaluation (Md=3.0, Mo=4.0, IQR=1.0), Continuous Monitoring (Md=3.0, Mo=4.0, IQR=1.0), Trainer Preparation (Md=3.0, Mo=4.0, IQR=1.0). Among these factors, Developing Training Plans, Feedback and Evaluation, Continuous Monitoring, and Trainer Preparation had a consensus below 70%.

Table 4.19 Results of Round 2: Training assessment

Item	Training assessment	Md	Mo	IOR	Consensus
1.	Goals and Standards	3.0	4.0	1.0	Low
2.	Content Evaluation	5.0	5.0	0.0	Hight
3.	Formative Evaluation	4.0	5.0	0.5	Medium
4.	Training Effectiveness Evaluation	5.0	5.0	0.5	Hight
5.	Feedback and Improvement	3.0	4.0	1.0	Low
6.	Evaluation Period	3.0	4.0	1.0	Low
7.	Engagement Evaluation	4.0	5.0	0.5	Medium
8.	Teaching Effectiveness Evaluation	3.0	4.0	1.0	Low
9.	Continuous Monitoring Evaluation	4.0	5.0	0.5	Medium
10.	Satisfaction Evaluation	4.0	5.0	0.5	Medium

According to Table 4.19, in the second round of research, 21 experts reached a consensus on the 10 effective strategies for training evaluation elements, ranked from highest to lowest as follows:

Content Evaluation (Md=5.0, Mo=5.0, IQR=0.0), Training Effectiveness Evaluation (Md=5.0, Mo=5.0, IQR=0.5), Formative Evaluation (Md=4.0, Mo=5.0, IQR=0.5), Engagement Evaluation (Md=4.0, Mo=5.0, IQR=0.5), Continuous Monitoring Evaluation (Md=4.0, Mo=5.0, IQR=0.5), Satisfaction Evaluation (Md=4.0, Mo=5.0, IQR=0.5), Goals and Standards (Md=3.0, Mo=4.0, IQR=1.0), Feedback and Improvement (Md=3.0, Mo=4.0, IQR=1.0), Evaluation Period (Md=3.0, Mo=4.0, IQR=1.0), Teaching Effectiveness Evaluation (Md=3.0, Mo=4.0, IQR=1.0). Among these factors, Goals and Standards, Feedback and Improvement, Evaluation Period, and Teaching Effectiveness Evaluation had a consensus below 70%.

Based on the statistical analysis of expert opinions from the previous round, modifications were made to the questionnaire for the third round of research.

The results of the third round survey are as follows:

Table 4.20 Results of the third round: training model elements of comprehensive information technology teaching methods for kindergarten teachers

Item	Training model elements of comprehensive information technology teaching methods for kindergarten teachers	Md	Mo	IOR	Consensus
1.	Training Needs	5.0	5.0	0.0	Hight
2.	Training Content	5.0	5.0	0.5	Hight
3.	Training Methods and Tools	5.0	5.0	0.0	Hight
4.	Training Strategies	5.0	5.0	0.5	Hight
5.	Training Organization	5.0	5.0	0.0	Hight
6.	Training Evaluation	5.0	5.0	0.5	Hight

According to Table 4.20, in the third round of research, 21 experts reached a consensus on the 6 effective strategies for the elements of the comprehensive information technology teaching model for kindergarten teachers in Wenzhou kindergartens.

The ranking from highest to lowest is as follows: Training Needs (Md=5.0, Mo=5.0, IQR=0.0), Training Organization (Md=5.0, Mo=5.0, IQR=0.0), Training Methods and Tools (Md=5.0, Mo=5.0, IQR=0.5), Training Strategies (Md=5.0, Mo=5.0, IQR=0.5), Training Evaluation (Md=5.0, Mo=5.0, IQR=0.5), Training Content (Md=5.0, Mo=5.0, IQR=0.5).

Table 4.21 Round 3 Survey Results: Training needs

Item	Training Needs	Md	Mo	IQR	Consensus
1.	Professional Knowledge and Skills	5.0	5.0	0.0	Hight
2.	Teaching Resources and Tools	5.0	5.0	0.5	Hight
3.	Updating Teaching Methods and Strategies	5.0	5.0	0.0	Hight
4.	Personal Development Needs	5.0	5.0	0.5	Hight
5.	Social Needs	5.0	5.0	0.0	Hight
6.	Individual Differences and Feedback Comments	5.0	5.0	0.5	Hight

According to Table 4.21, in the second round of research, 21 experts reached a consensus on the 6 effective strategies for the elements of training needs. They are as follows:

Professional Knowledge and Skills (Md=5.0, Mo=5.0, IQR=0.0), Teaching Resources and Tools (Md=5.0, Mo=5.0, IQR=0.5), Personal Development Needs (Md=5.0, Mo=5.0, IQR=0.5), Individual Differences and Feedback Comments (Md=5.0, Mo=5.0, IQR=0.5), Updating Teaching Methods and Strategies (Md=4.0, Mo=5.0, IQR=0.5), Social Needs (Md=5.0, Mo=5.0, IQR=0.0).

Table 4.22 Results of round 3 survey: training content

Item	Training Content	Md	Mo	IQR	Consensus
1.	Teaching Methods and Techniques	5.0	5.0	0.5	Medium
2.	Child Psychological Health and Behavior Management	5.0	5.0	0.5	Hight
3.	Early Childhood Education Theory	5.0	5.0	0.0	Hight
4.	Professional Competence Enhancement	5.0	5.0	0.5	Hight
5.	Multicultural Education	5.0	5.0	0.0	Medium
6.	Special Education Needs	5.0	5.0	0.0	Hight

According to Table 4.22, in the second round of research, 21 experts reached a consensus on the 6 effective strategies for the training content elements. The rankings from highest to lowest are as follows:

Early Childhood Education Theory (Md=5.0, Mo=5.0, IQR=0.0), Special Education Needs (Md=5.0, Mo=5.0, IQR=0.0), Children's Psychological Health and Behavior Management (Md=5.0, Mo=5.0, IQR=0.5), Professional Competence Enhancement (Md=5.0, Mo=5.0, IQR=0.5), Principles of Early Education (Md=5.0, Mo=5.0, IQR=0.5), Multicultural Education (Md=5.0, Mo=5.0, IQR=0.0).

Table 4.23 Round 3 Survey Results: Training methods and tools

Item	Training methods and tool	Md	Mo	IOR	Consensus
1.	Practical Activities and Observation Classes	5.0	5.0	0.5	Hight
2.	Training Manuals and Teaching Materials	5.0	5.0	0.5	Hight
3.	Group Discussions and Collaboration	5.0	5.0	0.0	Medium
4.	Practical Teaching	5.0	5.0	0.0	Hight
5.	Learning Communities and Discussion Platforms	5.0	5.0	0.5	Hight
6.	Assistive Technologies	5.0	5.0	0.0	Hight

According to Table 4.23, in the second round of research, 21 experts reached a consensus on the 6 effective strategies for training methods and tools. The rankings from highest to lowest are as follows:

Practical Teaching (Md=5.0, Mo=5.0, IQR=0.0), Assistive Technologies (Md=5.0, Mo=5.0, IQR=0.0), Practical Activities and Observation Classes (Md=5.0, Mo=5.0, IQR=0.5), Training Manuals and Teaching Materials (Md=5.0, Mo=5.0, IQR=0.5), Group Discussions and Collaboration (Md=5.0, Mo=5.0, IQR=0.5), Learning Communities and Discussion Platforms (Md=5.0, Mo=5.0, IQR=0.0).

Table 4.24 Results of the Round 3 survey: Training strategies

Item	Training strategies	Md	Mo	IOR	Consensus
1.	Diversified Training Formats	5.0	5.0	0.0	Hight
2.	Participatory Training	5.0	5.0	0.0	Hight
3.	Targeted Course Design	5.0	5.0	0.5	Hight
4.	Peer Support and Sharing	5.0	5.0	0.5	Hight
5.	Progressive Training	5.0	5.0	0.0	Hight
6.	Incentive Mechanisms	5.0	5.0	0.5	Hight

According to Table 4.24, in the second round of research, 21 experts reached a consensus on the 6 effective strategies for training strategy elements. The rankings from highest to lowest are as follows:

Participatory Training (Md=5.0, Mo=5.0, IQR=0.0), Progressive Training (Md=5.0, Mo=5.0, IQR=0.0), Targeted Course Design (Md=5.0, Mo=5.0, IQR=0.5), Incentive Mechanisms (Md=5.0, Mo=5.0, IQR=0.5), Diversified Training Formats (Md=5.0, Mo=5.0, IQR=0.0), Peer Support and Sharing (Md=5.0, Mo=5.0, IQR=0.5).

Table 4.25 Results of Round 3 survey: Training organization

Item	Training organization	Md	Mo	IOR	Consensus
1.	Training Plans and Objectives	5.0	5.0	0.0	Hight
2.	Management Mechanisms	5.0	5.0	0.5	Hight
3.	Incentive Mechanisms	5.0	5.0	0.5	Hight
4.	Training Activities	5.0	5.0	0.5	Hight
5.	Training Resources	5.0	5.0	0.0	Hight
6.	Financial Support	5.0	5.0	0.5	Hight

According to Table 4.25, in the second round of research, 21 experts reached a consensus on the 6 effective strategies for training organization elements. The rankings from highest to lowest are as follows:

Training Plans and Objectives (Md=5.0, Mo=5.0, IQR=0.0), Incentive Mechanisms (Md=5.0, Mo=5.0, IQR=0.5), Training Activities (Md=5.0, Mo=5.0, IQR=0.5), Financial Support (Md=5.0, Mo=5.0, IQR=0.5), Management Mechanisms (Md=5.0, Mo=5.0, IQR=0.5), Training Resources (Md=5.0, Mo=5.0, IQR=0.0).

Table 4.26 Results of Round 3 survey: Training assessment

Item	Training assessment	Md	Mo	IOR	Consensus
1.	Evaluation Content	5.0	5.0	0.0	Hight
2.	Formative Assessment	5.0	5.0	0.5	Hight
3.	Training Effectiveness Evaluation	5.0	5.0	0.5	Hight
4.	Participation Assessment	4.0	5.0	0.5	Medium
5.	Continuous Monitoring Evaluation	5.0	5.0	0.5	Hight
6.	Satisfaction Assessment	5.0	5.0	0.0	Hight

According to Table 4.26, in the second round of research, 21 experts reached a consensus on the 6 effective strategies for training evaluation elements. The rankings from highest to lowest are as follows:

Evaluation Content (Md=5.0, Mo=5.0, IQR=0.0), Training Effectiveness Evaluation (Md=5.0, Mo=5.0, IQR=0.5), Formative Assessment (Md=5.0, Mo=5.0, IQR=0.5), Participation Assessment (Md=4.0, Mo=5.0, IQR=0.5), Continuous Monitoring Evaluation (Md=5.0, Mo=5.0, IQR=0.5), Satisfaction Assessment (Md=5.0, Mo=5.0, IQR=0.0).

After adjustments, the results of the third round questionnaire fall within acceptable ranges for MD and IQR. It can be seen that experts generally believe that the framework of the comprehensive information technology teaching model for kindergarten teachers in Wenzhou City includes 6 dimensions: training needs, training

content, training methods and tools, training strategies, training organization, and training evaluation.

Based on the relevant opinions and suggestions provided by experts on indicator selection, the influencing factors of the indicators for the comprehensive information technology teaching model for kindergarten teachers in Wenzhou City were modified, merged, and supplemented. The final comprehensive information technology teaching model for kindergarten teachers in Wenzhou City was determined. Compared to the originally selected indicators, the 8 indicator factors were modified into 6 indicator factors. In order of importance, they are: training needs, training methods and tools, training organization, training content, training strategies, and training evaluation. The secondary indicators were reduced from the original 80 items to 36 items, with 44 items being removed.

In summary, the model for comprehensive information technology teaching training for kindergarten teachers (Figure 4.1) consists of 6 main indicator factors and 36 secondary indicator factors.

The 6 effective strategies for the training needs element are: professional knowledge and skills, teaching resources and tools, personal development needs, individual differences and feedback, updating teaching methods and strategies, and societal needs.

The 6 effective strategies for the training content element are: early childhood education theory, special education needs, children's mental health and behavior management, professional competence enhancement, principles of early childhood education, and multicultural education.

The 6 effective strategies for the training methods and tools element are: practical teaching, assistive technology, practice activities and observation classes, training manuals and materials, group discussions and collaboration, and learning communities and discussion platforms.

The 6 effective strategies for the training strategies element are: participatory training, progressive training, targeted course design, incentive mechanisms, diversified training formats, and peer assistance and sharing.

The 6 effective strategies for the training organization element are: training plans and objectives, incentive mechanisms, training activities, financial support, management mechanisms, and training resources.

The 6 effective strategies for the training evaluation element are: evaluation content, training effectiveness evaluation, formative assessment, participation assessment, continuous monitoring evaluation, and satisfaction assessment.

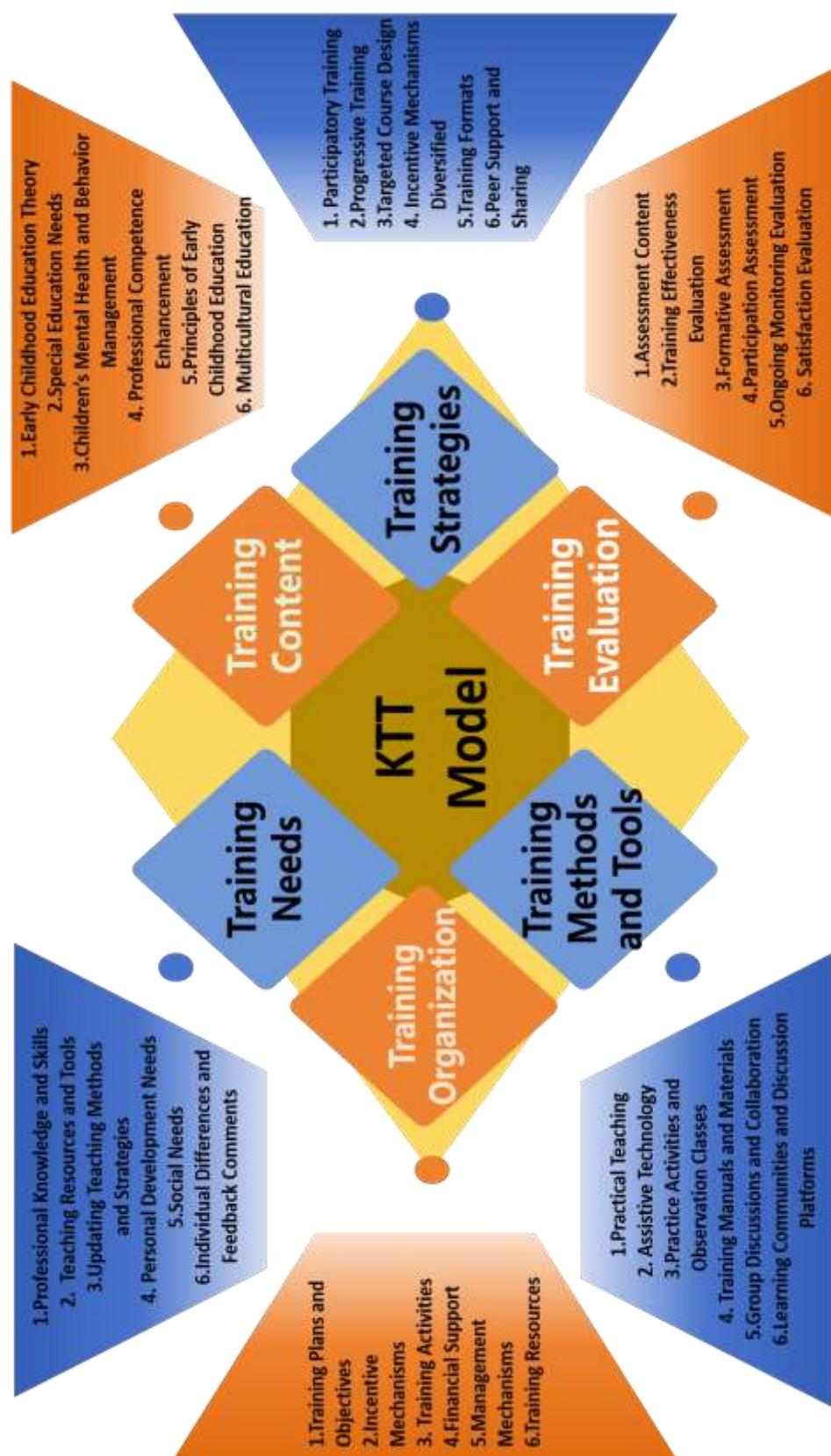


Figure 4.1 Kindergarten teacher training (KTT) model for integrated IT teaching methods for the kindergarten of Wenzhou city

The specific description of the 6 elements of training needs are as follows:

Professional Knowledge and Skills: This includes expertise in early childhood education theory, child psychology, teaching methods, curriculum design, as well as practical skills in teaching, communication, and management.

Teaching Resources and Tools: Providing teaching materials, teaching aids, teaching equipment suitable for kindergarten education, as well as training in teaching techniques and information technology tools to help teachers improve their teaching activities.

Updating Teaching Methods and Strategies: Teachers need to learn and master a variety of teaching methods and strategies to enhance teaching effectiveness and meet the learning needs of different young children.

Personal Development Needs: Individual differences in teachers' personal development needs are also important factors. Some teachers may wish to pursue further studies, while others may need to enhance specific skills or knowledge.

Social Needs: Teachers need to understand the changing social needs, adapt to social development, and improve the quality and effectiveness of educational services.

Individual Differences and Feedback: There are differences among teachers, and personalized training programs should be developed based on individual needs and feedback to enhance the relevance and effectiveness of training.

The specific description of the 6 elements of training content are as follows:

Teaching Methods and Techniques: Training teachers to use a variety of teaching methods and techniques, such as heuristic teaching, situational teaching, game-based teaching, as well as skills in classroom management, student assessment, and more.

Child Psychological Health and Behavior Management: Training teachers to understand child psychological health issues, learn how to build good relationships with young children, and effectively manage children's behavior.

Early Childhood Education Theory: Introducing the basic theories of early childhood education, including child development stages, learning theories, educational psychology, etc., to help teachers better understand the characteristics of children's growth and learning.

Professional Development: Training content should also include enhancing teachers' professional competence and ethical standards, cultivating their sense of

responsibility, innovative spirit, and teamwork skills. Multicultural Education: Teachers need to understand the importance of multicultural education, learn how to promote cross-cultural communication and understanding among young children in teaching. Special Education Needs: Teachers should also receive training on special education needs, understanding how to support and educate children with special needs to facilitate their development.

The specific description of the 6 elements of training methods and tools are as follows: Practical Teaching: Training teachers through practical teaching practice, allowing them to apply the knowledge and skills learned in actual classrooms to enhance their practical abilities. Practice Activities and Observation Lessons: Organizing practice activities and observation lessons for teachers to participate in and observe excellent teaching practices firsthand, enhancing their practical abilities and teaching levels. Training Manuals and Materials: Providing specially designed training manuals, textbooks, or teaching resources to help teachers systematically learn and master relevant knowledge and skills. Group Discussions and Collaboration: Promoting communication and interaction among teachers through group discussions and collaboration, jointly exploring educational issues, facilitating idea exchange, and mutual growth. Learning Communities and Discussion Platforms: Establishing learning communities and discussion platforms for teachers to communicate, share experiences and resources, promoting collective learning and growth. Assistive Technology: Utilizing modern technology to assist teacher training, such as virtual reality technology, intelligent teaching systems, online assessment tools, etc., to enhance training effectiveness and teaching efficiency.

The specific description of the 6 elements of training strategies are as follows: Diversified Training Formats: Utilizing various forms of training such as online, offline, practical, peer exchange, etc., to cater to different teachers' learning styles and needs. Participatory Training: Encouraging teachers to engage in classroom interactions, group discussions, case studies, and other activities to promote active participation and communication among learners, enhancing learning outcomes. Targeted Course Design: Designing course content that meets the actual needs of

kindergarten teachers, covering teaching theory, practical skills, curriculum design, and other aspects. Peer Assistance and Sharing: Encouraging teachers to exchange experiences, establish professional communities, and cooperative networks to facilitate mutual learning and growth. Progressive Training: Adopting a phased and progressive training approach, cultivating teachers' comprehensive abilities from basic knowledge to professional skills and practical capabilities gradually. Incentive Mechanisms: Establishing reward mechanisms or certificate recognition to motivate teachers to actively participate in training, enhancing learning motivation and effectiveness.

The specific description of the 6 elements of training organization are as follows: Training Plan and Objectives: Develop clear training plans and objectives, outlining training content, formats, schedules, etc., to ensure the systematic and continuous nature of the training. Training Faculty: Maintain a team of experienced and highly qualified trainers, including education experts, psychologists, teaching specialists, etc., to provide professional guidance and support. Incentive Mechanisms: Establish reward mechanisms or certificate recognition to motivate teachers to actively participate in training, enhancing learning motivation and effectiveness. Training Activities: Organize various training activities such as lectures, seminars, workshops, field observations, practical guidance, etc., to provide different forms of learning opportunities. Training Resources: Provide a diverse range of teaching resources and tools, such as textbooks, teaching aids, teaching equipment, educational software, etc., to support teachers' learning and teaching activities. Financial Support: Provide necessary financial support for teacher training to ensure the smooth running of training activities and quality assurance.

The specific description of the 6 elements of training evaluation are as follows: Evaluation Content: The evaluation content should include knowledge mastery, skills application abilities, teaching effectiveness, etc., comprehensively assessing the training outcomes of teachers. Formative Assessment: Evaluate the diversity, flexibility, and effectiveness of training formats, including assessments of online courses, offline seminars, practical guidance, etc. Training Effectiveness

Evaluation: Taking into account the above elements, evaluate the overall training effectiveness and impact, analyze the strengths and weaknesses of the training program, and provide improvement suggestions and directions for future training.

Participation Assessment: Evaluate teachers' participation and enthusiasm, including attendance rates, classroom interactions, completion of assignments, etc., to understand teachers' acceptance and level of involvement in the training.

Ongoing Tracking Evaluation: Conduct ongoing tracking evaluations after the training ends to understand the application of training content and effects by teachers in their work, promoting continuous improvement of training effectiveness.

Satisfaction Assessment: Evaluate teachers' satisfaction with the training program and gather feedback, collect constructive opinions and suggestions to improve and optimize the training plan.

Research Objectives 3 To evaluate the Kindergarten Teachers Training Model for Integrated IT Teaching Methods

Part Four: Through qualitative analysis, the kindergarten teacher training (KTT) model for integrated IT teaching methods for the kindergarten of Wenzhou city.

Data analysis results

Randomly select 30 teachers from 5 kindergartens in Wenzhou City in three age groups: 20-25 years old, 25-30 years old, and 30 years old and above, with 10 teachers in each age group. Randomly select 30 teachers in three teaching experience groups: 1-5 years, 5-10 years, and over 10 years, with 10 teachers in each experience group. Provide training content to the teachers and verify the effectiveness of the training by implementing different teacher training results before and after using the created model. The implementation of the training is based on the selection scores of each element of the model. The specific process is as follows:

Implementation Plan for Comprehensive Information Technology Teaching Methods Training for Kindergarten Teachers

Training Theme:

Courage in the Face of Digital Technology Challenges.

Training Objectives:

1. Enhance the information technology application level of kindergarten teachers and strengthen their teaching abilities in information technology.
2. Help teachers understand the importance of information technology in early childhood education and be able to flexibly apply it in their daily teaching practices.
3. Cultivate teachers' innovative awareness of information technology teaching methods, promote overall improvement in the level of information technology teaching in kindergartens.

Training Content:

1. Popularization of Basic Information Technology Knowledge: Including basic computer operations, network knowledge, commonly used office software, etc.
2. Application of Information Technology in Early Childhood Education: Introducing the acquisition and utilization of digital teaching resources, multimedia teaching design, virtual laboratories, etc.
3. Information Technology Teaching Methods: Discussing how information technology can be integrated into teaching various subjects in kindergartens to improve teaching effectiveness.
4. Practical Operation Segment: Organizing teachers to engage in practical operations to reinforce the knowledge learned.

Training Formats:

1. Theoretical Lectures: Inviting professionals to explain information technology teaching methods, allowing teachers to understand the latest teaching concepts and methods.

2. Practical Operations: Setting up laboratories or computer classrooms for teachers to operate hands-on and master skills.

3. Group Discussions: Organizing teachers into groups for discussions to share experiences and insights, promoting communication and cooperation.

4. Case Studies: Guiding teachers to think about the application of information technology in teaching through real case studies.

Training Evaluation:

1. Conduct pre- and post-training surveys to understand the changes in teachers' understanding and attitudes towards information technology teaching.

2. Observe the application of information technology by teachers in actual teaching to evaluate the effectiveness of the training.

3. Regularly track the teaching outcomes of teachers in information technology, providing necessary guidance and support.

Post-Training Support:

1. Establish an information technology teaching exchange platform where teachers can share resources and experiences.

2. Organize regular information technology teaching seminars to promote communication and learning among teachers.

3. Provide personalized coaching and guidance to help teachers address issues encountered in information technology teaching.

Training Effectiveness Evaluation

The effectiveness of teacher training will be evaluated from the following two aspects:

Firstly, based on the comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City, the training itself will be evaluated. This evaluation will primarily focus on the satisfaction of the trainees with the training outcomes after completing the training. It includes assessing the

satisfaction levels of training needs, training content, training methods and activities, training strategies, training organization, and training evaluation.

Secondly, the evaluation will focus on the model itself, allowing participants to pay attention to the established comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City. Participants will assess whether the model implementation process effectively achieved the training objectives, values, and significance. Before and after the training implementation, the effectiveness of the training will be measured through pre-training and post-training assessments of the participants to confirm the effectiveness of the comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City.

Development of Testing Tool

In this study, based on the established comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City, a satisfaction questionnaire for the comprehensive information technology teaching method training model was developed. After the preliminary formation of the questionnaire, it was submitted to five experts for feedback to examine the language applicability, completeness, and comprehensiveness, and improvements were made based on their suggestions. Following the revisions, the “Teacher Comprehensive Information Technology Teaching Method Training Model Satisfaction Questionnaire” was validated by the five experts using the IOC method. They believed that the instrument demonstrated good consistency and could be used for course satisfaction testing. The consistency test between the expert satisfaction questionnaire and this course is shown in Table 4.27.

Table 4.27 Data analysis of consistency evaluation of teachers' comprehensive Information Technology Teaching Methods

Information Technology Teaching Methods		
NO.	Elements of teacher comprehensive information technology teaching method training model	Consistency
Training Needs		
1	Professional Knowledge and Skills	1.0
2	Teaching Resources and Tools	0.8
3	Updating Teaching Methods and Strategies	1.0
4	Personal Development Needs	1.0
5	Social Needs	1.0
6	Individual Differences and Feedback Comments	1.0
Training Content		
7	Teaching Methods and Techniques	1.0
8	Child Psychological Health and Behavior Management	1.0
9	Early Childhood Education Theory	1.0
10	Professional Competence Enhancement	0.8
11	Multicultural Education	1.0
12	Special Education Needs	1.0
Training methods and tool		
13	Practical Activities and Observation Classes	1.0
14	Training Manuals and Teaching Materials	0.8
15	Group Discussions and Collaboration	1.0
16	Practical Teaching	0.8
17	Learning Communities and Discussion Platforms	1.0
18	Assistive Technologies	1.0
Training strategies		
19	Diversified Training Formats	1.0
20	Participatory Training	1.0

Table 4.27 (Continued)

NO.	Elements of teacher comprehensive information technology teaching method training model	Consistency
21	Targeted Course Design	1.0
22	Peer Support and Sharing	1.0
23	Progressive Training	1.0
24	Incentive Mechanisms	0.8
Training organization		
25	Training Plans and Objectives	1.0
26	Management Mechanisms	1.0
27	Incentive Mechanisms	1.0
28	Training Activities	0.8
29	Training Resources	1.0
30	Financial Support	1.0
Training assessment		
31	Evaluation Content	1.0
32	Formative Assessment	0.8
33	Training Effectiveness Evaluation	1.0
34	Participation Assessment	1.0
35	Continuous Monitoring Evaluation	1.0
36	Satisfaction Assessment	1.0

To evaluate the effectiveness of the model, this study, in conjunction with the established comprehensive information technology teaching method training model for teachers, developed pre-test and post-test questionnaires to assess changes in teacher training satisfaction and evaluate the comprehensive information technology teaching method training model. After the preliminary formation of the questionnaire, it was submitted to five experts for their feedback to examine the language applicability, completeness, and comprehensiveness, and improvements were made based on their suggestions. Following the revisions, the innovative

entrepreneurship ability test questionnaire was validated by the five experts using the IOC method, who believed that the questionnaire demonstrated good consistency and could be used for course satisfaction testing.

Data Analysis

The satisfaction questionnaire for the comprehensive information technology teaching method training model for teachers was used to assess the satisfaction of teachers participating in the training. A total of 30 teachers participated in this test, and responses to 36 factor indicators in the model were collected, all of which were considered valid. The data analysis of teacher satisfaction with the comprehensive information technology teaching method training model during the training process is shown in Table 4.28.

Table 4.28 Analysis of satisfaction data of teachers

NO.	Assess the project	\bar{X}	S.D.	Suitable
Training Needs				
1	Professional Knowledge and Skills	3.48	0.90	Very high
2	Teaching Resources and Tools	3.83	0.88	Very high
3	Updating Teaching Methods and Strategies	3.53	0.89	high
4	Personal Development Needs	3.49	0.98	Very high
5	Social Needs	3.74	0.91	high
6	Individual Differences and Feedback Comments	3.70	0.89	High
Training Content				
7	Teaching Methods and Techniques	3.45	0.89	Very high
8	Child Psychological Health and Behavior Management	3.73	0.90	high
9	Early Childhood Education Theory	3.63	0.89	high
10	Professional Competence Enhancement	3.47	0.92	high
11	Multicultural Education	4.13	1.01	Very high
12	Special Education Needs	4.06	0.99	Very high

Table 4.28 (Continued)

NO.	Assess the project	\bar{X}	S.D.	Suitable
Training methods and tool				
13	Practical Activities and Observation Classes	3.64	0.95	Very high
14	Training Manuals and Teaching Materials	3.48	1.02	high
15	Group Discussions and Collaboration	3.85	0.88	Very high
16	Practical Teaching	3.50	0.85	Very high
17	Learning Communities and Discussion Platforms	3.80	0.89	High
18	Assistive Technologies	3.49	0.94	High
Training strategies				
19	Diversified Training Formats	3.62	1.02	high
20	Participatory Training	3.54	0.88	high
21	Targeted Course Design	4.15	0.78	Very high
22	Peer Support and Sharing	3.94	0.94	high
23	Progressive Training	3.83	0.89	high
24	Incentive Mechanisms	3.63	0.79	Very high
Training organization				
25	Training Plans and Objectives	3.59	0.78	Very high
26	Management Mechanisms	3.81	1.02	Very high
27	Incentive Mechanisms	3.47	1.03	Very high
28	Training Activities	3.55	1.01	Very high
29	Training Resources	3.98	0.89	high
30	Financial Support	3.82	0.88	high
Training assessment				
31	Evaluation Content	3.83	0.92	Very high
32	Formative Assessment	3.53	1.02	Very high
33	Training Effectiveness Evaluation	3.94	0.94	high
34	Participation Assessment	3.82	0.88	high
35	Continuous Monitoring Evaluation	3.55	1.01	Very high
36	Satisfaction Assessment	3.74	0.91	Very high

Analysis of Pre-test and Post-test Changes Based on the Model for Teacher Training

The use of the comprehensive information technology teaching method training model has had a significant impact on addressing issues in kindergarten teacher training. Refer to Table 4.28.

Table 4.29 Analysis of pre-test and post-test comparison data of changes in teacher training

NO.	Test item	N	Before evaluation	After evaluation	T	P	D- value
			\bar{X}	\bar{X}			
1	Whether the six factors of training needs have an impact on teacher training.	30	6.36	8.68	-6.413	<0.05	1.60
2	Whether the six factors of the training content have an influence on the teacher training.	30	6.60	7.28	-7.696	<0.05	1.87
3	Whether the six factors of training methods and tools have an impact on teacher training.	30	6.43	8.38	-7.440	<0.05	1.83
4	Whether the six factors of the training strategy had an influence on teacher training.	30	6.83	8.15	-7.160	<0.05	2.05
5	Whether the 6 factors of the training organization have an influence on the teacher training.	30	6.83	7.59	-6.846	<0.05	2.03

Table 4.29 (Continued)

NO.	Test item	N	Before	After	T	P	D-value
			evaluation	evaluation			
			\bar{X}	\bar{X}			
6	Whether the 6 factors of the training assessment had an impact on teacher training.	30	6.75	8.18	-6.432	<0.05	1.78

Based on Table 4.29, it can be observed from the data that in all six test items, the average scores after evaluation were higher than the average scores before evaluation. Furthermore, based on the results with a p-value less than 0.05, we can conclude that the score changes after evaluation in these test items are significant, indicating a positive impact of the training on teacher development. By comparing the D-values, we can see that the magnitude of score changes after evaluation varies slightly across different test items. For example, in the training strategy item, the score increased by 2.05 points, while in the training organization item, the score increased by 2.03 points.

Overall, these data indicate that the use of the comprehensive information technology teaching method training model is effective in enhancing teachers' abilities and performance, and positive outcomes have been achieved in various aspects of the training.

Nine experts were invited to evaluate the model, and the final model was determined from it. Requirements for expert qualification: 1) More than 10 years of preschool education experience, familiar with the integration of information technology in kindergarten teacher training related business. 2) Experts with master's degree or above, associate professor or above. 3) Have more than 10 years of preschool teaching experience, familiar with the integrated information technology

methods of kindergarten teacher training related business, with preschool education master's degree or above and senior professional title.

Table 4.30 Model evaluation of expert personal information

	personal information	frequency	%
Gender	Man	2	22.0%
	woman	7	78.0%
	Total	9	
Age	Age 40-49	8	89.0%
	Over 50 years old	1	11.0%
	Total	9	
working life	10-20 Years	7	78.0%
	More than 20 years	2	22.0%
	Total	9	
Professional title	Adjunct professor	6	66.0%
	Professor	3	34.0%
	Total	9	
Educational background	Master	5	56.0%
	Doctor	4	44.0%
	Total	9	
professional field	Preschool education and early childhood teaching experience	7	78.0%
	Information technology	2	22.0%
	Total	9	

Table 4.30 shows that 2 males, accounting for 22.0% and 7 females, accounting for 78.0%. In terms of age distribution, 8 people were aged 40-49, accounting for 89.0%, and 1 person was aged 50 and above, accounting for 11.0%. In terms of many years of work experience, 7 participants had 10-20 years of work

experience, or 78.0%, and two participants had more than 20 years of work experience, accounting for 22.0%. Among them, there were six associate professors, accounting for 66.0%, and there were three professors, accounting for 34.0%. In terms of educational background, there are 5 master's degrees, accounting for 56.0%, and 4 doctor's degrees, accounting for 44.0%. In terms of professional field, 7 people have early childhood education and teaching experience, accounting for 78.0%, and 2 people have information technology experience, accounting for 22.0%.

Table 4.31 Discussion Results of Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers in Wenzhou City (Main Project Factors)

Item	Training model elements of comprehensive information technology teaching methods for kindergarten teachers	Result
1.	Training Needs	Agree
2.	Training Content	Agree
3.	Training Methods and Tools	Agree
4.	Training Strategies	Agree
5.	Training Organization	Agree
6.	Training Evaluation	Agree

Based on Table 4.31, after discussions on the six items mentioned above, the project received unanimous approval from 9 experts. This indicates that the main indicators of the comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City have high reliability.

Table 4.32 Discussion Results of Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers in Wenzhou City (Secondary project factors)

Item	Training model elements of comprehensive information technology teaching methods for kindergarten teachers	Result
Training Needs		
1.	Professional Knowledge and Skills	Agree
2.	Teaching Resources and Tools	Agree
3.	Updating Teaching Methods and Strategies	Agree
4.	Personal Development Needs	Agree
5.	Social Needs	Agree
6.	Individual Differences and Feedback Comments	Agree
Training Content		
7.	Teaching Methods and Techniques	Agree
8.	Child Psychological Health and Behavior Management	Agree
9.	Early Childhood Education Theory	Agree
10.	Professional Competence Enhancement	Agree
11.	Multicultural Education	Agree
12.	Special Education Needs	Agree
Training Methods and Tools		
13.	Practical Activities and Observation Classes	Agree
14.	Training Manuals and Teaching Materials	Agree
15.	Group Discussions and Collaboration	Agree
16.	Practical Teaching	Agree
17.	Learning Communities and Discussion Platforms	Agree
18.	Assistive Technologies	Agree
Training Strategies		
19.	Diversified Training Formats	Agree
20.	Participatory Training	Agree
21.	Targeted Course Design	Agree

Table 4.32 (Continued)

Item	Training model elements of comprehensive information technology teaching methods for kindergarten teachers	Result
22.	Peer Support and Sharing	Agree
23.	Progressive Training	Agree
24.	Incentive Mechanisms	Agree
Training Organization		
25.	Training Plans and Objectives	Agree
26.	Management Mechanisms	Agree
27.	Incentive Mechanisms	Agree
28.	Training Activities	Agree
29.	Training Resources	Agree
30.	Financial Support	Agree
Training Evaluation		
31.	Evaluation Content	Agree
32.	Formative Assessment	Agree
33.	Training Effectiveness Evaluation	Agree
34.	Participation Assessment	Agree
35.	Continuous Monitoring Evaluation	Agree
36.	Satisfaction Assessment	Agree

According to Table 4.32, after discussions on the 36 items mentioned above, the project received unanimous approval from 9 experts. One expert suggested adjusting the saturation of colors in the model graphs to make the presentation clearer and more distinct. Another expert pointed out that the names of the factors “training activities” and “training resources” under the “training organization” element were too similar, making it difficult to differentiate between the factors. It was recommended to change the minor factors “training activities” and “training resources” to “learning activities” and “resource development.” Additionally, one expert suggested changing “training plan and objectives” to “plan and objectives.”

Based on the experts' feedback, revisions were made to the guidance principles of the model. Compared to the second round of impact indicators, six key indicators remained unchanged. They are: training needs, training content, training methods and tools, training strategies, training organization, and training evaluation.

There are 36 minor indicators. The training needs element includes: professional knowledge and skills, teaching resources and tools, personal development needs, individual differences and feedback, updating teaching methods and strategies, and social needs. The training content element includes: early childhood education theory, special education needs, children's mental health and behavior management, professional competence enhancement, principles of early childhood education, and multicultural education. The training methods and tools element includes: practical teaching, assistive technology, practical activities and observation classes, training manuals and materials, group discussions and collaboration, learning communities and discussion platforms. The training strategies element includes: participatory training, progressive training, targeted course design, incentive mechanisms, diversified training formats, peer assistance and sharing. The training organization element includes: planning and objectives, incentive mechanisms, learning activities, financial support, management mechanisms, and resource development. The training evaluation element includes: evaluation content, training effectiveness evaluation, formative evaluation, participation evaluation, ongoing monitoring evaluation, and satisfaction evaluation. Among them, "training plan and objectives," "training activities," and "training resources" were modified to "plan and objectives," "learning activities," and "resource development."

Through this study, the kindergarten teacher comprehensive information technology teaching method training model was further confirmed. The evaluation results of the project indicate that the model has a significant effect. The model was also validated by expert interviews using the focus group interview method. Subsequently, the model was designed and explained. The final revised version generated the kindergarten teacher comprehensive information technology teaching method training model (Figure 4.2).

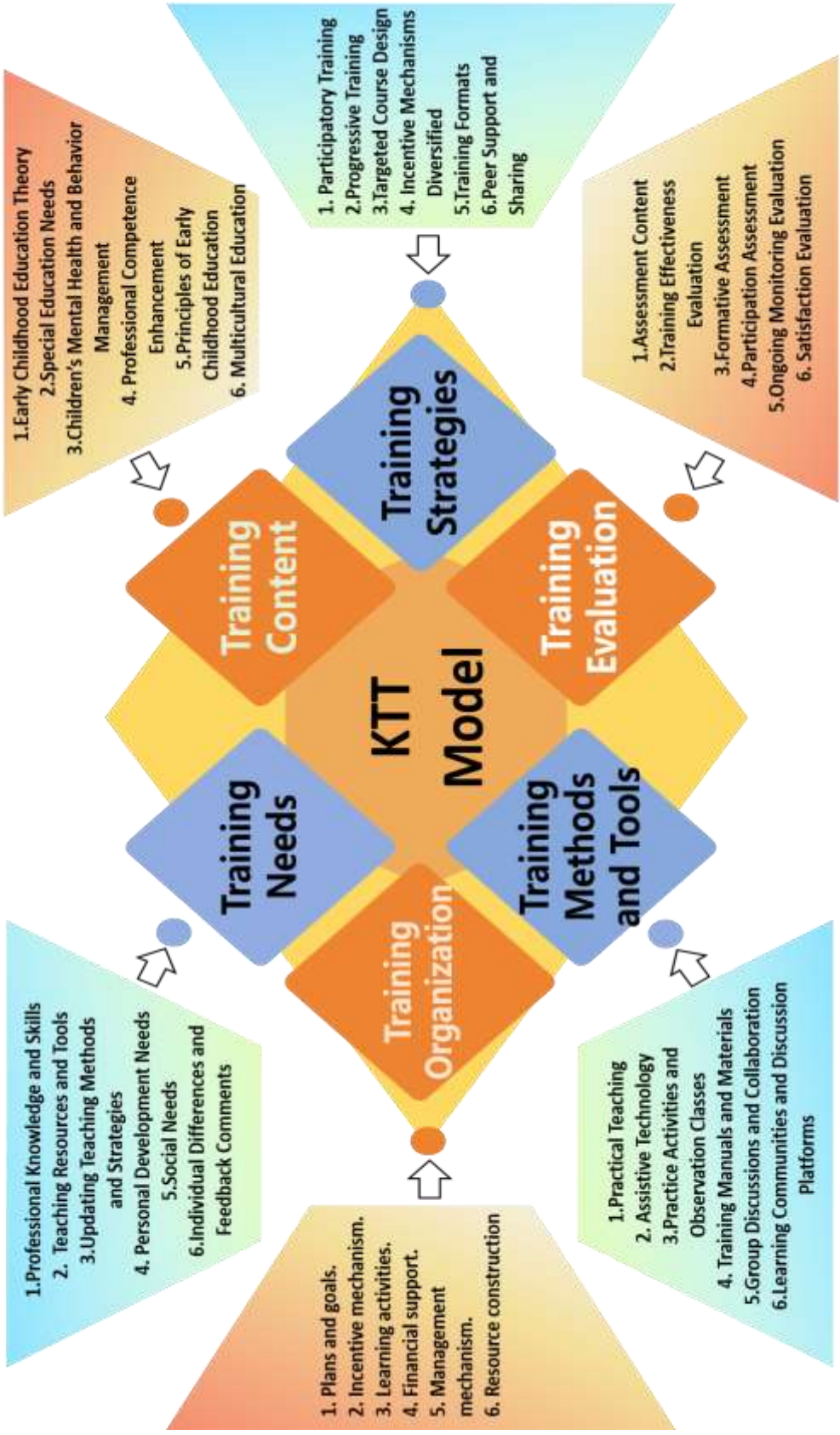


Figure 4.2 Kindergarten teacher training (KTT) model for integrated IT teaching methods for the kindergarten of Wenzhou city (modified version)

According to expert opinions, the saturation of colors in the model diagram has been adjusted to make the representation clearer and more aesthetically pleasing. Within the model, the elements under “Training Organization” have been modified: “Training Activities” and “Training Resources” have been changed to “Learning Activities” and “Resource Development” as secondary factors. The element “Training Plan and Objectives” has been revised to “Plan and Objectives.”

Part Five: Description of the kindergarten teacher training (KTT) model for integrated IT teaching methods for the kindergarten of Wenzhou city.

Through interviews and literature reviews, researchers identified the current six main issues in kindergarten teacher training and corresponding strategies. These issues include: training needs, training methods and tools, training organization, training content, training strategies, and training evaluation. Thirty-six corresponding strategies were proposed, as shown in Tables 4.21 to 4.26.

Based on the research results of research objective 1, a comprehensive information technology teaching method training model for kindergarten teachers was designed. Through three rounds of expert interviews, a model consisting of 6 main indicator factors and 36 minor indicator factors was established, as shown in Figure 4.1.

Based on research objectives 1 and 2, focus group interviews were conducted, inviting 9 experts to evaluate the model. The 6 main indicator factors and 36 minor indicator factors of the model received unanimous approval from the experts. One expert suggested adjusting the saturation and brightness of the colors in the model graphs to make the presentation clearer and more distinct. Another expert pointed out that the names of the factors “training activities” and “training resources” under the “training organization” element were too similar to the main factor names, making it difficult to differentiate between the factors. It was recommended to change the minor factors “training activities” and “training resources” to “learning activities” and “resource development.” Additionally, one expert suggested changing “training plan and objectives” to “plan and objectives.”

Finally, the comprehensive information technology teaching method training model for kindergarten teachers was developed.

The specific description of the 6 elements of training needs are as follows: Professional Knowledge and Skills: This includes expertise in early childhood education theory, child psychology, teaching methods, curriculum design, as well as practical skills in teaching, communication, and management. Teaching Resources and Tools: Providing teaching materials, teaching aids, teaching equipment suitable for kindergarten education, as well as training in teaching technology and information technology tools to help teachers improve their teaching activities. Update of Teaching Methods and Strategies: Teachers need to learn and master a variety of teaching methods and strategies to enhance teaching effectiveness and meet the learning needs of different children. Personal Development Needs: Individual differences in teachers' personal development needs are also important factors. Some teachers may wish to pursue further studies, while others may need to enhance specific skills or knowledge. Social Needs: Teachers need to understand the changing social needs, adapt to social development, and improve the quality and effectiveness of educational services. Individual Differences and Feedback: There are individual differences among teachers, and personalized training programs should be developed based on individual needs and feedback to enhance the specificity and effectiveness of training.

The specific description of the 6 elements of training content are as follows: Teaching Methods and Techniques: Training teachers in using a variety of teaching methods and techniques, such as heuristic teaching, situational teaching, game-based teaching, as well as skills in classroom management, student assessment, etc. Child Psychological Health and Behavior Management: Training teachers to understand issues related to child psychological health, learn how to build good relationships with young children, and effectively manage children's behavior. Early Childhood Education Theory: Introducing the basic theories of early childhood education, including child development stages, learning theories, educational psychology, etc., to help teachers better understand the characteristics of children's growth and

learning. Professional Development: Training content should also include enhancing teachers' professional competence and ethical standards, cultivating their sense of responsibility, innovative spirit, and teamwork skills. Multicultural Education: Teachers need to understand the importance of multicultural education, learn how to promote cross-cultural communication and understanding among young children in teaching. Special Education Needs: Teachers should also receive training on special education needs, understanding how to support and educate children with special needs to promote their development.

The specific description of the 6 elements of training methods and tools are as follows: Practical Teaching: Training teachers through practical teaching practices, allowing them to apply the knowledge and skills they have learned in actual classrooms to enhance their practical skills. Practical Activities and Observation Lessons: Organizing practical activities and observation lessons for teachers to actively participate in and observe excellent teaching practices, improving their practical skills and teaching levels. Training Manuals and Materials: Providing specially written training manuals, textbooks, or teaching resources to help teachers systematically learn and master relevant knowledge and skills. Group Discussions and Collaboration: Promoting communication and interaction among teachers through group discussions and collaboration, jointly exploring educational issues, fostering idea exchange, and mutual growth. Learning Communities and Discussion Platforms: Establishing learning communities and discussion platforms for teachers to communicate, share experiences and resources, promote mutual learning and growth. Assistive Technology: Using modern technology to assist teacher training, such as virtual reality technology, intelligent teaching systems, online assessment tools, etc., to enhance training effectiveness and teaching efficiency.

The specific description of the 6 elements of training strategy are as follows:

Diversified Training Formats: Utilizing a variety of formats such as online, offline, practical, peer-to-peer communication, etc., to cater to different teachers' learning styles and needs. Participatory Training: Encouraging teachers to engage in classroom interactions, group discussions, case studies, and other activities to

promote active participation and communication among learners, enhancing learning effectiveness. Targeted Course Design: Designing course content that meets the actual needs of kindergarten teachers, covering teaching theory, practical skills, curriculum design, and other aspects. Peer Assistance and Sharing: Encouraging teachers to exchange experiences, establish professional communities, and cooperative networks to facilitate mutual learning and growth. Progressive Training: Adopting a phased and progressive training approach, cultivating teachers' comprehensive abilities from basic knowledge to professional skills and practical capabilities gradually. Incentive Mechanisms: Establishing reward mechanisms or certification recognition to motivate teachers to actively participate in training, enhancing learning motivation and effectiveness.

The specific description of the 6 elements of training organization are as follows: Planning and Objectives: Developing clear training plans and objectives, specifying training content, formats, and scheduling to ensure the systematic and continuous nature of training. Trainer Resources: Having a team of experienced and highly professional trainers, including education experts, psychologists, teaching specialists, etc., to provide professional guidance and support. Incentive Mechanisms: Establishing reward mechanisms or certification recognition to motivate teachers to actively participate in training, enhancing learning motivation and effectiveness. Learning Activities: Organizing various training activities such as lectures, seminars, workshops, field observations, practical guidance, etc., to provide diverse learning opportunities. Resource Development: Providing a wide range of teaching resources and tools, such as textbooks, teaching aids, teaching equipment, educational software, etc., to support teachers' learning and teaching activities. Financial Support: Providing necessary financial support for teacher training to ensure the smooth progress and quality assurance of training activities.

The specific description of the 6 elements of training evaluation are as follows: Evaluation Content: The evaluation content should include knowledge mastery, skills application ability, teaching effectiveness, etc., comprehensively assessing the training outcomes of teachers. Formative Evaluation: Evaluating the

diversity, flexibility, and effectiveness of training formats, including assessments of online courses, offline seminars, practical guidance, etc. Training Effectiveness Evaluation: Considering the above elements comprehensively, evaluating the overall training effectiveness and impact, analyzing the strengths and weaknesses of the training program, and providing improvement suggestions and directions for future training. Participation Assessment: Assessing teachers' participation and enthusiasm, including attendance rates, classroom interactions, completion of assignments, etc., to understand the recognition and level of involvement of teachers in the training. Ongoing Tracking Evaluation: Conducting ongoing tracking evaluation after the training ends to understand the application of training content and its effects by teachers in their work, promoting continuous improvement of training effectiveness. Satisfaction Evaluation: Assessing teachers' satisfaction with the training program and collecting feedback, gathering constructive opinions and suggestions to improve and optimize the training plan.

Chapter 5

Conclusion Discussion and Recommendations

Research objectives

The purpose of this study is to develop a comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City. To achieve this, three specific objectives are proposed: 1) To discuss the problems existing in the current training mode of kindergarten teachers' comprehensive teaching method 2) To design a Kindergarten Teachers Training Model for Integrated IT Teaching Methods 3) To evaluate the Kindergarten Teachers Training Model for Integrated IT Teaching Methods

Research Technique

This study employed a multi-stage, mixed-methods experiential research design that combined qualitative and quantitative analysis methods. The initial stage of the research involved a literature review to identify and analyze the problems existing in kindergarten teacher training. Subsequently, around the identified issues, an expert questionnaire assessment was designed and implemented as a means to construct an integrated information technology training model for kindergarten teachers in Wenzhou City. Based on the questionnaire design, the model was tested and improved through a series of expert reviews (such as the Delphi method). Finally, through on-site application and evaluation of the model, adjustments and optimizations were made based on pre- and post-training measurements and expert feedback, resulting in a sustainable training system model.

Conclusion

Research Objectives 1 To discuss the problems existing in the current training mode of kindergarten teachers' comprehensive teaching method

The current problems in kindergarten teacher training, which are the focus of this study, include the following: lack of practical and relevant training content, inadequate training resources, outdated educational concepts and methods, lack of personalized training, and absence of tracking and evaluation mechanisms. This study, based on the concepts of kindergarten teacher training, information technology teaching method training, and learning theories, employed literature research, expert interviews, and survey research methods to identify and clarify these problems. The identified problems in kindergarten teacher training encompass eight main factors: training needs, training content, training methods and tools, training resources, training strategies, training organization, training operations, and training evaluation. Through literature research and expert interviews, these eight factors were assessed, analyzed, and described in detail.

In terms of the main factors in training needs, interviews revealed that this element primarily consists of 10 aspects. Based on the experts' observations and ratings for each main factor, the training needs factor received unanimous approval from all 21 experts, with 100% of respondents considering the overall level of training needs to be high.

This main factor includes 10 sub-factors: professional knowledge and skills, teaching resources and tools, individual differences and feedback, updates in teaching methods and strategies, personal development needs, social needs, professional development and career planning, child development and educational theories, curriculum design and evaluation abilities, and education policies and regulations. The top three indicators were found to be professional knowledge and skills (100%), teaching resources and tools (100%), and individual differences and feedback (95.2%), while the bottom three indicators were child development and educational theories (64.9%), curriculum design and evaluation abilities (57.1%), and education policies and regulations (52.3%).

In terms of the main factors in training content, interviews revealed that this element primarily consists of 10 aspects. Based on the experts' observations and ratings for each main factor, the training content factor received recognition from 19 experts, with 2 experts considering it to be at a moderate level. 90.5% of respondents rated the overall level of training content research as high, while 9.5% rated it as moderate.

This main factor includes 10 sub-factors: multicultural education, teaching methods and techniques, special education needs, children's mental health and behavior management, early childhood education theories, professional competence enhancement, principles of early childhood education, creative education and artistic expression, curriculum design and evaluation, and curriculum design and teaching plans. The top three indicators were found to be multicultural education (100%), teaching methods and techniques (95.2%), and special education needs (90.4%), while the bottom three indicators were creative education and artistic expression (66.6%), curriculum design and evaluation (57.1%), and curriculum design and teaching plans (52.3%).

In terms of the main factors in training methods and tools, interviews revealed that this element primarily consists of 10 aspects. Based on the experts' observations and ratings for each main factor, the training methods and tools factor received recognition from 18 experts, with 3 experts considering it to be at a moderate level. 85.7% of respondents rated the overall level of training methods and tools as high, while 14.3% rated it as moderate.

This main factor includes 10 sub-factors: practical activities and observation classes, training manuals and teaching materials, group discussions and collaboration, practical teaching, assistive technology, learning communities and discussion platforms, video teaching and demonstrations, seminars and lectures, peer assistance, and case analysis and sharing. The top three indicators were found to be practical activities and observation classes (100%), training manuals and teaching materials (90.4%), and group discussions and collaboration (90.4%), while the bottom

three indicators were seminars and lectures (66.6%), peer assistance (57.1%), and case analysis and sharing (47.6%).

In terms of the main factors in training resources, interviews revealed that this element primarily consists of 10 aspects. Based on the experts' observations and ratings for each main factor, the training resources factor received recognition from 12 experts, with 6 experts considering it to be at a moderate level and 3 experts rating it as relatively low. 57.2% of respondents rated the overall level of training resources as high, 28.6% as moderate, and 14.2% as low.

This main factor includes 10 sub-factors: educational institutions and professional organizations, online platforms and repositories, practice sites and observation opportunities, teaching materials and tools, teaching technology support, experts and scholars, educational books and journals, assessment and feedback, teaching resource libraries, and learning communities and interactive platforms. The top three indicators were found to be educational institutions and professional organizations (100%), online platforms and repositories (90.4%), and practice sites and observation opportunities (85.7%), while the bottom three indicators were assessment and feedback (57.1%), teaching resource libraries (57.1%), and learning communities and interactive platforms (52.3%).

In terms of the main factors in training strategies, interviews revealed that this element primarily consists of 10 aspects. Based on the experts' observations and ratings for each main factor, the training strategies factor received recognition from 19 experts, with 2 experts considering it to be at a moderate level. 90.5% of respondents rated the overall level of training strategies as high, while 9.5% rated it as moderate.

This main factor includes 10 sub-factors: diversified training formats, progressive training, incentive mechanisms, participatory training, targeted course design, peer assistance and sharing, feedback and evaluation, continuous monitoring, practice-oriented, and needs analysis. The top three indicators were found to be diversified training formats (100%), progressive training (95.2%), and incentive

mechanisms (90.4%), while the bottom three indicators were continuous monitoring (52.3%), practice-oriented (42.8%), and needs analysis (42.8%).

In terms of the main factors in training organization, interviews revealed that this element primarily consists of 10 aspects. Based on the experts' observations and ratings for each main factor, the training organization factor received unanimous recognition from 21 experts, with 100% of respondents considering the overall level of training organization to be high.

This main factor includes 10 sub-factors: training plans and objectives, management mechanisms, financial support, incentive mechanisms, training resources, training activities, training evaluation, training courses, training facilities, and training staff. The top three indicators were found to be training plans and objectives (100%), management mechanisms (100%), and financial support (90.4%), while the bottom three indicators were training courses (57.1%), training facilities (52.3%), and training staff (47.6%).

In terms of the main factors in training operations, interviews revealed that this element primarily consists of 10 aspects. Based on the experts' observations and ratings for each main factor, the training operations factor received recognition from 10 experts, with 7 experts considering it to be at a moderate level and 4 experts rating it as relatively low. 47.6% of respondents rated the overall level of training operations as high, 33.43% as moderate, and 19.0% as low.

This main factor includes 10 sub-factors: developing training plans, selecting training formats, practical guidance, tracking and coaching, training needs assessment, sharing and communication, staff preparation, feedback and evaluation, ongoing support, and continuous monitoring. The top three indicators were found to be developing training plans (100%), selecting training formats (95.2%), and practical guidance (90.4%), while the bottom three indicators were feedback and evaluation (52.3%), ongoing support (52.3%), and continuous monitoring (47.6%).

In terms of the main factors in training evaluation, interviews revealed that this element primarily consists of 10 aspects. Based on the experts' observations and ratings for each main factor, the training evaluation factor received recognition from

18 experts, with 3 experts considering it to be at a moderate level. 85.7% of respondents rated the overall level of training evaluation as high, while 14.3% rated it as moderate.

This main factor includes 10 sub-factors: participation assessment, content evaluation, formative assessment, training effectiveness evaluation, satisfaction assessment, continuous monitoring evaluation, goal and standard assessment, teaching effectiveness evaluation, evaluation cycle, and feedback and improvement. The top three indicators were found to be participation assessment (100%), content evaluation (90.4%), and formative assessment (85.7%), while the bottom three indicators were teaching effectiveness evaluation (57.1%), evaluation cycle (47.6%), and feedback and improvement (42.8%).

In the study, based on the interview results, an analysis and study of the frequency of appearance of the main influencing factors in the interview records were conducted. According to the importance of the frequency of appearance of elements from high to low, they are training needs, training organization, training content, training strategies, training methods and tools, training evaluation, training resources, and training operations. Based on the frequency of appearance of the main factors, a comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City was developed.

In summary, the results show that the primary goal of this study has been achieved. Through interviewing and grading the main problems existing in the training of kindergarten teachers, a training model of integrated information technology teaching methods for kindergarten teachers including 8 main factors is established, which provides the basis for developing the questionnaire structure of the training model.

Research Objectives 2 To design a Kindergarten Teachers Training Model for Integrated IT Teaching Methods

Based on the elements determined in research objective 1, combined with the concept of kindergarten teacher training, learning theories, etc., a questionnaire for the comprehensive information technology teaching method training model for

kindergarten teachers was designed based on the identified main factors of current issues in kindergarten teacher training. Subsequently, the design of the questionnaire formed the expert consultation survey for the comprehensive information technology teaching method training model for kindergarten teachers, including 8 main factors and 80 sub-factors related to training needs, training content, training methods and tools, training resources, training strategies, training organization, training operations, and training evaluation. Nine experts in relevant fields conducted a consistency assessment of the 8 main factors and 80 sub-factors of the comprehensive information technology teaching method training model for kindergarten teachers, and the consistency index of the evaluation results fell within a reasonable range.

Through two rounds of expert interviews, data results from the second round were analyzed, and modifications were made based on expert opinions, resulting in a new questionnaire for the comprehensive information technology teaching method training model for kindergarten teachers. Using the new questionnaire, a survey for the comprehensive information technology teaching method training model for kindergarten teachers was designed. A third round of expert interviews was conducted based on the new questionnaire. Through data collection and analysis from the third round, the final design of the comprehensive information technology teaching method training model for kindergarten teachers was achieved.

Firstly, 21 experts reached a consensus on the 8 effective strategies of the comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City. The ranking from high to low is as follows: training needs, training organization, training methods and tools, training strategies, training evaluation, training content, training resources, and training operations. The consensus degree for training resources and training operations was 42.86%, which is below the set standard requirement of 70%. Based on expert opinions, these two main factors were modified, and the researcher removed them, forming the new model elements.

Based on the level of importance, we have optimized the initial 8 indicator factors to 6. These factors include training needs, training methods and tools, training organization, training content, training strategies, and training evaluation. Additionally, we have optimized the sub-indicators from 80 to 36, removing 44 items.

Based on expert assessment and data analysis, factors related to training needs include: Professional knowledge and skills:

This includes expertise in early childhood education theory, child psychology, teaching methods, curriculum design, as well as practical skills in teaching, communication, and management. Teaching resources and tools: Providing resources such as teaching materials, teaching aids, teaching equipment suitable for kindergarten teaching, as well as training in teaching technology and information technology tools to help teachers improve their teaching activities. Updating teaching methods and strategies: Teachers need to learn and master a variety of teaching methods and strategies to enhance teaching effectiveness and meet the learning needs of different children. Personal development needs: Individual differences in teachers' personal development needs are also important factors. Some teachers may wish to pursue further studies, while others may need to enhance specific skills or knowledge. Social needs: Teachers need to understand changes in social needs, adapt to social development, and improve the quality and effectiveness of educational services. Individual differences and feedback: There are differences among teachers, and personalized training programs should be developed based on individual needs and feedback to enhance the relevance and effectiveness of training.

Based on expert assessment and data analysis, factors related to training methods and tools include:

Practical Teaching: Training teachers through practical teaching practices, allowing them to apply the knowledge and skills learned in actual classrooms to enhance their practical operational abilities. Training Manuals and Teaching Materials: Providing specially written training manuals, textbooks, or teaching resources to help teachers systematically learn and master relevant knowledge and skills. Learning

Communities and Discussion Platforms: Establishing learning communities and discussion platforms for teachers to exchange ideas, share experiences and resources, promote mutual learning and growth. Assistive Technology: Utilizing modern technology to assist teacher training, such as virtual reality technology, intelligent teaching systems, online assessment tools, etc., to enhance training effectiveness and teaching efficiency. Practical Activities and Observation Classes: Organizing practical activities and observation classes for teachers to participate in and observe excellent teaching practices firsthand, thereby enhancing practical skills and teaching levels. Group Discussions and Collaboration: Promoting communication and interaction among teachers through group discussions and collaboration, facilitating the exploration of educational issues together, encouraging ideological collisions, and fostering mutual growth.

Based on expert assessment and data analysis, factors related to training organization include:

Training Plan and Objectives: Establishing clear training plans and objectives, defining training content, format, and schedule to ensure the systematic and continuous nature of training. Incentive Mechanisms: Setting up reward mechanisms or certification recognition to motivate teachers to actively participate in training, enhancing learning motivation and effectiveness. Training Faculty: Having a team of experienced and highly professional trainers, including education experts, psychologists, teaching specialists, etc., to provide professional guidance and support. Training Resources: Providing a variety of teaching resources and tools, such as textbooks, teaching aids, teaching equipment, teaching software, etc., to support teachers' learning and teaching activities. Training Activities: Organizing various training activities, such as lectures, seminars, workshops, field observations, practical guidance, etc., to offer different forms of learning opportunities. Financial Support: Providing necessary financial support for teacher training to ensure the smooth conduct and quality assurance of training activities.

Based on expert assessment and data analysis, factors related to training content include:

Early Childhood Education Theories: Introducing the basic theories of early childhood education, including child development stages, learning theories, educational psychology, etc., to help teachers better understand the characteristics of children's growth and learning. Teaching Methods and Techniques: Training teachers to use a variety of teaching methods and techniques, such as heuristic teaching, situational teaching, game-based teaching, as well as skills in classroom management and student assessment. Child Psychological Health and Behavior Management: Training teachers to understand child psychological health issues, learn how to build good relationships with young children, and effectively manage children's behavior. Multicultural Education: Teachers need to understand the importance of multicultural education and learn how to promote cross-cultural communication and understanding among young children in their teaching. Special Education Needs: Teachers should also receive training on special education needs, understanding how to support and educate children with special needs to promote their development. Professional Development: Training content should also include enhancing teachers' professional competence and ethical standards, cultivating their sense of responsibility, innovative spirit, and teamwork ability.

Based on expert assessment and data analysis, factors related to training strategies include:

Targeted Course Design: Designing course content that meets the actual needs of kindergarten teachers, covering teaching theories, practical skills, curriculum design, etc. Peer Assistance and Sharing: Encouraging teachers to exchange ideas, share experiences, establish professional communities, and cooperation networks to promote mutual learning and growth. Diversified Training Formats: Utilizing various forms of training such as online, offline, practical, peer communication, etc., to cater to different learning styles and needs of teachers. Progressive Training: Adopting a phased, progressive training approach, cultivating teachers' comprehensive abilities from basic knowledge to professional skills and practical capabilities gradually. Participatory Training: Encouraging teachers to participate in classroom interactions, group discussions, case studies, and other activities to promote active engagement

and communication among learners, enhancing learning outcomes. Incentive Mechanisms: Establishing reward mechanisms or certification recognition to motivate teachers to actively participate in training, thereby increasing learning motivation and effectiveness.

Based on expert assessment and data analysis, factors related to training evaluation include:

The evaluation content should cover knowledge mastery, skill application ability, teaching effect, etc., so as to comprehensively evaluate teacher training results. Formative assessment: Evaluation of the variety, flexibility and effectiveness of training formats, including online courses, offline seminars, and hands-on coaching. Engagement assessment: Assess the teacher's level of involvement and enthusiasm, including attendance, classroom interaction, homework completion, etc., to understand the teacher's recognition and engagement with the training. Evaluation of teacher satisfaction: Assess teacher satisfaction with the training program and collect feedback, constructive comments and suggestions to improve and optimize the training program. Continuous tracking and evaluation: Continuous tracking and evaluation shall be carried out after the training to understand the application and effect of the training content in the teachers' work and promote the continuous improvement of the training results. Training effect evaluation: Taking the above factors into consideration, evaluate the overall training effect and impact, analyze the advantages and disadvantages of the training program, and provide suggestions for improvement and the direction of future training.

Research Objectives 3 To evaluate the Kindergarten Teachers Training Model for Integrated IT Teaching Methods

In the research on research purpose 3, first, through qualitative analysis, the comprehensive information technology teaching method training model for kindergarten teachers in Wenzhou City was tested, analyzed, and compared. The training content was delivered to teachers, and the effectiveness of the training model created was validated by comparing the abilities of different teachers before and after implementation. In all six test projects, the average scores after evaluation

were higher than the average scores before evaluation. Furthermore, based on the results with a P-value less than 0.05, we can conclude that the score changes after evaluation in these test projects are significant, indicating a positive impact of the training on teacher development. By comparing the D-values, we can see that the magnitude of score changes after evaluation varies slightly in different test projects. For example, in the training strategy project, the score increased by 2.05 points, while in the training organization project, the score increased by 2.03 points. These data indicate that using the comprehensive information technology teaching method training model is effective in enhancing teachers' abilities and effectiveness, and positive results have been achieved in various aspects of training.

Furthermore, through expert interviews, an evaluation was conducted on the design of the comprehensive information technology teaching method training model for kindergarten teachers. After discussions on the above 6 main indicators and 36 minor indicators, the project received unanimous approval from 9 experts. One expert suggested making adjustments to the saturation of colors in the model diagrams to enhance clarity and visibility. Another expert pointed out that the names of "training activities" and "training resources" under the "training organization" factor are too similar, which may cause confusion, and recommended changing the minor factors to "learning activities" and "resource development." Additionally, one expert proposed changing "training plans and objectives" to "plans and objectives."

Based on expert opinions, revisions were made to the guiding principles of the model. Compared to the second round of impact indicators, 6 key indicators remained unchanged. They are: training needs, training content, training methods and tools, training strategies, training organization, and training evaluation. There are 36 minor indicators. The training needs elements include: professional knowledge and skills, teaching resources and tools, personal development needs, individual differences and feedback, updating teaching methods and strategies, and social needs. The training content elements include: early childhood education theory, special education needs, children's mental health and behavior management, professional competence enhancement, principles of early childhood education, and

multicultural education. The training methods and tools elements include: practical teaching, assistive technology, practical activities and observation classes, training manuals and materials, group discussions and cooperation, learning communities and discussion platforms. The training strategy elements include: participatory training, progressive training, targeted curriculum design, incentive mechanisms, diversified training formats, peer assistance, and sharing. The training organization elements include: planning and objectives, incentive mechanisms, learning activities, financial support, management mechanisms, and resource development. The training evaluation elements include: evaluation content, training effectiveness evaluation, formative evaluation, participation assessment, ongoing tracking evaluation, and satisfaction assessment. Specifically, “training plans and objectives,” “training activities,” and “training resources” were modified to “plans and objectives,” “learning activities,” and “resource development.”

After in-depth research, the comprehensive information technology teaching method training model for kindergarten teachers was finally determined. Project evaluation results show that this model has a significant impact. In addition, the patterns were validated through focus group interviews with experts. Finally, a modified version of the model is produced, thus forming a comprehensive information technology teaching method training model for kindergarten teachers.

Discussion

In the model of comprehensive information technology teaching method training for kindergarten teachers, the ranking of the main indicator factors from high to low is as follows: training needs, training organization, training methods and tools, training strategies, training evaluation, training content.

In the relevant factors of training needs, the ranking from high to low is as follows: professional knowledge and skills, updating teaching methods and strategies, social needs, teaching resources and tools, personal development needs, individual differences and feedback.

In the relevant factors of training organization, the ranking from high to low is as follows: planning and objectives, resource development, management mechanisms, incentive mechanisms, learning activities, financial support.

In the relevant factors of training methods and tools, the ranking from high to low is as follows: practical teaching, assistive technology, practical activities and observation classes, training manuals and materials, learning communities and discussion platforms, group discussions and cooperation.

In the relevant factors of training strategies, the ranking from high to low is as follows: diversified training formats, participatory training, progressive training, targeted curriculum design, peer assistance and sharing, incentive mechanisms.

In the relevant factors of training evaluation, the ranking from high to low is as follows: evaluation content, satisfaction assessment, formative evaluation, training effectiveness evaluation, ongoing tracking evaluation, participation assessment.

In the relevant factors of training content, the ranking from high to low is as follows: early childhood education theory, special education needs, children's mental health and behavior management, professional competence enhancement, teaching methods and techniques, multicultural education.

Research on the elements of the comprehensive information technology teaching method training model for kindergarten teachers, focusing on the dimension of training needs.

Teachers have the highest desire to improve the basic skills of early childhood education and teaching. Most teachers lack systematic training in teaching skills, or they have serious subject biases. "Playing, singing, dancing, speaking, storytelling, and doing" are the basic skills for conducting concentrated teaching or thematic game activities in kindergartens. The lack of any of these skills will affect the quality of education and teaching. Teachers hope to enhance a specific skill through training to meet the frontline teaching needs of kindergartens. It is essential for trainers to undergo training first, as improving the quality and ability of the trainers is one of the important means to ensure the quality of teacher education. The training of trainers mainly focuses on the upcoming training content and the

construction of training implementation capabilities. The analysis of teachers' training needs and the development of training courses based on these needs have not received sufficient attention. This may be related to our perception of the role of trainers, as it is generally believed that the main responsibility of trainers is to implement training, which is only a narrow definition of "trainers". In reality, training is a systematic process that starts with the analysis of training needs. It consists of multiple stages, including course design, resource development, training implementation, and effectiveness evaluation. The interest and need for the learning activities themselves have sparked the internal motivation of teachers to participate in training. Some teachers in the training process are more eager for self-improvement brought about by the training (Jin & Wang, 2019).

In terms of the main target of training, teacher training should first meet the individual development needs of teachers and place them in a significant position. A substantial amount of analysis on teachers' needs should be conducted in the early stages, collecting data through various channels and methods to identify the most urgent problems that need to be addressed in teacher education implementation. Secondly, based on teachers' different levels of development and professional foundations, different training content should be formulated to address the educational confusions of teachers at different levels of development. At the same time, different training themes and content should be developed according to the problems encountered by teachers in different educational fields, supplementing the areas where teachers are lacking in training content. For teachers from other professional backgrounds, appropriate education basic knowledge can also be provided. Based on the kindergarten's organizational culture and educational characteristics, corresponding training content should be developed to ensure the quality of curriculum construction in kindergartens, promote the gradual development of teaching work, and improve the level of education. V.H. Vroom's expectancy theory suggests that the motivation intensity of behavior depends on individuals' expectations of the outcomes of that behavior and the attractiveness of those outcomes to the individuals (Xu & Cao, 2016).

Efforts should be made to improve relevant practices and conduct research in a scientific, rigorous, and standardized manner to ensure the objectivity and effectiveness of training needs. The needs analysis model should be flexibly applied based on actual circumstances. Teacher training needs analysis can be conducted at different levels, including individual, group, department, organization, and even cross-organizational levels. Considering the detailed differences between various organizations and job positions, training needs analysis in practice is usually not a simple application of a single model, but an integration of multiple models. The same applies to training needs analysis in the field of teacher education. Trainers and managers should refer to the two classic models mentioned above, combine them with the actual training situation, and propose a research design framework to conduct training needs analysis. Data should be collected through various channels and methods. While valuing teachers' self-reports, we should consciously strengthen organizational analysis and task analysis in research design, and also introduce reports from others in personnel analysis or performance evaluation to overcome the limitations of self-reporting. Moreover, researchers should integrate data from various sources through triangulation techniques to form an objective assessment and in-depth analysis of teachers' training needs. Emphasis should be placed on the application of quantitative analysis techniques. Teachers' training needs are diverse and there are significant individual differences. It is unrealistic for trainers to meet the needs of all teachers. Trainers need to use quantitative analysis to identify the most urgent problems that need to be addressed in practice, the areas where teachers perform poorly, or the most pressing training needs of teachers. Limited training resources should be allocated to where they are most needed (Zhao, Liang, & Zhu, 2010).

Training needs refer to the gap between the actual needs of specific work and the existing abilities of the job holders. Training needs are limited to the needs of teachers in face-to-face classroom teaching. Training needs include the requirements for training capabilities, training courses, types of training experts, and training formats. These aspects provide guidance for the curriculum design and

training decisions of training institutions. Understanding the training needs of students also serves as a beneficial guarantee for improving training quality and enhancing students' professional growth (Su, 2015). Of course, the content of teacher training should never ignore the development of young children. It should meet the developmental needs of young children, focus on their interests, and inspire their thinking. Educational content should comply with the laws of physical and mental development in young children. Discovering the real issues in children's development in daily life education and helping them solve growing problems should also be considered in the training needs of kindergartens.

Researching the elements of the comprehensive information technology teaching method training model for kindergarten teachers and the dimensions of training organization.

In terms of training organization, educational training organized by relevant administrative departments yields more ideal results. This may be because these departments can provide more policy and financial support, allowing teachers to receive more support and learning resources in such training, thereby promoting their professional growth and better facilitating the development of their integrated educational literacy (Du & Sun, 2019).

In addition to continuing to improve teaching activities and teacher training based on learning pathways, it is also necessary to strengthen research in other areas of learning, especially in development areas that are relatively vague and difficult to subdivide, in order to broaden the scope of applicability for training organizations. In addition to domain-specific training and learning, generic and cross-disciplinary process skills, such as learning quality, play an important role in supporting lifelong development of children. Therefore, their training and development should also be emphasized. At the municipal level, training hierarchy significantly predicts good and ideal training outcomes. Higher-level training often focuses more on conceptual issues, but may lack attention to the participants' experience background and professional development needs. There may be a situation where theoretical aspects are emphasized over practical aspects in training content, resulting in poor targeting.

On the other hand, municipal-level training is more closely aligned with teachers' actual needs, pays attention to follow-up guidance after training, and achieves better results in improving teachers' skills and applying knowledge.

Teacher training, like the professional growth of teachers, is not a one-time effort at a certain stage, but a long-term, continuous process of improvement. When organizing teacher training, it is important to fully consider the connection and coherence between in-service training and pre-service education for teachers, scientifically design and establish training that links entry education with on-the-job training, focus on a lifelong learning curriculum system for teachers, organize experts to develop a series of training courses and materials, expand various educational resources, and apply them to training. This is also an important direction that is being actively improved and perfected in current training management efforts (Author, 2023). Kindergartens, as the practical field for the transformation of teacher training outcomes, should play a direct role in promoting the transformation of training outcomes. Kindergartens need to strengthen organizational culture construction, establish a systematic and standardized incentive mechanism for the transformation of training outcomes, and establish a sound assessment and reward system. Teacher performance evaluations should consider the situation of teacher participation in training and the positive or negative performance evaluation of the transformation of training outcomes, and establish a long-term tracking and evaluation mechanism. Research shows that 50% of kindergarten teachers hope to adopt a training assessment method that combines with their usual performance, so it is important to focus on examining how teachers apply the skills and effects learned in training in their daily educational practices. Through standardized systems, the emphasis on training by teachers can be enhanced, and more teachers can be encouraged to apply training content to educational practice (Huang, 2023).

Enhancing the construction and improvement of facilities conducive to the transformation of kindergarten teacher training outcomes, and providing good hardware conditions for the transfer of teacher training, is essential. Kindergartens should highly support the behavior of participating teachers in optimizing educational

practices through the application of training learning outcomes, by procuring and adding supporting equipment. Additionally, it is important to ensure smooth internet speed and complete network equipment to support the application and promotion of training outcomes. Furthermore, higher-level supervisory departments should attach importance to the improvement of hardware equipment in kindergartens, and consider kindergarten-related needs when formulating financial budgets. Currently, the government has relatively large financial investment and support for kindergarten teacher training, but in addition to this, it should also consider matching hardware facilities that contribute to improving the effectiveness of training when planning training funds, allocate corresponding budget funds, and local kindergartens can make purchases based on actual needs.

The incentive mechanism involves the coordination and unity of incentives and mechanisms, starting from the two dimensions of teachers' sensibility and rationality. Incentives focus more on the emotional aspects of teacher behavior in the management process, while the rational aspect of teacher behavior is the main concern of the mechanism. Teacher training resources mainly include human, financial, material, and informational resources. The scale, quality, and allocation of teacher training resources directly affect the effectiveness of teacher training. For new teachers, there is not much demand for "teaching researchers" in terms of human resources. Kindergartens should shorten the distance between teaching researchers and teachers, and should not always appear in the role of evaluators or instructors, but rather should integrate into the group of teachers and provide guidance and training while becoming part of their team. Only in this way can kindergartens avoid wasting human resources. In addition, new teachers are more receptive to peer assistance, so kindergartens should encourage interaction and collaboration among teachers, and should allow experienced or skilled teachers, as well as ordinary teachers, to take on the role of trainers. In terms of material resources, the focus is on addressing issues that arise during expert lectures, such as outdated multimedia teaching equipment, insufficient seating in classrooms, and simple training venue conditions. Kindergartens should not economize on material

resources for training, but should open up high-quality teacher training resources. Kindergartens should construct multi-functional training classrooms with rich and advanced multimedia equipment, as well as desks and chairs suitable for adult learning. This will eliminate issues such as unclear slides, computer sound issues, microphone malfunctions, and the lack of air conditioning or fans in hot summers that can affect training effectiveness (Zhang, 2013).

Research on the elements of the comprehensive information technology teaching method training model for kindergarten teachers, as well as the dimensions of training methods and tools.

Commonly used methods in kindergarten teacher training generally include special lectures, field trips, on-the-job training, dialogue and Q&A, and case discussions. Surveys show that among all training methods, special lectures are the most commonly chosen. For professional knowledge learning, expert lectures are appropriate because they can quickly help kindergarten teachers establish professional concepts and solidify their professional knowledge. However, for the improvement of professional skills, field trips and on-the-job training are more suitable. The internalization of kindergarten teachers' educational philosophy and the acquisition of educational strategies must be based on participatory training and firsthand experience gained in practical settings. On-the-job training allows kindergarten teachers to immerse themselves in high-quality kindergartens, personally experience and understand the kindergarten's educational processes, and engage in educational activities, thereby quickly absorbing the experiences of high-quality kindergartens. Relying solely or excessively on special lectures for kindergarten teacher training is inappropriate. Case analysis often selects typical cases from the content of special courses, analyzing their principles, practices, and triggering deep thinking. Using actual cases as a carrier, in the analysis process, newly appointed kindergarten teachers can draw on their own experiences and form personalized deep thinking, which is beneficial for the transfer of training content.

Field trips allow newly appointed kindergarten teachers to immerse themselves in real teaching environments, engage in face-to-face observation,

communication, and discussions. This is a favorite method among frontline kindergarten teachers. However, due to limitations on the number of trainees and available observation sites, it is often not possible to accommodate every teacher through field trips. Practice-oriented courses advocate grouping newly appointed kindergarten teachers before the observation, setting observation focuses for each group, and preparing observation record templates in advance to facilitate real-time recording on-site and preserve first-hand information for post-observation discussions. On-the-job training, also known as “shadow training,” refers to trainee teachers integrating into local kindergartens and learning alongside local teachers. Generally, on-the-job training programs focus on local practices with distinctive features or practices that are worth promoting and radiating. The aim is to enable trainee kindergarten teachers to quickly grasp the training content and process methods. On-the-job training places higher demands on the host kindergartens, involving communication and collaboration between trainee teachers and local teachers, as well as various subjective and objective factors such as the extent of trainee teacher integration (Jiang, Dou, & Liu, 2023).

Actively utilizing “Internet+” technology and adopting a hybrid training format that combines online and offline elements, strengthen the practical research and training of trainee teachers in real teaching settings after centralized training. When teachers apply what they have learned in training to new work contexts, it is conducive to the transfer of training to distant situations, achieving a training effect of generalization and application. In the long run, this approach can lead to superior training outcomes. Therefore, after completing centralized training on-site, a training format combining return-to-post training with online guidance and communication is adopted. This allows kindergarten teachers to return to their work positions, combining practical work with ongoing training tasks, and applying the content and principles learned in centralized training to real work situations.

The characteristics of training topics determine the form of teaching organization. Training on professional concepts and teacher ethics knowledge is mainly conducted through expert lectures, while training on professional basic skills

and techniques adopts a group course format. Experience exchange and interaction at the class level are conducted in a salon format, and on-the-job training and lesson observation and evaluation are carried out in the form of observing demonstration kindergartens. Diverse teaching formats not only align with the characteristics of the curriculum but also meet the training desires of teachers. The composition of training topics determines the formation of the training teaching staff team. Invited experts should be authoritative, cutting-edge, and grounded, with a solid understanding of teachers' needs. Topics related to national, provincial, and municipal aspects invite management personnel from educational authorities, while topics on cutting-edge early childhood education knowledge invite professors and researchers from universities who are at the forefront of early childhood education. For topics on teaching fundamentals, university teachers specializing in preschool education are invited, and for topics on health and safety knowledge, managers and industry experts in the field of regional health and childcare are invited. Topics related to kindergarten positions and experience exchange invite kindergarten principals and frontline key teachers.

Experience-based participatory training is grounded in practice, values teachers' teaching experiences, and is conducive to triggering active learning among teachers. It can also enhance training effectiveness by combining the guidance of training experts. In addition to lectures, discussions, workshops, and other centralized training methods, training institutions should strengthen the integration of industry and education, establish an integrated system of industry-education-research, and establish close cooperation with frontline kindergartens or practical bases. For training content with a strong practical focus, training formats such as on-site observation or shadow training should be adopted. Surveys have found that 94% of rural kindergarten teachers believe that "on-site observation or hands-on practice" better meets their work needs (Huang, 2023).

The key elements of the training model for comprehensive information technology teaching methods for kindergarten teachers and the dimensions of training strategies.

The prominent feature of the learning pathway is its domain specificity, meaning that learning in a particular domain follows a certain developmental process. However, the description of the learning process can simultaneously include pathways from multiple domains, allowing teachers to support children's learning and development in these domains through training. Once teachers have the experience and insights to generate learning pathways, they no longer remain passive learners during training but become active contributors. They share their experiences within the learning community and become professional and confident learners. Simon (1995) introduced the concept of a hypothetical learning trajectory, suggesting that teachers can use hypothetical learning trajectories to monitor students' thinking and learning processes in real-time, reflect on and optimize teaching activities.

Experience-based participatory training, guided by professional leadership, is grounded in practice and centered on experiential learning, which can guide kindergarten teachers to engage in active learning and self-development. Advocating for experience-based participatory training requires first studying the participating teachers to understand their developmental levels and needs. Secondly, it should be conducted in a thematic manner, emphasizing practice and experience, and guiding trainees to fully participate and engage in active learning. Each thematic training activity should include elements such as theme design, experience, reflection, sharing, and homologous activities, with each theme representing the challenges or issues that kindergarten teachers face in practice. Different from traditional centralized training, teacher training based on learning pathways is guided by practice, emphasizes teachers' experiences and actions, and possesses flexibility and scalability. Its fundamental purpose is to enable teachers to have a developmental perspective and the ability to analyze children's behavioral development. In the teaching process, it not only serves as an auxiliary tool to help teachers support children's learning and development but also enriches teachers' pedagogical knowledge and enhances their teaching abilities. Applying teacher training to kindergartens can also help teachers discover children's learning processes

through play, laying the foundation for subsequent material deployment, environmental creation, and teacher-child interaction (Guo, Cao, & He, 2022).

Teachers gain beneficial insights for their own teaching through the method of going out for observation, as opposed to teacher training activities. Teachers participate in collective research activities through the collaborative power of professional learning communities, engaging in reflection and reconstruction of their own teaching practices through mutual assistance, dialogue, and cooperation. Cognition has the characteristics of contextuality, sociality, and distribution, occurring within specific social and physical contexts and distributed among individuals, others, and various artifacts. Situated learning is essential for teachers, focusing on how various contexts trigger teacher learning, emphasizing case-based learning experiences, and teacher dialogue within communities (Putnam & Borko, 2000).

Kindergarten entities should not only focus on external incentives in teacher training, such as continuing education credits, professional titles, selection, promotion, but should also emphasize internal motivational mechanisms to fully support the status of teachers. This is mainly manifested in training based on demand, meaning that teachers' opinions are sought in the content of the training, and the training content desired by the teachers is selected. Frontline teachers should be given the opportunity to become trainers, and a "self-development plan application system" can be adopted, where they regularly fill out application forms, and after communication and analysis with kindergarten leadership, the reflections of teachers and their future development directions are included as part of their sharing (Zhang, 2013).

To coordinate the development of kindergartens, it is important to establish a clear training reward system and categorize the rewarded projects according to different dimensions. By combining material rewards with spiritual rewards, teachers should be given more encouragement and care, focusing on their spiritual needs and providing recognition. Pre-service education institutions should cooperate with kindergartens to build an integrated pre-service training and in-service training system. On the one hand, for the phenomenon of "repetition of training content and

knowledge learned in school” reflected by teachers, kindergartens can conduct needs surveys before entry to understand the actual situation of kindergarten teachers’ learning in school, and provide “on-demand training” based on this situation. Pre-service education institutions should not only focus on the theoretical knowledge of kindergarten teachers but also create more opportunities for them to practice. Practice should be purposeful and targeted, and after each practice session, kindergarten teachers should be required to refine and reflect on the problems, and combine theory with practice. Only in this way can kindergarten teachers better integrate theory and practice and adapt to their work more quickly.

Based on a “human-centered” approach, firstly, the school or training organization where teachers are located should help them develop targeted professional development plans based on their abilities, interests, and strengths. Teachers should be able to choose training courses and be provided with platforms and resources. Secondly, participants should be involved in the design of training courses, contribute ideas to the training content, and create a learner-centered training culture and environment that meets their individual and professional development needs, thereby facilitating comprehensive teacher development. Thirdly, by enhancing teachers’ satisfaction with training courses, their sense of achievement in training can be improved, and their identity as learners can be enhanced. Lastly, it is important to appropriately incorporate “teacher ethical literacy” training courses into the training design (Peng, 2020).

The goals of learning and development are not fixed, but need to be adjusted according to the actual situation of children’s development and the specific context at hand. As a typical example, the assumed learning path may not always be the standard answer in terms of observation and support. There may also be specific and context-specific learning paths generated based on changes in activity contexts. Therefore, in training, teachers should understand that the uniqueness of children and the diversity of contexts can lead to observations in practice that may be inconsistent with existing experiential assumptions. It is necessary to update and adjust the learning path based on the actual situation. Therefore, in teacher training

strategies, teachers should focus on the learning process, fully recognize the diversity of learning, avoid treating typical learning in cases as dogma, consider the contextual nature of learning, and emphasize children's learning and thinking processes to generate appropriate learning paths and supportive activities for children's learning and development.

Research on the training model elements of comprehensive information technology teaching methods for kindergarten teachers and dimensions of training evaluation.

Bramley (1996) believes that the evaluation of training is "the process of collecting and organizing information from all aspects. The main purpose of evaluation is to determine whether various training programs are valuable and meaningful, and whether they have achieved good results." The evaluation of the effectiveness of teacher training is an important link in measuring the level of teacher training. It is necessary to evaluate whether the content and methods of teacher training are valuable and the extent to which teachers have absorbed the training content. The evaluation of the effectiveness of kindergarten teacher training mainly adopts the method of evaluation by kindergarten leadership, including principals, academic departments, and teaching and education departments. They are not only the developers of the training program but also the evaluators of the training effectiveness. In addition, there may also be expert evaluations, peer evaluations, and self-evaluations by teachers as supplementary evaluations. The main authority for evaluation lies with the management, although teachers are also involved in the evaluation, their level of participation is still insufficient. Kindergarten management mainly collects feedback to understand the feelings of kindergarten teachers about the implementation of teacher training in the recent period, obtain specific evaluations of teacher training from teachers, including gains and issues encountered during training. By evaluating the current effectiveness and issues of teacher training content and methods, kindergarten management can adjust training objectives, content, etc., based on this feedback to improve the effectiveness of teacher

training, enhance its applicability, and increase the enthusiasm and participation of teacher training.

Yang Xuanzhi (2002) believes that the feedback of training effectiveness refers to demonstrating the effectiveness and value of training through qualitative or quantitative methods after the completion of training activities by the training provider. When evaluating the effectiveness, kindergartens mainly use qualitative methods in addition to surveys. Kindergartens primarily conduct evaluations at the end of the semester, where various management levels will conduct centralized evaluations, focusing on the completion of training tasks for the semester, the achievement of objectives, the applicability of training methods, the relevance of content, and the effectiveness of implementation. They collect teachers' feedback and parents' opinions through surveys, interviews, and then analyze and summarize the feedback. Summarizing and sharing through special reports at the end of the semester is also a form of evaluation.

Currently, there are three main types of training evaluations: 1) anonymous evaluations by trained teachers on training institutions, 2) project evaluations organized by provincial education departments for awarded training institutions, and 3) overall evaluations by the national government on the quality of different types of training projects in each province. These evaluation methods can ensure the systematic, effective, and scientific nature of training, but they are not perfect. The effectiveness of training should not only consider the organization of training institutions but also evaluate the quality of training received by the trainees. This is currently lacking in the evaluation of kindergarten teacher training, as the evaluation of the quality of actions taken by trained teachers has not yet become a core part of training evaluation. Without monitoring and tracking the trainees, the result may be that the trained teachers are enthusiastic during training but return to practice without significant changes (Wang, Li, & Dang, 2017).

To enhance the quality of kindergarten teacher training, it is necessary to establish a suitable training model that respects the subjectivity of kindergarten teachers. Starting from the perspective of training transfer theory and combining with

the real context of professional development for kindergarten teachers, constructing a training system that highlights kindergarten teachers as the main subjects can truly help improve the effectiveness of transforming training outcomes. By increasing participants' willingness to attend training, enhancing their understanding of how training promotes professional growth, and recognizing the value and significance of training, a positive impact can be made. It is important to establish effective incentive mechanisms to encourage teachers to support kindergarten education, increase the number of kindergarten teaching staff reasonably, and alleviate the pressure on teaching and education. This approach can potentially awaken their self-awareness for growth and stimulate training motivation.

Additionally, motivational interventions in training have a direct impact on participants' motivation. Currently, there is a situation where trainees have close contact with training institutions but are disconnected from local educational administrative authorities. In reality, local educational administrative departments or educational research institutions have significant management effectiveness over trainees. To enhance the autonomy of trainees in training, before each training session, the person in charge of student selection and management in local educational administrative departments or educational research institutions should strengthen on-site mobilization and pre-training interventions for trainees, actively guide trainees' training motivation, and inspire their willingness and enthusiasm to participate in training. Multiple evaluations should be conducted on the results of teacher training. The evaluation work in the later stages of teacher training is complex. For outcome evaluations, the Kirkpatrick Evaluation Model can be utilized (Mao & Lin, 2010).

Alliger (1997) enhanced Kirkpatrick's four-level evaluation model, which includes the reaction level (emotional response, effectiveness judgment) and the learning level (immediate reaction, knowledge retention, behavior in training, etc.). First, regarding the evaluation of kindergarten teachers, it mainly includes the emotions of kindergarten teachers during training and their feedback on the training; the level of learning of training content and comprehensive performance in training

activities. The management needs to divide the training content into different levels, clarify assessment criteria and scoring methods, and evaluate teachers' mastery of the content. It is essential to assess whether their behaviors in education and teaching have been well adjusted, conduct timely evaluations of teachers' teaching behaviors, make appropriate comparisons before and after training to understand the progress of teachers, and determine if the improvements obtained after training can be maintained in future education and teaching. Regular evaluations should also be conducted to assess the long-term effectiveness of later-stage training.

Secondly, for the evaluation of kindergarten management, it includes the ability to develop and plan programs, implement programs, organize training, modify training plans, analyze teacher needs, and coordinate various factors. In general, the evaluation of teacher training should be comprehensive, ensuring the diversity of evaluation subjects. Multiple parties should participate in the evaluation, including self-evaluation by teachers, peer evaluations among teachers, evaluations by management, experts, parents, and children, to conduct a comprehensive analysis (Jiang, 2021).

Research on the training model elements and dimensions of comprehensive information technology teaching methods for kindergarten teachers.

Training for kindergarten teachers should focus on their real training needs and practical difficulties, ensuring that the training content meets the needs of educational practice and professional growth. During the development of the training program, training institutions should conduct online needs surveys for participants based on the training theme, understand training difficulties, and collect training content and trainer requirements. Additionally, to prevent kindergarten teachers from having unclear professional growth needs and positioning, one-on-one communication with relevant personnel from local education administrative departments should be conducted to more intuitively understand the training needs of participants. After clarifying the needs and determining the training course themes, training institutions should closely communicate with the teaching staff, promptly convey the course theme teaching requirements, provide feedback on the course

requirements of the teaching staff, and facilitate communication between trainees and training experts to ensure that the training content provided by the training experts meets the real training needs of the students, ensuring that the training content can be effectively applied in practical situations and facilitating the occurrence of training transfer.

The training content should aim to achieve a shared significance in the development of both teachers and young children. Currently, more attention is paid to the needs and development of young children in kindergarten teacher training, with less focus on the teachers' well-being. This has led to a lack of attention to the social development of teachers, resulting in fragmented personal development. Therefore, the curriculum for kindergarten teacher training must take into account the needs of both young children and teachers' development. Kindergarten teacher training should offer positive courses that focus on the strengths of teachers and moderately amplify and enhance these strengths during training interactions, thereby awakening the strengths of kindergarten teachers and using these strengths to drive their weak psychological and behavioral development. Positive training courses can be divided into thematic training courses and embedded training courses. Thematic training courses use theoretical knowledge and specialized training in positive psychology to help teachers master methods for enhancing positive self-perception and positive interpersonal relationships. Embedded training courses infuse positive psychology theory into other training courses, especially practical training, guiding teachers to learn positive interactive thinking, ways of interaction, and interactive evaluation with children, colleagues, and parents, fully experiencing the beauty and happiness brought by good interpersonal relationships (Zhang, 2018).

The core value of general education in kindergarten teacher training is to promote the social development of teachers and enhance their humanistic spirit. It is an extension and extension of teachers' educational life, rather than compensation and repetition of pre-service general education. Currently, general education courses in training tend to focus on purely technical training, reflecting a strong instrumental characteristic, without enriching teachers' spiritual life or considering their long-term

development. Thematic general education courses are based on the dual roles of kindergarten teachers as individuals and educators. The course themes should be based on the educational life and interests of kindergarten teachers, while also being guiding and transcending life and interests themselves.

In China, continuing education for kindergarten teachers started relatively late and has a low starting point. There are many urgent issues to be addressed in training models and content, mainly manifested as a focus on knowledge over abilities and a focus on skills over professional ethics. Kindergarten teachers should not only have educational concepts that are in line with the spirit of the times but also possess strong educational and teaching abilities, management abilities, research abilities, communication abilities, lifelong learning abilities, and information literacy. There are significant differences between regions, positions, and individual teachers. To meet the needs of different learning objects and training objectives, diversified curriculum content should be adopted, including both compulsory and elective courses, to create a flexible, adaptable, and diversified new pattern of curriculum design, in order to meet the needs of various types of learners (Liu & Zhang, 2009).

It is essential to fully consider the differences between urban and rural areas. Outdated educational concepts, lack of educational skills, and a shortage of modern educational technology are common problems among rural kindergarten teachers. Kindergarten teachers have different job positions, each with its own specific responsibilities. Therefore, the continuing education needs of personnel in different positions will also vary. Curriculum content should be designed according to the growth stages of teachers. The teaching profession is a continuous process of growth, so teacher training must be phased and stratified. In integrated curriculum design, attention should be paid to the targeted nature of different stages and the implementation of differentiated levels for different teachers. Generally, a teacher's growth can be divided into four stages: novice, adaptation, maturity, and expert, and the main issues to be addressed and resolved at each stage are different. Kindergarten teacher education and training must adhere to the principle of integrating theory with practice, based on the actual needs of kindergarten education

reform and development in different regions and at different levels. It is necessary to select training content with regional characteristics and arrange the training content in accordance with the laws of cognitive development, forming a scientific progressive series, allowing for “spiral ascent, gradual refinement, and repeated iterations,” so that each teacher can achieve the most suitable and optimized development (Liu & Zhang, 2009).

Recommendations

1. Innovation and the development of diversified teacher training models.

The teacher training model should be updated with a design concept that widely adopts a practice-reflection-oriented design pattern and strategy. Therefore, teacher training institutions or publishing houses focusing on teacher training materials should allocate special training funds to provide specialized training for material designers, updating their design concepts and enhancing their professional competence in material design, in order to cultivate a high-level, relatively stable team of material designers who are adept at closely integrating theory and practice in teacher training materials design. In order to ensure that teacher training materials have both a certain theoretical depth and meet the practical needs of frontline teachers, it is important to avoid the occurrence of extreme phenomena such as “pure theoretical transplantation” or “shallow-level experiential summary” in training materials.

2. Reasonable use of financial support.

Teachers generally have a strong desire to improve their teaching abilities, but they often face the reality of a busy and hectic daily workload. In certain periods, the motivation for proactive learning and professional development is clearly lacking. The main reason is that the content of these training programs is not what the participants themselves need or expect. The government allocates a considerable amount of training funds for teachers’ continuing education each year. If these funds are not used where teachers need them, it will undoubtedly result in significant waste. If these funds can be divided, with a portion managed by the government for

top-level design and overall planning, and another portion dedicated to the autonomous selection of training programs by participating teachers, the motivation for teacher training will be greatly enhanced. Through the choices made by participating teachers, low-quality training programs can naturally be eliminated, thereby promoting training institutions to improve their own training plans and actively enhance the quality of implementation and service standards, indirectly achieving the goal of improving the effectiveness of teacher training.

In recent years, information technology has developed rapidly, and the concept of online training has gained momentum. Many frontline teachers have either attempted or participated in online training. However, as part of the training resource development, many online training programs fail to meet requirements, and some cannot even be considered as training courses. It is suggested that in future teacher training programs, all online training courses or deliverables should be constructed based on teaching outlines and subject curriculum standards, and even establish a systematic subject structure system for online teacher training courses through cross-course collaboration.

3. Establish and improve the digitalization of teacher training.

Harnessing collective wisdom to aid individual progress, the development of training platforms and digital resource construction is a daunting task for remote training institutions. A powerful, flexible, and scalable training platform can meet the needs of different training programs, enabling both large-scale training for tens of thousands of teachers and refined training for small collaborative groups of just a few individuals. Each role within the platform performs its respective duties, and various projects are interconnected, allowing students to freely connect with peers, easily access resources, and exchange information, facilitating rational learning and feedback. A comprehensive platform can not only meet the various task requirements of students during training but also help teachers establish a sound mechanism for habitualized professional development. It should also analyze unstructured and semi-structured data from students within the platform, such as student messages, uploaded assignments, submitted forms, discussion topics, and

keyword evaluations. Furthermore, it should intelligently recommend content of interest to participating teachers based on statistical results, guide students to co-create and share resources, form learning communities, provide mutual assistance, and foster collective development. At the level of resource presentation, dissemination, and exchange, integration with social platforms such as WeChat can also be explored.

4. Improve the feedback management mechanism of teacher training.

Multi-dimensional monitoring, enhanced process identification, and process evaluation are essential. Establishing smooth feedback channels is the foundation for providing excellent service. Close communication between participating teachers and training institutions is crucial. Only through this can the management, monitoring, and assessment methods of training institutions be effectively implemented. Similarly, the needs, experiences, suggestions, and evaluations of students can be adjusted and improved through feedback. In addition to traditional methods such as telephone consultations and project emails, advanced social media can also be utilized to establish feedback channels.

Effective monitoring of teacher training services is another important indicator for improving training quality. A comprehensive and diverse monitoring system should be established. In terms of organizational management monitoring, a sound organizational management system should be established, including the establishment of project management systems, emphasis on document development, mid-term supervision, and strengthened real-time monitoring. In terms of information transmission monitoring, timely summaries and compilation of student situation reports should be ensured, with a focus on delivering services and removing learning obstacles. Regarding technical support monitoring, emphasis should be placed on solving problems at any time, continuously improving technology, and building efficient platforms.

Foreground

1. Improve the design and planning of teacher training

This research is based on the understanding of real-life challenges. Teacher training is one of the important resources for the development of teacher education and teaching. Emphasizing and conducting research on teacher training, by improving the design of teacher training, fully leveraging the important role of teacher training, aims to achieve effective learning and professional development for teachers, ultimately realizing the long-term development of education and teaching.

2. Changes in technology-led teacher training

In the era of rapid development of modern information technology, teacher training based solely on text as a carrier is no longer able to fulfill all training tasks. People's understanding of the concept of teacher training has long surpassed the scope of textual materials, and now includes audio-visual and electronic materials as well as information processed and organized on the internet. The development of teacher training has gradually begun to incorporate dynamic and interactive information. With the continuous development of modern information technology, teacher training based on integrated design will become increasingly popular among teachers. After specific training objectives are determined, a comprehensive and carefully designed approach should be taken for different media based on specific training targets, establishing logical connections between various forms of information and integrating a system that is both diverse and integrated, interactive and controllable. Only in this way can the advantages of integrating multiple media be better utilized and the limitations of a single medium be avoided.

3. Development of digital teacher training

In the current situation of burgeoning digital teacher training in China, it is necessary to recognize that teacher training methods are not singular. There is a need to change the notion of relying solely on course resources and to delve into the modern digital teacher training and learning methods based on the internet environment, and to construct the structure and function of teacher training course resources rationally. Therefore, a new trend will be the integrated design of teacher training, combining multiple media and complementary advantages.

References

- Alliger, G. M, et al. (1997). A meta-analysis of the relations among training criteria. *Personnel Psychology*. 341-358.
- Alliger, G. M, Tannenbaum S.I., Bennett Jr. W., Traver H., Shotland A. (2006). A meta-analysis of the relations among training criteria. *Personnel Psychology*. 5(2). 341-358.
- Bramley, P. (1996). Evaluating training. *Institute of Personnd and Development(IPD)*.
- Cai, Y. Q., & Zheng, J. (2018). Empirical study on the training needs of kindergarten teachers. *Education Research and Experiment*. (01), 66-70.
- Chen, L. (2019). Preliminary exploration of the "Artificial Intelligence + Teacher Education" ecosystem. *Modern Educational Technology*. 29(09), 13-18.
- Chen, Q. L. (2016). Optimizing teacher training management using smartphone terminals. *Hunan Education (Section D)*. (10), 51-52.
- Ding, G. (2006). Professional growth of teachers in daily teaching life. *Education Science*. (06), 52-55.
- Fang, B. (2014). Study on the training needs of kindergarten teachers participating in the "National Training Plan" (*Master's thesis. Central China Normal University*).
- Feng, Y. J. (2012). Some experiences and inspirations from foreign special education teacher training. *China Special Education*. (12), 3-7.
- Ge, X. Y., Wang, M., & Yang, D. M. (2021). Investigation and analysis of the training content demands of kindergarten teachers. *Journal of Tianjin Normal University (Basic Education Edition)*. (04), 22-28.
- Ge, X. Y., Wang, M., & Yang, D. M. (2021). Survey and analysis of kindergarten teacher training content needs. *Journal of Tianjin Normal University (Basic Education)*. (04), 22-28.
- Guo, L. P., Cao, J., & He, T. (2022). Teacher training based on learning paths: New ideas for professional development of kindergarten teachers. *Preschool Education Research*. (07), 1-11.

- He, Y. H. (2015). An analysis of the evaluation of the effectiveness of the National Training Program for Teachers (Master's thesis, *Beijing International Studies University*).https://kns.cnki.net/kcms2/article/abstract?v=MdENDFpkZq4xYcY-CEB7VgFXZ90oJNMOP0mRW2NheTEurEFjp5UGt-DPsyztB_2ox6V5k4uf1PWXFktwXhdrynmID-TV1qtM9lVdmR5CUFMiO15AuYS6cVOyUx3JWCSTcto1TgO5XHmpD46VyDM21spfWnQ6xmsUykFHYwejVJou82ljY5FlDrKxyXoiKEoDTp8ffC-x9Y=&uniplatform=NZKPT&language=CHS.
- Hu, D. Z. (2019). Study on the problems and countermeasures of kindergarten teacher training in Guizhou Province-Based on adult learning theory. *Journal of Anshun University*. (04), 66-69.
- Huang, J., & Zhang, Z. J. (2018). Research on the efficacy of preschool teacher training based on Pedagogical Content Knowledge (PCK). *Education Development Research*. (Z2), 27-34.
- Huang, W. J. (2021). Application of "Internet + Education" platform in the in-service training of preschool English teachers in Yangjiang City. *English Square*. (09), 90-92.
- Huang, X. (2023). Problems and countermeasures in the transformation of rural kindergarten teacher training outcomes under the training transfer theory. *Journal of Heihe University*. (02), 101-103.
- Jiang, L. Q. (2021). A case study of the on-site training in public kindergartens in Chengdu (Master's thesis, *Chengdu University*).
<https://link.cnki.net/doi/10.27917/d.cnki.gcxdy.2021.00015>.
- Jiang, L. Q. (2021). Case study on in-house training for public kindergarten teachers in Chengdu (Master's thesis, *Chengdu University*).
- Jiang, Y. T. (2022). Case study on the training needs of backbone kindergarten teachers. *Asia-Pacific Education*. (20).41-44.
- Jin, Y. B., Zhang, Y. G., Yang, Y., & Liu, H. C. (2024). The value implications, real challenges, and breakthrough paths of "AI+ teacher training" in the era of strong artificial intelligence. *Modern Educational Technology*.(03), 63-70.

- Jing,x.l.,&Wang,w.h.(2019).Motivation for vocational school teachers' training and its related factors analysis Based on the survey in Chongqing. *Vocational and technical education*.44-48.
- Li, S. M., & Wang, H. (2013). Research on the design and development of video teaching case courses for kindergarten teacher training. *China Distance Education*. (11), 88-92.
- Liang, X. T. (2019). Research on a participatory teacher training model based on the UMU interactive platform. *New Curriculum Research*. (16), 121-122.
- Liang, Y. J. (2022). Current situation and promotion strategies for post-training of kindergarten teachers under the "Internet+" context. *Teaching Materials of Culture and Education*. (17), 187-190.
- Liu, H. Q., & Zhang, S. (2009). Research on the content of continuing education courses for preschool teachers. *Journal of Higher Correspondence Education. (Philosophy and Social Sciences)*. (01), 25-28.
- Luo, B. (2018). From teaching ability to curriculum educational ability-Understanding and use of the "Guidance Standards for Kindergarten Teachers Training Courses". *China Teachers*. (06), 31-34.
- Ma, F. C. (2022). Design and application of micro-courses based on teacher training. *Journal of Hebei Tourism Vocational College*. (03), 96-101.
- Mao, N. J. & Lin, F. (2010). Constructing a teacher training evaluation system based on the CIPP model and Kirk-Patrick model. *Journal of Beijing Normal University (Education)*. 24 (04), 15-17.
- Mao,N.J.,&lin,F. (2010). Constructing a Teacher Training Evaluation System Based on the CIPP Model and Kirkpatrick Model. *Journal of Beijing Normal University (Education)*.15-17.
- Pei, M., & Li, X. Y. (2014). Interpretation of teacher learning from the perspective of adult learning theory: Regressing teachers' identity as adults. *Teacher Education Research*. (06), 16-21.
- Peng, G. (2020). The value orientation and practical paths of standardized teacher training courses. *Journal of Fujian College of Education*. 21(10). 104-106.

- Peng, G. (2020). The value orientation and practical paths of standardized teacher training courses. *Journal of Fujian College of Education*. (10), 104-106+124.
- Pingfan, Liu, L. N., & Li, Z. Z. (2013). Study on the online training needs and countermeasures of rural preschool teachers in Tianjin. *China Distance Education*. (01), 52-57+73+95.
- Qi, Q. L. (2019). Innovation in the on-site training model for kindergarten teachers. *New Curriculum Research*. (26), 126-127.
- Qi, Q. L. (2019). Innovation in the on-site training model for kindergarten teachers. *New Curriculum Research*. 2019(26), 126-127
- Qiao, Z. (2013). Study on the training needs of kindergarten teachers. (*Master's thesis, East China Normal University*).
- Ren, Y. (2015). Practical study on the content and methods of professional development training for new kindergarten teachers—Case study of Kindergarten 93886. *Journal of Xinjiang Education Institute*.(03), 21-26.
- Song, B. (2022). Practical application of the blended training model based on the Rain Classroom in pre-service training for university teachers. *Education Observation*. (19), 35-37.
- Song, Z. K. (2013). Research on the "National Training" model for kindergarten teachers based on problem-based learning. (*Master's thesis, Harbin Normal University*).
- Su, X. J. (2015). Survey of training needs of rural kindergarten teachers in Xinjiang—Based on the 2014 "National Training Plan" replacement off-job training project. *Journal of Suzhou Education Institute*. 18(04), 93-95.
<https://doi.org/10.13985/j.cnki.34-1227/c.2015.04.043>
- Tan, M. Q. (2022). Exploration of the "Three Stages Seven Steps" training model for new kindergarten teachers. *Today's Education (Preschool Golden Edition)*. (06), 20-23.
- Tang, J. X. (2014). Survey study on the effectiveness of the "National Training Plan" curriculum implementation. (*Master's thesis, Northeast Normal University*).

- Tang, X. H. (2022). Reforms in university teacher training from the perspective of adult learning theory. *Xue Yuan (Garden)*. (28), 24-26.
- Tian, D. D. (2024). Issues and solutions in the construction of a training system for primary, secondary, and kindergarten teachers. *Liaoning Education*. (08), 47-49.
- Tian, J. Z., & Li, W. T. (2022). Three-dimensional perspective on the training content needs of rural kindergarten teachers. *Journal of Fujian College of Education*. (10), 102-104.
- Wang, G. X. (2023). Current situation and improvement strategies for the application of information technology by kindergarten teachers in Yunnan Province. *China Training*. (12), 103-105.
- Wang, J. J., & Wu, S. N. (2020). Improvement strategies for teacher training methods based on the theory of transformative adult learning. *Journal of Higher Continuing Education*. 33 (06), 48-52.
- Wang, S. H., & Cheng, H. (2018). Study on the issues and countermeasures in the professional development of kindergarten teachers from an online training narrative analysis. *Educational Guide, (Second Half of the Month Edition)*. (03), 63-67.
- Wang, T. (2021). Creating a kindergarten teacher training content screening system based on the "OTP" model—Taking municipal-level training of kindergarten teachers in Dongguan City as an example. *Education Observation*. (04), 109-111+130.
- Wang, Y. H. (2014). Survey on the current situation of on-the-job training for new kindergarten teachers in Dalian. (*Master's thesis, Liaoning Normal University*).
- Wu, F. (2017). A review of research on the training needs of kindergarten teachers in China over the past decade. *Journal of Ningbo Education Institute*, (02), 13-16.
- Wu, Q., & Du, Y. X. (2018). Micro-course development strategies for teacher training. *Teaching and Management*. (06), 63-65.

- Wu, Q., Wang, G. X., & Li, C. (2023). The impact of teacher training and teaching research activities on child development: The mediating role of kindergarten curriculum implementation quality. *Preschool Education Research*. (04), 47-56.
- Xu, L. L. (2012). Characteristics and inspirations of preschool teacher training in developed countries: Examples from the USA, UK, Japan, and South Korea. *Journal of Higher Correspondence Education (Philosophy and Social Sciences)*. (11), 11-13+37.
- Xu, Y. Y. (2023). Strategies for enhancing the information technology application skills of primary and secondary school teachers in the digital age. *Henan Education (Teacher Education)*. 2023 (07), 27.
- Xun, G.H, & cHao, H. (2016). Factors influencing and management strategies for teacher training migration. *Elementary and middle school teacher training*.5-7.
- Yan, Y. J. (2023). Problem-solving strategies in kindergarten teacher training—Taking "Indoor Physical Games Development and Implementation" as an example. *Journal of Ningbo Education Institute*. 25 (02), 61-64.
- Yang, M. Y., Wang, S. H., Zhou, Q., & Wei, Y. G. (2023). Latent profile analysis of the training effects of inclusive education for kindergarten teachers and its influencing factors. *China Special Education*.(10), 72-81.
- Yin, L. (2018). Teacher training dilemmas and solutions from the perspective of transformative learning theory. *Chinese Education Journal*. (10), 87-91.
- Yu, X. (2012). Role characteristics and professional responsibilities of teacher trainers. *Teacher Training in Primary and Secondary Schools*. (05), 11-13.
- Zhang, M. Q. (2013). Current situation survey on the practical effectiveness of new kindergarten teacher training. *Journal of Fujian College of Education*. 14 (05), 105-110.
- Zhang, W. G. (2017). Research on curriculum settings for kindergarten teacher training. (*Doctoral dissertation, Nanjing Normal University*).

- Zhang, X. M., & Xie, X. R. (2023). Real challenges and countermeasures of online training for preschool teachers in the post-pandemic era. *Journal of Daqing Normal University*. (03), 89-100.
- Zhao, D. C., Liang, Y. Z., & Zhu, Y. L. (2010). Review and reflection on the research of teacher training needs analysis. *Educational Science*. 26(5), 64-68.
- Zhe, Y. N. (2023). Exploration and practice of problem-oriented kindergarten teacher on-the-job training. *Hua Xia Teachers*.(23), 37-39.
- Zhou, D. E., & Feng, G. L. (2015). Research on training strategies to improve the practical teaching ability of transfer teachers: Taking preschool transfer teachers as an example. *China Vocational and Technical Education*. (09), 71-73.
- Zhou, D., & Zhai, M. J. (2023). Exploration of the "Four Integrations" training model for kindergarten teachers based on job competency. *Science, Education, and Culture Integration*. (18), 16-23.
- Zhou, X. D. (2017). A study on the effectiveness of the implementation of national training policies for early childhood teachers (*Master's thesis, Fujian Normal University*).https://kns.cnki.net/kcms2/article/abstract?v=At0rObma_qO6iAFkiWaiDyenQgoAbXQKToLykbY4JsQt-SuqTHpeaahOeWPLeiLSK1ZYY3KQD0s9L0L8pCJmKHazk075Ei6xSU4rbz06lyvPr3VON9PjBj8-jd7oJCgMFeavT3tetyzcaQv_CZDfpj_bfjtPuLypl6o07N7NCO5AH7OyroUHL9-9MNOHVGsfmGEWDHdGmGE=&uniplatform=NZKPT&language=CHS
- Zhou, X. D. (2017). Study on the effectiveness of national-level kindergarten teacher training policies (*Master's thesis, Fujian Normal University*).
- Zhu, X. D. (2018). On the top-level design of Chinese teacher team building in the new era. *China Teacher*. 2018 (07), 22-26.

Appendices

Appendix A

List of Specialists and Letters of Specialists Invitation
for IOC Verification



RefNo. MHESI 0643.14/ 440

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Professor Li Juan Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research instrument.

With your expertise, we would like to ask your permission to validate the attached research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr. Thanaput Chanchaen
(Vice Dean of Graduate School for Dean of Graduate School)

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Ref.No. MHESI 0643.14/ 441

Bansomdejchaopraya Rajabhat University
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May 2024

RE: Invitation to validate research instrument

Dear Professor Dai Congcong Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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With your expertise, we would like to ask your permission to validate the attached research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr. Thanaput Chanchaoen
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Ref.No. MHESI0643.14/ 1142

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May 2024

RE: Invitation to validate research instrument

Dear Professor Zeng Guo Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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With your expertise, we would like to ask your permission to validate the attached research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

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Ref.No. MHESI0643.14/ 1143

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May 2024

RE: Invitation to validate research instrument

Dear Professor Gao Jing Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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Sincerely,

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Ref.No. MHESI 0643.14/ 448

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May 2024

RE: Invitation to validate research instrument

Dear Professor Song Zhanmei Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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Sincerely,

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May 2024

RE: Invitation to validate research instrument

Dear Professor Li Xuwei Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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With your expertise, we would like to ask your permission to validate the attached research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr. Thanaput Chanchaoren
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RefNo. MHESI 0643.14/ 446

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
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May 2024

RE: Invitation to validate research instrument

Dear Professor Lin Chenchen Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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May 2024

RE: Invitation to validate research instrument

Dear Professor Zhang Xiaoyan Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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RE: Invitation to validate research instrument

Dear Professor Li Xiaoyan Wenzhou University

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Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Professor Gou Shunming Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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May 2024

RE: Invitation to validate research instrument

Dear Professor He Yizhu Wenzhou University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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Ref.No. MHESI 0643.14/ 151

Bansorndejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Lin Yan Lishui University

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansorndejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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RefNo. MHESI 0643.14/ 452

Bansomdejchaopraya Rajabhat University
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May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Chen Jingyi Municipal Government Offices Kindergarten

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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Ref.No. MHESI0643.14/1153

Bansomdejchaopraya Rajabhat University
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May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Su Xiaojun Shiyi Kindergarten in Longgang City

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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Ref.No. MHESI 0643.14/ 451

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
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May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Ying Chunfen Shiyi Kindergarten in Longgang City

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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RefNo. MHESI 0643.14/ 455

Bansomdejchaopraya Rajabhat University
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May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Xu Jinhua Shiyi Kindergarten in Longgang City

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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Sincerely,

Assistant Professor Dr. Thanaput Chanchaen
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RefNo. MHESI0643.14/ 436

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1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Zhang Chenjing Shiyi Kindergarten in Longgang City

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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Ref.No. MHESI0643.14/ 457

Bansomdejchaopraya Rajabhat University
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Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Liu Jianfang Shiyi Xinfu Kindergarten in Wenzhou City

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research instrument.

With your expertise, we would like to ask your permission to validate the attached research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr. Thanaput Chanchaoren
(Vice Dean of Graduate School for Dean of Graduate School)

Bansomdejchaopraya Rajabhat University
Tel.+662-473-7000
www.bsru.ac.th
E-mail: grad@bsru.ac.th



RefNo. MHESI 0643.14/ 459

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Chen Xiujuan No. 14 Kindergarten in Wenzhou City

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1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Associate Professor Li Yapei Ouhai Government Offices Kindergarten in Wenzhou City

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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May 2024

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Dear Associate Professor Huang Xiaoqiu Ouhai Govern ment Offices Kin dergarten in Wenzhou City

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RefNo. MHESI 0643.14/ 441

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Senior Kindergarten Teacher Ye Zi Shiyi Xinfu Kindergarten in Wenzhou City

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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RefNo. MHESI 0643.14/ 462

Bansomdejchaopraya Rajabhat University
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Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Senior Kindergarten Teacher Peng Haiou Shiyi Xinfu Kindergarten in Wenzhou City

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Ref.No. MHESI 0643.14/ 463

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Senior Kindergarten Teacher Jin Yili Fanhai Kindergarten in Ou Hai District

Ms. Lin Suyun is a doctoral student in the Doctoral Program of Educational Digital Technology Management within the major of Curriculum and Instruction at Bansomdejchaopraya Rajabhat University. She is conducting a research titled "Kindergarten Teachers Training Model for Integrated IT Teaching Methods".

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Ref.No. MHESI 0643.14/ 1160

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Senior Kindergarten Teacher Wang Lingping Fanhai Kindergarten in Ouhai District

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RefNo. MHESI 0643.14/465

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Senior Kindergarten Teacher Lian Libei No. 14 Kindergarten in Wenzhou City

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RefNo. MHESI 0643.14/ 466

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1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

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Ref.No. MHESI 0643.14/ 467

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Senior Kindergarten Teacher Zhang Jinqiong No. 14 Kindergarten in Wenzhou City

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1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Senior Kindergarten Teacher Chen Xiaohong No. 14 Kindergarten in Wenzhou City

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Thonburi Bangkok 10600

May 2024

RE: Invitation to validate research instrument

Dear Senior Kindergarten Teacher Ni Aixiao Shiyi Xincheng Kindergarten in Wenzhou City

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Appendix B

Research Instrument

Participant Recruitment E-mail

Dear _____,

I am a student at Bansomdejchaopraya Rajabhat University, currently working on a paper about the comprehensive IT teaching methods in kindergarten teacher training models. You have been identified as someone with experience and expertise in this area.

I am conducting a study to understand your views on the comprehensive teaching methods training model for kindergarten teachers. Please note that this research is from a curriculum design perspective rather than a direct evaluation of supervision. It is important to include your perspectives in this study to ensure that the research results are representative of experts in the field.

In this study, I am using a qualitative Delphi method, which includes at least three rounds of interview questions. Your participation in the study will require at least two interviews, and I estimate that it may take up to 1 hour of your time. I will maintain confidentiality, and I will use pseudonyms or discuss the survey results of the group. There are no known risks associated with this study. The main inconvenience will be the time required to complete the study. If you are willing to participate in this study, please reply to this email. I will send you a formal consent form, and then we can proceed with the research. I am happy to answer any questions you may have before you agree to participate. If you have any questions, you can also contact my supervisor.

Sincerely,

XXXX

Candidate for PhD in digital technology management for education

Bansomdejchaopraya Rajabhat University

Round One Interview Questions

Subject

Discuss the problems in current kindergarten teaching and training.

Research objective

To discuss the problems existing in the current training mode of kindergarten teachers' comprehensive teaching method

Explanation

This round of interview questions is part of a research paper. The information obtained will be kept confidential. The analysis and presentation will only provide an overall picture and will not cause any harm to your business. Please answer the interview questions as truthfully as possible.

The interview is divided into 5 parts:

Part 1: General information about the interviewer

Part 2: Concept of kindergarten teacher training

Part 3: Concept of integrating information technology teaching methods into teacher training

Part 4: The concept of learning theory

Note : Definitions of terms are at the end of the interview form.

Part 1: General information of the interviewee.

1.Name.....

2.Age.....years

3.Highest educational qualification.....

4.Work experience.....years

5.Current job position.....

6.Professional technical title.....

Part 2: The concept of kindergarten teacher training

1. The impact of digital technology on kindergarten teacher training. How important do you think it is in the impact of training needs? What are the main aspects of reflecting it? How do you think develops and improve the impact of training needs? Write down the answer.

2. The impact of digital technology on kindergarten teacher training. How important do you think in the impact of training content? What are the main aspects of reflecting it? How do you think of the development and improvement of the training content? Write down the answer.

3. The impact of digital technology on kindergarten teacher training, how important do you think in the impact of training methods and tools? What are the main aspects of reflecting it? How do you consider the development and improvement of training methods and tools? Write down the answer.

4. The impact of digital technology on kindergarten teacher training. How important do you think is in the impact of training resources? What are the main aspects of reflecting it? How do you consider the impact of the development and improving of training resources? Write down the answer.

5. The impact of digital technology on kindergarten teacher training. How important do you think is in the impact of training strategies? What are the main aspects of reflecting it? What do you think of the impact of developing and improving training strategies? Write down the answer.

6. The impact of digital technology on kindergarten teacher training. How important do you think is in the impact of training organization? What are the main

aspects of reflecting it? How do you think develop and improve the impact of training organizations? Write down the answer.

7. The impact of digital technology on kindergarten teacher training. How important do you think is in the impact of training operation? What are the main aspects of reflecting it? How do you think develops and improve the impact of training operations? Write down the answer.

8. The impact of digital technology on kindergarten teacher training, how important do you think in the impact of training assessment? What are the main aspects of reflecting it? How do you think develop and improve the impact of the training assessment? Write down the answer.

Part 3: the concept of comprehensive information technology teaching method for teacher training

1. The influence of digital technology on the teaching method of comprehensive information technology for training teachers. How important do you think it is in the influence of training characteristics? What are the main aspects of reflecting it? How do you think develop and improve the impact of training characteristics? Write down the answer.

2. The influence of digital technology on the teaching method of comprehensive information technology for training teachers. How important do you think it is in the influence of the training content? What are the main aspects of reflecting it? How do you think of the development and improvement of the training content? Write down the answer.

3. The influence of digital technology on the teaching method of comprehensive information technology for training teachers. How important do you think it is in the influence of training methods? What are the main aspects of reflecting it? How do you consider the impact of developing and improving training methods? Write down the answer.

4. The impact of digital technology on the teaching method of comprehensive information technology for training teachers. How important do you think it is in the impact of training resources? What are the main aspects of reflecting it? How do you consider the impact of the development and improving of training resources? Write down the answer.

5. The impact of digital technology on the teaching method of comprehensive information technology for training teachers. How important do you think it is in the impact of training assessment? What are the main aspects of reflecting it? What do you think develops and improves the impact of the training assessment? Write down the answer.

6. The impact of digital technology on the teaching method of comprehensive information technology for training teachers. How important do you think it is in the impact of training technology? What are the main aspects of reflecting it? How do you see the impact of developing and improving training techniques? Write down the answer.

Part 4: Learning the concept of the theory

1. The influence of digital technology on learning theory, how important do people think in the influence of self-experience? What are the main aspects of reflecting it? How do you think to develop and improve the impact of self-experience? Write down the answer.

2. The influence of digital technology on learning theory. How important do you think it is in the influence of problem orientation? What are the main aspects of reflecting it? How do you think develop and improve the impact of problem orientation? Write down the answer.

3. The influence of digital technology on learning theory. How important do people think it is in the influence of autonomous learning? What are the main aspects of reflecting it? How do you think of the development and improvement of autonomous learning effects? Write down the answer.

4. The influence of digital technology on learning theory. How important do you think it is in the influence of practice oriented? What are the main aspects of reflecting it? How do you think develop and improve the practice-oriented impact? Write down the answer.

5. The impact of digital technology on learning theory. How important do you think it is in the impact of cooperative learning? What are the main aspects of reflecting it? How do you think to develop and improve the impact of collaborative learning? Write down the answer.

6. The impact of digital technology on learning theory. How important do you think is the impact of continuous learning goals? What are the main aspects of reflecting it? How do you think develop and improve the impact of continuous learning goals? Write down the answer.

Assessment of the guideline tables

Training mode of comprehensive information technology teaching method for kindergarten teachers

Research objectives

The design is suitable for design a kindergarten teacher training (KTT) model for integrated IT teaching methods appropriate for the kindergarten of Wenzhou city.

Explanation

The researcher therefore asked for assistance from experts. Please check the questions in the Interview regarding suitability and consistency with the content.

Please mark “√” .

Mark	Channel	Opinion
√	+1	Consistent
	0	Unsure
	-1	Not consistent

Assessment of the guideline tables

Experts evaluate the consistency of the training model of teachers' comprehensive information technology teaching methods

Research objectives

The evaluate the kindergarten teacher training (KTT) model for integrated IT teaching methods appropriate for the kindergarten of Wenzhou city.

Explanation

The researcher therefore asked for assistance from experts. Please check the questions in the Interview regarding suitability and consistency with the content.

Please mark “√” .

Mark	Channel	Opinion
√	+1	Consistent
	0	Unsure
	-1	Not consistent

[illegible]

[illegible]

The second round of evaluation of the elements is formal theme

Research objectives

Design a kindergarten teacher training (KTT) model for integrated IT teaching methods appropriate for the kindergarten of Wenzhou city.

Explain

This element assessment form is designed to gather your opinion as an expert. The problem in the evaluation is about the details of the training model of comprehensive information technology teaching methods for kindergarten teachers in Wenzhou. The assessment can be divided into the following parts: the general information of the interviewees, the training needs, the training methods and tools, the training organization, the training content, the training strategies, and the training assessment.

2. The consistency of the training model of comprehensive information technology teaching method for kindergarten teachers in Wenzhou was evaluated. Please consider what is specified in each project. How consistent is it in practice? Then select " $\sqrt{\quad}$ " in the box:

- 1.Score level 5 means most consistent.
- 2.Score level 4 means very consistent.
- 3.Score level 3 means modelrately consistent.
- 4.Score level 2 means less consistent.
- 5.Score level 1 means least consistent.

The last section “suggestions and reasons” asks you to express your opinions. In order to make the details of the elements of the problem and resolution more complete.

Open-ended questions at the end of each episode's schedule. Please give additional comments or suggestions for the completeness of each aspect of the Format in particular.

General information of the interviewee.

- 1.Name.....
- 2.Age.....years
- 3.Highest educational qualification.....
- 4.Work experience.....years
- 5.Current job position.....

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
Training needs							
1.	Professional knowledge and skills: including expertise in early childhood education theory, child psychology, teaching methods, curriculum design, as well as practical skills in teaching, communication, and management.						
2.	Teaching resources and tools: providing resources such as textbooks, teaching aids, teaching equipment suitable for kindergarten teaching, as well as training in teaching techniques and information technology tools to help teachers better conduct teaching activities.						
3.	Education policies and regulations: Understanding relevant education policies, laws, and standards to ensure that teachers comply with regulations during the teaching process, safeguarding the rights and safety of young children.						
4.	Professional development and career planning: Assisting teachers in career planning, providing opportunities for professional development and training programs to promote teachers’ growth and advancement.						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
5.	Child development and educational theories: Teachers need to understand the latest theories on child development and education, grasp knowledge in areas such as child psychology, cognition, emotions, etc., to guide practical teaching activities.						
6.	Updating teaching methods and strategies: Teachers need to learn and master a variety of teaching methods and strategies to enhance teaching effectiveness and meet the learning needs of different young children.						
7.	Curriculum design and assessment skills: Teachers need to enhance their ability in curriculum design and assessment, develop teaching plans that align with the characteristics and needs of young children, and effectively evaluate teaching outcomes.						
8.	Personal development needs: Individual differences in teachers' personal development needs are also important factors; some teachers may wish to pursue further studies, while others may need to enhance specific skills or knowledge.						
9.	Social needs: Teachers need to understand the changes in social needs, adapt to social development, and enhance the quality and						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	effectiveness of educational services.						
10.	Individual differences and feedback: There are differences among teachers as individuals, and personalized training plans should be developed based on individual needs and feedback to enhance the specificity and effectiveness of training.						
Training content							
11.	Early Childhood Education Theories: Introduce the basic theories of early childhood education, including child development stages, learning theories, educational psychology, and other related content, to help teachers better understand the characteristics of children's growth and learning.						
12.	Teaching Methods and Techniques: Training teachers to use a variety of teaching methods and techniques, such as heuristic teaching, situational teaching, game-based teaching, as well as skills in classroom management, student assessment, and other aspects.						
13.	Curriculum Design and Teaching Plans: Guide teachers in developing curriculum designs and teaching plans that meet the needs of young children, including goal setting, content arrangement, and instructional activity design.						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
14.	Child Psychological Health and Behavior Management: Training teachers to understand issues related to children's psychological health, learn how to establish good relationships with young children, and effectively manage their behavior.						
15.	young children to unleash their potential, and fostering children's artistic expression abilities and creativity.						
16.	Principles of Early Childhood Education: Teachers need to grasp the principles and methods of early childhood education, understand how to promote the holistic development of young children through games, experiences, and other means.						
17.	Curriculum Design and Assessment: Teachers need to learn how to design curriculum that meets the characteristics and needs of young children, and master effective assessment methods to enhance teaching quality.						
18.	Multicultural Education: Teachers need to understand the importance of multicultural education, and learn how to promote cross-cultural communication and understanding among young children in their teaching practices.						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
19.	Special Education Needs: Teachers should also receive training on special education needs to understand how to support and educate young children with special needs, promoting their development.						
20.	Professional Development: Training content should also include enhancing teachers' professional competence and ethical standards, cultivating their sense of responsibility, innovative spirit, and ability to work collaboratively in a team.						
Training methods and tools							
21.	Practical Teaching: Training teachers through practical teaching experiences, allowing them to apply the knowledge and skills they have learned in real classroom settings, enhancing their practical teaching abilities.						
22.	Training Manuals and Teaching Materials: Providing specially designed training manuals, textbooks, or teaching resources to assist teachers in systematically learning and mastering relevant knowledge and skills.						
23.	Video Teaching and Demonstrations: Utilizing video teaching and demonstrations to showcase teaching techniques, case studies, and other content, helping teachers to visually						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	understand and learn.						
24.	Learning Community and Discussion Platform: Establishing a learning community and discussion platform for teachers to engage in communication, share experiences and resources, and facilitate collaborative learning and growth.						
25.	Peer Support: Establishing a teacher communication platform or professional community to facilitate experience sharing, collaborative learning, and mutual support among teachers.						
26.	Assistive Technology: Utilizing modern technology to support teacher training, such as virtual reality technology, intelligent teaching systems, online assessment tools, etc., to enhance training effectiveness and teaching efficiency.						
27.	Workshops and Lectures: By organizing specialized workshops and lectures, inviting experts and scholars to share the latest educational theories and practical experiences, we aim to help teachers broaden their knowledge horizons.						
28.	Case Studies and Sharing: By conducting case studies and sharing teaching practices, we aim						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	to help teachers learn from others' successful experiences and lessons, inspire reflection, and improve teaching methods.						
29.	Practical Activities and Observation Classes: Organizing practical activities and observation classes to allow teachers to actively participate in and observe excellent teaching practices, enhancing their practical skills and teaching abilities.						
30.	Group Discussions and Collaboration: Through group discussions and collaboration, we aim to facilitate communication and interaction among teachers, collectively explore educational issues, promote idea exchange, and foster mutual growth.						
Training resources							
31.	Teaching Materials and Tools: Providing resources such as suitable teaching materials, tools, and instructional equipment for kindergarten education to assist teachers in conducting teaching activities, enriching teaching content, and enhancing teaching effectiveness.						
32.	Online Platform and Resource Repository: Establishing an online learning platform or resource repository to provide teachers with						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	access to teaching videos, materials, lesson plans, case studies, and other resources that can be accessed anytime and anywhere, facilitating teacher learning and communication.						
33.	Learning Community and Interactive Platform: Establishing a teacher learning community or online forum to facilitate communication and interaction among teachers, enabling them to share experiences, resources, and teaching achievements.						
34.	Assessment and Feedback: Providing regular assessment and feedback mechanisms to help teachers understand their learning progress, adjust their learning direction in a timely manner, and continuously enhance their capabilities.						
35.	Educational Institutions and Professional Organizations: Educational institutions and professional organizations typically provide various teacher training resources, including seminars, workshops, professional courses, etc., to help teachers continuously learn and grow.						
36.	Experts, Scholars, and Lecturers: Inviting experts, scholars, and lecturers to participate in teacher training, share the latest educational						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	theories and practical experiences, and help teachers enhance their professional knowledge and skills.						
37.	Educational Books and Journals: Providing a wide range of educational books and journals for teachers to reference, enabling them to understand the latest educational theories, research findings, and practical case studies.						
38.	Teaching Resource Repository: Establishing a teaching resource repository to collect and organize various teaching resources, such as instructional videos, lesson plan examples, teaching tools, etc., to provide teachers with a wealth of teaching materials and reference materials.						
39.	Pedagogical Technology Support: Providing pedagogical technology support to help teachers master the application of teaching technologies and tools, enhancing teaching effectiveness and innovation capabilities.						
40.	Practice Bases and Observation Opportunities: Providing practice bases and observation opportunities for teachers to actively participate in practical activities and observe excellent teaching practices, promoting experience accumulation and enhancing						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	teaching capabilities.						
	Training strategies						
41.	Needs Analysis: Understanding teachers' training needs and learning objectives, and customizing training plans tailored to the backgrounds and requirements of individual teachers.						
42.	Targeted Curriculum Design: Designing curriculum content that meets the practical needs of kindergarten teachers, covering aspects such as teaching theory, practical skills, and curriculum design.						
43.	Practice-Oriented: Emphasizing practical exercises and case studies to help teachers apply their knowledge and skills to real-world scenarios, enhancing their practical abilities.						
44.	Feedback and Evaluation: Establishing an effective feedback mechanism to promptly collect teachers' learning feedback and performance evaluations, in order to provide personalized guidance and support to teachers.						
45.	Peer Support and Sharing: Encouraging teachers to communicate and share experiences with each other, establishing professional communities and collaborative networks to						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	facilitate mutual learning and growth.						
46.	Diversified Training Formats: Utilizing a variety of formats such as online, offline, practical, and peer exchanges to cater to different teachers' learning styles and needs.						
47.	Progressive Training: Adopting a phased and progressive training approach, starting from basic knowledge to professional skills and then to practical abilities development, gradually enhancing teachers' overall competency.						
48.	Participatory Training: Encouraging teachers to engage in classroom interactions, group discussions, case studies, and other activities to promote active participation and communication among learners, enhancing the effectiveness of learning.						
48.	Incentive Mechanism: Establishing reward systems or certification recognition to incentivize teachers to actively participate in training, enhancing learning motivation and effectiveness.						
50.	Ongoing Monitoring: Conducting follow-up evaluations after training, collecting feedback to understand the training effectiveness, and providing further support and guidance to teachers.						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
Training organization							
51.	Training Plan and Objectives: Establishing clear training plans and objectives, outlining the training content, format, schedule, etc., to ensure the systematic and continuous nature of the training.						
52.	Training Facilities: Providing suitable training venues and facilities, including classrooms, laboratories, multimedia equipment, etc., to ensure a comfortable and convenient training environment.						
53.	Training Evaluation: Establishing an effective training evaluation mechanism to assess teachers’ learning progress and performance, making timely adjustments to the training direction and methods to ensure training effectiveness.						
54.	Management Mechanism: Establishing a comprehensive training management mechanism, including training information management, student management, course management, etc., to ensure the orderly and efficient operation of the training program.						
55.	Incentive Mechanism: Establishing reward systems or certification programs to motivate teachers to actively participate in training,						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	enhancing learning motivation and effectiveness.						
56.	Training Faculty: Having a team of experienced and highly qualified training professionals, including education experts, psychologists, instructional designers, etc., to provide professional guidance and support.						
57.	Training Resources: Providing a wide range of teaching resources and tools, such as textbooks, teaching aids, teaching equipment, educational software, etc., to support teachers' learning and teaching activities.						
58.	Training Courses: Designing course content that meets the needs of teachers and training objectives, covering aspects such as early childhood education theory, teaching methods, children's psychological well-being, home-school cooperation, etc.						
59.	Training Activities: Organizing various training activities, such as lectures, seminars, workshops, field visits, hands-on guidance, etc., to provide different forms of learning opportunities.						
60.	Financial Support: Providing necessary funding support for teacher training to ensure the smooth progress and quality assurance of						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	training activities.						
	Training operations						
61.	Training Needs Assessment: Conducting targeted needs assessment before the start of training to understand teachers' training needs and expectations, providing a basis for the design of subsequent training content and formats.						
62.	Developing Training Plan: Based on the results of the needs assessment, creating a detailed training plan that includes training content, schedule, training formats, etc., to ensure clear and targeted training objectives.						
63.	Sharing and Communication: Encouraging teachers to share training experiences and teaching practices with each other to promote mutual learning and growth, and to establish a collaborative and learning-oriented teacher team.						
64.	Faculty Preparation: Providing necessary training materials and teaching aids for trainers to ensure that they possess professional knowledge and training skills, enabling them to effectively impart knowledge.						
65.	Practical Guidance: Providing practical opportunities and guidance to help teachers						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	apply the knowledge they have learned to actual teaching, enhancing their practical skills and teaching abilities.						
66.	Follow-up Coaching: Conducting follow-up coaching after training to continuously monitor the learning and growth of teachers, providing necessary support and guidance to help teachers continually improve.						
67.	Feedback Evaluation: Establishing an effective feedback mechanism to collect teachers' feedback and training effectiveness evaluations, making timely adjustments and improvements to training programs to enhance training outcomes.						
68.	Ongoing Monitoring: Conducting follow-up assessments after training to understand teachers' learning outcomes and practical application, and providing further support and guidance to teachers.						
69.	Selecting Training Formats: Based on the training content and teachers' specific circumstances, choosing appropriate training formats such as online courses, offline seminars, practical guidance, etc., to enhance teachers' learning effectiveness.						
70.	Continuous Support: Providing ongoing support						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	and guidance to teachers after the training, encouraging them to continue learning and improving, and promoting their professional development.						
Training evaluation							
71.	Goals and Standards: Clearly define the training objectives and assessment criteria to ensure that the evaluation targets and content are aligned with the training goals.						
72.	Assessment Content: The assessment content should include aspects such as knowledge mastery, skill application abilities, teaching effectiveness, etc., to comprehensively evaluate the training outcomes of teachers.						
73.	Assessment Schedule: Determine the timing and frequency of assessments, which can be conducted before, during, and after the training, as well as follow-up assessments at certain intervals after the training.						
74.	Feedback and Improvement: Provide feedback based on the assessment results to guide teachers in improving teaching methods and practical skills, promoting their professional development.						
75.	Formative Assessment: Evaluate the diversity, flexibility, and effectiveness of training formats,						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	including assessments of online courses, offline seminars, practical guidance, and other forms of evaluation.						
76.	Engagement Assessment: Evaluate teachers' engagement and enthusiasm, including attendance rates, classroom interactions, completion of assignments, etc., to understand the level of acceptance and involvement of teachers in the training.						
77.	Satisfaction Assessment: Evaluate teachers' satisfaction and feedback on the training program, collect constructive opinions and suggestions to improve and optimize the training plan.						
78.	Ongoing Monitoring and Evaluation: Conduct continuous tracking and evaluation after the training to understand the application and effectiveness of the training content in teachers' work, promoting sustained improvement in training outcomes.						
79.	Training Effectiveness Evaluation: Taking into account the above elements, assess the overall training effectiveness and impact, analyze the strengths and weaknesses of the training program, and provide improvement suggestions and directions for future training.						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
80.	Teaching Effectiveness Evaluation: Evaluate the effects demonstrated by teachers in actual teaching after training, including improvements in teaching methods and enhancements in teaching quality.						

The third round of the element evaluation is formal theme

Research objectives

To evaluate the Kindergarten Teachers Training Model for Integrated IT Teaching Methods

Explain

1.This element assessment form is designed to gather your opinion as an expert. The question in the evaluation is about the details of the training model of integrated information technology teaching methods for kindergarten teachers. The assessment can be divided into the following parts: the general information of the respondents, their training needs, training methods and tools, training organization, training content, training strategies, and training assessment. \

2. The consistency of the training model of comprehensive information technology teaching methods for kindergarten teachers was evaluated. Please consider what is specified in each project. How consistent is it in practice? Then select " $\sqrt{\quad}$ " in the box:

- 1.Score level 5 means most consistent.
- 2.Score level 4 means very consistent.
- 3.Score level 3 means modelrately consistent.
- 4.Score level 2 means less consistent.
- 5.Score level 1 means least consistent.

The last section“suggestions and reasons” asks you to express your opinions.In order to make the details of the elements of the problem and resolution more complete.

3. Open-ended questions at the end of each episode's schedule. Please give additional comments or suggestions for the completeness of each aspect of the Format in particular.

General information of the interviewee.

1. Name.....

2. Age.....years

3. Highest educational qualification.....

4. Work experience.....years

5. Current job position.....

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestion s and reasons
		1	2	3	4	5	(If any)
Training Needs							
1.	Professional Knowledge and Skills: This includes expertise in early childhood education theory, child psychology, teaching methods, curriculum design, as well as practical skills in teaching, communication, and management.						
2.	Teaching Resources and Tools: Provide resources such as teaching materials, teaching aids, teaching equipment suitable for kindergarten education, as well as training in teaching techniques and information technology tools to help teachers better conduct teaching activities.						
3.	Updating Teaching Methods and Strategies: Teachers need to learn and master a variety of teaching methods and strategies to enhance teaching effectiveness and meet the learning needs of different young children.						
4.	Personal Development Needs: The differences in teachers’ personal development needs are also important factors. Some teachers may wish to pursue further studies, while others may need to enhance specific skills or knowledge.						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
5.	Social Needs: Teachers need to understand the changes in social needs, adapt to social development, and improve the quality and effectiveness of educational services.						
6.	Individual Differences and Feedback: There are differences among teachers, and personalized training programs should be developed based on individual needs and feedback to enhance the specificity and effectiveness of training.						
Training Content							
7.	Early Childhood Education Theories: Introduce the basic theories of early childhood education, including child development stages, learning theories, educational psychology, and other related content, to help teachers better understand the characteristics of children's growth and learning.						
8.	Teaching Methods and Techniques: Train teachers to use a variety of teaching methods and techniques, such as heuristic teaching, situational teaching, game-based teaching, as well as skills in classroom management, student assessment, and other aspects.						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
9.	Child Psychological Health and Behavior Management: Train teachers to understand issues related to children's psychological health, learn how to build good relationships with young children, and effectively manage children's behavior.						
10.	Multicultural Education: Teachers need to understand the importance of multicultural education, learn how to promote cross-cultural communication and understanding among young children in their teaching.						
11.	Special Education Needs: Teachers should also receive training on special education needs, understand how to support and educate young children with special needs, and promote their development.						
12.	Professional Development: The training content should also include enhancing teachers' professional competence and ethical standards, fostering their sense of responsibility, innovative spirit, and ability to work collaboratively in a team.						
Training Methods and Tools							
13.	Practical Teaching: Train teachers through practical teaching experiences, allowing them						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	to apply the knowledge and skills they have learned in actual classrooms, and enhance their practical teaching abilities.						
14.	Training Manuals and Teaching Materials: Provide specially designed training manuals, textbooks, or teaching resources to help teachers systematically learn and master relevant knowledge and skills.						
15.	Learning Community and Discussion Platform: Establish a learning community and discussion platform for teachers to communicate, share experiences and resources, and promote collaborative learning and growth.						
16.	Assistive Technology: Utilize modern technologies to assist teacher training, such as virtual reality technology, intelligent teaching systems, online assessment tools, etc., to enhance training effectiveness and teaching efficiency.						
17.	Practical Activities and Observation Lessons: Organize practical activities and observation lessons for teachers to personally participate in and observe excellent teaching practices, enhancing their practical skills and teaching						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	abilities.						
18.	Group Discussions and Collaboration: Facilitate communication and interaction among teachers through group discussions and collaboration, encouraging collective exploration of educational issues, fostering idea exchange, and mutual growth.						
Training Strategies							
19.	Targeted Curriculum Design: Develop curriculum content tailored to the practical needs of kindergarten teachers, encompassing teaching theories, practical skills, curriculum design, and other relevant aspects.						
20.	Peer Assistance and Sharing: Encourage teachers to communicate and share experiences with each other, establish professional communities and collaborative networks, and promote mutual learning and growth.						
21.	Diversified Training Formats: Utilize a variety of formats including online, offline, practical, peer-to-peer exchange, etc., to cater to different teachers' learning styles and needs.						
22.	Progressive Training: Implement a phased and						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	progressive training approach, starting from basic knowledge to professional skills and then to practical abilities, gradually enhancing teachers' overall competency.						
23.	Participatory Training: Encourage teachers to engage in classroom interactions, group discussions, case studies, and other activities to promote active participation and communication among learners, enhancing the effectiveness of learning.						
24.	Incentive Mechanism: Establish reward systems or certification programs to incentivize teachers to actively participate in training, enhancing learning motivation and effectiveness.						
Training Organization							
25.	Training Plan and Objectives: Develop clear training plans and objectives, specifying training content, format, schedule, etc., to ensure the systematic and continuous nature of the training.						
26.	Incentive Mechanism: Establish reward systems or certification programs to motivate teachers to actively participate in training, enhancing learning motivation and						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	effectiveness.						
27.	Training Faculty: Possess a team of experienced and highly qualified trainers, including education experts, psychologists, instructional designers, etc., to provide professional guidance and support.						
28.	Training Resources: Provide a wide range of teaching resources and tools, such as textbooks, teaching aids, instructional equipment, educational software, etc., to support teachers' learning and teaching activities.						
29.	Training Activities: Organize various training activities, such as lectures, seminars, workshops, field visits, hands-on guidance, etc., to provide different forms of learning opportunities.						
30.	Financial Support: Provide necessary funding support for teacher training to ensure the smooth running and quality assurance of training activities.						
Training Evaluation							
31.	Assessment Content: Assessment content should include knowledge mastery, skill application ability, teaching effectiveness, and						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
	other aspects to comprehensively evaluate the training outcomes of teachers.						
32.	Formative Assessment: Evaluate the diversity, flexibility, and effectiveness of training formats, including assessments of online courses, offline seminars, hands-on guidance, and other forms of training.						
33.	Engagement Assessment: Evaluate teachers' participation and enthusiasm, including attendance rates, classroom interactions, completion of assignments, etc., to understand the level of recognition and involvement of teachers in the training.						
34.	Satisfaction Assessment: Evaluate teachers' satisfaction with the training program and gather feedback, collecting constructive opinions and suggestions to improve and optimize the training plan.						
35.	Ongoing Monitoring and Evaluation: Conduct continuous tracking and evaluation after the training to understand the application and effectiveness of the training content in teachers' work, promoting the continuous improvement of training outcomes.						
36.	Training Effectiveness Evaluation: Taking into						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestion s and reasons
		1	2	3	4	5	(If any)
	account the above elements, assess the overall training effectiveness and impact, analyze the strengths and weaknesses of the training program, and provide improvement suggestions and directions for future training.						

Satisfaction with the teacher training model of integrated information technology teaching methods theme

Research objectives

To evaluate satisfaction the kindergarten teacher training (KTT) model for integrated IT teaching methods appropriate for the kindergarten of Wenzhou city.

Explain

1. This element assessment form is designed to gather your opinion as an expert. The questions in the evaluation were details about the satisfaction of the training model. The assessment can be divided into the following parts: the general information of the interviewees, the training needs, the training methods and tools, the training organization, the training content, the training strategies, and the training assessment.

2. The consistency of the satisfaction problem of the training model for teachers was evaluated. Please consider what is specified in each project. How consistent is it in practice? Then select " $\sqrt{\quad}$ " in the box:

- 1.Score level 5 means most consistent.
- 2.Score level 4 means very consistent.
- 3.Score level 3 means modelrately consistent.
- 4.Score level 2 means less consistent.
- 5.Score level 1 means least consistent.

The last section“suggestions and reasons” asks you to express your opinions.In order to make the details of the elements of the problem and resolution more complete.

3. Open-ended questions at the end of each episode's schedule. Please give additional comments or suggestions for the completeness of each aspect of the Format in particular.

General information of the interviewee.

1. Name.....

2. Age.....years

3. Highest educational qualification.....

4. Work experience.....years

5. Current job position.....

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestion s and reasons
		1	2	3	4	5	(If any)
Training Needs							
1	Professional Knowledge and Skills						
2	Teaching Resources and Tools						
3	Updating Teaching Methods and Strategies						
4	Personal Development Needs						
5	Social Needs						
6	Individual Differences and Feedback Comments						
Training Content							
7	Teaching Methods and Techniques						
8	Child Psychological Health and Behavior Management						
9	Early Childhood Education Theory						
10	Professional Competence Enhancement						
11	Multicultural Education						
12	Special Education Needs						
Training methods and tool							
13	Practical Activities and Observation Classes						
14	Training Manuals and Teaching Materials						
15	Group Discussions and Collaboration						
16	Practical Teaching						
17	Learning Communities and Discussion Platforms						
18	Assistive Technologies						
Training strategies							
19	Diversified Training Formats						

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	level of compliance					Suggestion s and reasons
		1	2	3	4	5	(If any)
20	Participatory Training						
21	Targeted Course Design						
22	Peer Support and Sharing						
23	Progressive Training						
24	Incentive Mechanisms						
Training organization							
25	Training Plans and Objectives						
26	Management Mechanisms						
27	Incentive Mechanisms						
28	Training Activities						
29	Training Resources						
30	Financial Support						
Training assessment							
31	Evaluation Content						
32	Formative Assessment						
33	Training Effectiveness Evaluation						
34	Participation Assessment						
35	Continuous Monitoring Evaluation						
36	Satisfaction Assessment						

Pre-test and post-test comparison of the changes in teacher training theme

Research objectives

Pre-test and post-test comparison of the changes in teacher training.

Explain

1.This element assessment form is designed to gather your opinion as an expert. The questions in the assessment were details about the pre-test and post-test contrasts of changes in teacher training. The assessment can be divided into the following parts: the general information of the interviewees, the training needs, the training methods and tools, the training organization, the training content, the training strategies, and the training assessment.

2. Evaluation of the pre-test and post-test comparison of the changes in teacher training. Please consider what is specified in each project. How consistent is it in practice? Then select " $\sqrt{\quad}$ " in the box:

- 1.Score level 5 means most consistent.
- 2.Score level 4 means very consistent.
- 3.Score level 3 means modelrately consistent.
- 4.Score level 2 means less consistent.
- 5.Score level 1 means least consistent.

The last section“suggestions and reasons” asks you to express your opinions.In order to make the details of the elements of the problem and resolution more complete.

3.Open-ended questions at the end of each episode's schedule. Please give additional comments or suggestions for the completeness of each aspect of the Format in particular.

General information of the interviewee.

1.Name.....

2.Age.....years

3.Highest educational qualification.....

4.Work experience.....years

5.Current job position.....

NO.	Test item	level of compliance					Suggestions and reasons
		1	2	3	4	5	(If any)
1	Whether the six factors of training needs have an impact on teacher training						
2	Whether the six factors of the training content have an influence on the teacher training						
3	Whether the six factors of training methods and tools have an impact on teacher training						
4	Whether the six factors of the training strategy had an influence on teacher training						
5	Whether the 6 factors of the training organization have an influence on the teacher training						
6	Whether the 6 factors of the training assessment had an impact on teacher training						

Focus Group Forms

To evaluate the kindergarten teacher training (KTT) model for
integrated IT teaching methods appropriate for the kindergarten of
Wenzhou city

Explain:

The purpose of this table is to focus on the training model through focus group methods. Nine experts who met the qualification requirements were carefully selected to ensure the professionalism and depth of the discussion. Together, the experts will dive deeper into each specific strategy proposed for online teaching and learning. The expert panel will review each proposed strategy individually and make final conclusions on each strategy, "Pass", "Change", "Add", "Delete". Then select " $\sqrt{\quad}$ " in the box:

Thank You

Xxx

A dissertation meeting the requirements for a Doctorate in Educational
Technology Management
Bansomdejchaopraya Rajabhat University

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
Training Needs					
1.	Professional Knowledge and Skills: This includes expertise in early childhood education theory, child psychology, teaching methods, curriculum design, as well as practical skills in teaching, communication, and management.				
2.	Teaching Resources and Tools: Provide resources such as teaching materials, teaching aids, teaching equipment suitable for kindergarten education, as well as training in teaching techniques and information technology tools to help teachers better conduct teaching activities.				
3.	Updating Teaching Methods and Strategies: Teachers need to learn and master a variety of teaching methods and strategies to enhance teaching effectiveness and meet the learning needs of different young children.				
4.	Personal Development Needs: The differences in teachers’ personal				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	development needs are also important factors. Some teachers may wish to pursue further studies, while others may need to enhance specific skills or knowledge.				
5.	Social Needs: Teachers need to understand the changes in social needs, adapt to social development, and improve the quality and effectiveness of educational services.				
6.	Individual Differences and Feedback: There are differences among teachers, and personalized training programs should be developed based on individual needs and feedback to enhance the specificity and effectiveness of training.				
Training Content					
7.	Early Childhood Education Theories: Introduce the basic theories of early childhood education, including child development stages, learning theories, educational psychology,				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	and other related content, to help teachers better understand the characteristics of children's growth and learning.				
8.	Teaching Methods and Techniques: Train teachers to use a variety of teaching methods and techniques, such as heuristic teaching, situational teaching, game-based teaching, as well as skills in classroom management, student assessment, and other aspects.				
9.	Child Psychological Health and Behavior Management: Train teachers to understand issues related to children's psychological health, learn how to build good relationships with young children, and effectively manage children's behavior.				
10.	Multicultural Education: Teachers need to understand the importance of multicultural education, learn how to promote cross-cultural communication and understanding among young				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	children in their teaching.				
11.	Special Education Needs: Teachers should also receive training on special education needs, understand how to support and educate young children with special needs, and promote their development.				
12.	Professional Development: The training content should also include enhancing teachers' professional competence and ethical standards, fostering their sense of responsibility, innovative spirit, and ability to work collaboratively in a team.				
Training Methods and Tools					
13.	Practical Teaching: Train teachers through practical teaching experiences, allowing them to apply the knowledge and skills they have learned in actual classrooms, and enhance their practical teaching abilities.				
14.	Training Manuals and Teaching Materials: Provide specially designed training manuals,				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	textbooks, or teaching resources to help teachers systematically learn and master relevant knowledge and skills.				
15.	Learning Community and Discussion Platform: Establish a learning community and discussion platform for teachers to communicate, share experiences and resources, and promote collaborative learning and growth.				
16.	Assistive Technology: Utilize modern technologies to assist teacher training, such as virtual reality technology, intelligent teaching systems, online assessment tools, etc., to enhance training effectiveness and teaching efficiency.				
17.	Practical Activities and Observation Lessons: Organize practical activities and observation lessons for teachers to personally participate in and observe excellent teaching practices, enhancing their practical skills and teaching abilities.				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
18.	Group Discussions and Collaboration: Facilitate communication and interaction among teachers through group discussions and collaboration, encouraging collective exploration of educational issues, fostering idea exchange, and mutual growth.				
Training Strategies					
19.	Targeted Curriculum Design: Develop curriculum content tailored to the practical needs of kindergarten teachers, encompassing teaching theories, practical skills, curriculum design, and other relevant aspects.				
20.	Peer Assistance and Sharing: Encourage teachers to communicate and share experiences with each other, establish professional communities and collaborative networks, and promote mutual learning and growth.				
21.	Diversified Training Formats: Utilize a variety of formats including				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	online, offline, practical, peer-to-peer exchange, etc., to cater to different teachers' learning styles and needs.				
22.	Progressive Training: Implement a phased and progressive training approach, starting from basic knowledge to professional skills and then to practical abilities, gradually enhancing teachers' overall competency.				
23.	Participatory Training: Encourage teachers to engage in classroom interactions, group discussions, case studies, and other activities to promote active participation and communication among learners, enhancing the effectiveness of learning.				
24.	Incentive Mechanism: Establish reward systems or certification programs to incentivize teachers to actively participate in training, enhancing learning motivation and effectiveness.				
Training Organization					
25.	Training Plan and Objectives:				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	Develop clear training plans and objectives, specifying training content, format, schedule, etc., to ensure the systematic and continuous nature of the training.				
26.	Incentive Mechanism: Establish reward systems or certification programs to motivate teachers to actively participate in training, enhancing learning motivation and effectiveness.				
27.	Training Faculty: Possess a team of experienced and highly qualified trainers, including education experts, psychologists, instructional designers, etc., to provide professional guidance and support.				
28.	Training Resources: Provide a wide range of teaching resources and tools, such as textbooks, teaching aids, instructional equipment, educational software, etc., to support teachers' learning and teaching activities.				
29.	Training Activities: Organize various training activities, such as lectures,				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	seminars, workshops, field visits, hands-on guidance, etc., to provide different forms of learning opportunities.				
30.	Financial Support: Provide necessary funding support for teacher training to ensure the smooth running and quality assurance of training activities.				
Training Evaluation					
31.	Assessment Content: Assessment content should include knowledge mastery, skill application ability, teaching effectiveness, and other aspects to comprehensively evaluate the training outcomes of teachers.				
32.	Formative Assessment: Evaluate the diversity, flexibility, and effectiveness of training formats, including assessments of online courses, offline seminars, hands-on guidance, and other forms of training.				
33.	Engagement Assessment: Evaluate teachers' participation and enthusiasm, including attendance				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	rates, classroom interactions, completion of assignments, etc., to understand the level of recognition and involvement of teachers in the training.				
34.	Satisfaction Assessment: Evaluate teachers' satisfaction with the training program and gather feedback, collecting constructive opinions and suggestions to improve and optimize the training plan.				
35.	Ongoing Monitoring and Evaluation: Conduct continuous tracking and evaluation after the training to understand the application and effectiveness of the training content in teachers' work, promoting the continuous improvement of training outcomes.				
36.	Training Effectiveness Evaluation: Taking into account the above elements, assess the overall training effectiveness and impact, analyze the strengths and weaknesses of the training				

Item	Effective strategy for training model of integrated information technology teaching method for kindergarten teachers	Fruit			
		Pass	Through	Revise	Delete
	program, and provide improvement suggestions and directions for future training.				
Propose:					

Appendix C

The Results of the Quality Analysis of Research Instruments

Effective strategy for investigate the current problems in
kindergarten teaching training
(consistency evaluation)

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
Training needs								
1.	Professional knowledge and skills: including expertise in early childhood education theory, child psychology, teaching methods, curriculum design, as well as practical skills in teaching, communication, and management.	1	1	1	1	1	1	valid
2.	Teaching resources and tools: providing resources such as textbooks, teaching aids, teaching equipment suitable for kindergarten teaching, as well as training in teaching techniques and information technology tools to help teachers better conduct teaching activities.	1	0	1	1	1	0.8	valid
3.	Education policies and regulations: Understanding relevant education policies, laws, and standards to ensure that teachers comply with regulations during the teaching process, safeguarding the rights and safety of young children.	1	1	1	1	1	1	valid
4.	Professional development and career planning: Assisting teachers in career	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	planning, providing opportunities for professional development and training programs to promote teachers' growth and advancement.							
5.	Child development and educational theories: Teachers need to understand the latest theories on child development and education, grasp knowledge in areas such as child psychology, cognition, emotions, etc., to guide practical teaching activities.	1	1	1	0	1	0.8	valid
6.	Updating teaching methods and strategies: Teachers need to learn and master a variety of teaching methods and strategies to enhance teaching effectiveness and meet the learning needs of different young children.	1	1	1	1	1	1	valid
7.	Curriculum design and assessment skills: Teachers need to enhance their ability in curriculum design and assessment, develop teaching plans that align with the characteristics and needs of young children, and effectively evaluate teaching outcomes.	1	1	1	1	1	1	valid
8.	Personal development needs: Individual differences in teachers' personal development needs are also important factors; some teachers may wish to pursue further studies, while others may need to	1	1	1	1	0	0.8	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	enhance specific skills or knowledge.							
9.	Social needs: Teachers need to understand the changes in social needs, adapt to social development, and enhance the quality and effectiveness of educational services.	1	1	1	1	1	1	valid
10.	Individual differences and feedback: There are differences among teachers as individuals, and personalized training plans should be developed based on individual needs and feedback to enhance the specificity and effectiveness of training.	1	1	1	1	1	1	valid
Training content		1	1	1	1	1	1	valid
11.	Early Childhood Education Theories: Introduce the basic theories of early childhood education, including child development stages, learning theories, educational psychology, and other related content, to help teachers better understand the characteristics of children's growth and learning.	1	0	1	0	1	0.8	valid
12.	Teaching Methods and Techniques: Training teachers to use a variety of teaching methods and techniques, such as heuristic teaching, situational teaching, game-based teaching, as well as skills in classroom management, student assessment, and other aspects.	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
13.	Curriculum Design and Teaching Plans: Guide teachers in developing curriculum designs and teaching plans that meet the needs of young children, including goal setting, content arrangement, and instructional activity design.	1	1	1	1	1	1	valid
14.	Child Psychological Health and Behavior Management: Training teachers to understand issues related to children's psychological health, learn how to establish good relationships with young children, and effectively manage their behavior.	1	0	1	1	1	0.8	valid
15.	young children to unleash their potential, and fostering children's artistic expression abilities and creativity.	1	1	0	1	1	0.8	valid
16.	Principles of Early Childhood Education: Teachers need to grasp the principles and methods of early childhood education, understand how to promote the holistic development of young children through games, experiences, and other means.	1	1	1	1	1	1	valid
17.	Curriculum Design and Assessment: Teachers need to learn how to design curriculum that meets the characteristics and needs of young children, and master effective assessment methods to enhance teaching quality.	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
18.	Multicultural Education: Teachers need to understand the importance of multicultural education, and learn how to promote cross-cultural communication and understanding among young children in their teaching practices.	1	1	1	1	1	1	valid
19.	Special Education Needs: Teachers should also receive training on special education needs to understand how to support and educate young children with special needs, promoting their development.	1	1	1	0	1	0.8	valid
20.	Professional Development: Training content should also include enhancing teachers' professional competence and ethical standards, cultivating their sense of responsibility, innovative spirit, and ability to work collaboratively in a team.	1	1	1	1	1	1	valid
Training methods and tools		1	1	1	1	1	1	valid
21.	Practical Teaching: Training teachers through practical teaching experiences, allowing them to apply the knowledge and skills they have learned in real classroom settings, enhancing their practical teaching abilities.	1	1	1	0	1	0.8	valid
22.	Training Manuals and Teaching Materials: Providing specially designed training manuals,	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	textbooks, or teaching resources to assist teachers in systematically learning and mastering relevant knowledge and skills.							
23.	Video Teaching and Demonstrations: Utilizing video teaching and demonstrations to showcase teaching techniques, case studies, and other content, helping teachers to visually understand and learn.	1	1	1	1	1	1	valid
24.	Learning Community and Discussion Platform: Establishing a learning community and discussion platform for teachers to engage in communication, share experiences and resources, and facilitate collaborative learning and growth.	1	1	1	1	1	1	valid
25.	Peer Support: Establishing a teacher communication platform or professional community to facilitate experience sharing, collaborative learning, and mutual support among teachers.	1	1	1	1	0	0.8	valid
26.	Assistive Technology: Utilizing modern technology to support teacher training, such as virtual reality technology, intelligent teaching systems, online assessment tools, etc., to enhance training effectiveness and teaching efficiency.	1	1	1	1	1	1	valid
27.	Workshops and Lectures: By organizing	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	specialized workshops and lectures, inviting experts and scholars to share the latest educational theories and practical experiences, we aim to help teachers broaden their knowledge horizons.							
28.	Case Studies and Sharing: By conducting case studies and sharing teaching practices, we aim to help teachers learn from others' successful experiences and lessons, inspire reflection, and improve teaching methods.	1	1	1	0	1	0.8	valid
29.	Practical Activities and Observation Classes: Organizing practical activities and observation classes to allow teachers to actively participate in and observe excellent teaching practices, enhancing their practical skills and teaching abilities.	1	1	1	1	1	1	valid
30.	Group Discussions and Collaboration: Through group discussions and collaboration, we aim to facilitate communication and interaction among teachers, collectively explore educational issues, promote idea exchange, and foster mutual growth.	0	1	1	1	1	0.8	valid
Training resources		1	1	1	1	1	1	valid
31.	Teaching Materials and Tools: Providing resources such as suitable teaching materials, tools, and instructional equipment for	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	kindergarten education to assist teachers in conducting teaching activities, enriching teaching content, and enhancing teaching effectiveness.							
32.	Online Platform and Resource Repository: Establishing an online learning platform or resource repository to provide teachers with access to teaching videos, materials, lesson plans, case studies, and other resources that can be accessed anytime and anywhere, facilitating teacher learning and communication.	1	1	0	0	1	0.8	valid
33.	Learning Community and Interactive Platform: Establishing a teacher learning community or online forum to facilitate communication and interaction among teachers, enabling them to share experiences, resources, and teaching achievements.	1	1	1	1	1	1	valid
34.	Assessment and Feedback: Providing regular assessment and feedback mechanisms to help teachers understand their learning progress, adjust their learning direction in a timely manner, and continuously enhance their capabilities.	1	1	1	1	0	0.8	valid
35.	Educational Institutions and Professional Organizations: Educational institutions and	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	professional organizations typically provide various teacher training resources, including seminars, workshops, professional courses, etc., to help teachers continuously learn and grow.							
36.	Experts, Scholars, and Lecturers: Inviting experts, scholars, and lecturers to participate in teacher training, share the latest educational theories and practical experiences, and help teachers enhance their professional knowledge and skills.	1	1	1	1	1	1	valid
37.	Educational Books and Journals: Providing a wide range of educational books and journals for teachers to reference, enabling them to understand the latest educational theories, research findings, and practical case studies.	1	0	1	1	1	0.8	valid
38.	Teaching Resource Repository: Establishing a teaching resource repository to collect and organize various teaching resources, such as instructional videos, lesson plan examples, teaching tools, etc., to provide teachers with a wealth of teaching materials and reference materials.	1	1	1	0	1	0.8	valid
39.	Pedagogical Technology Support: Providing pedagogical technology support to help teachers master the application of teaching	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	technologies and tools, enhancing teaching effectiveness and innovation capabilities.							
40.	Practice Bases and Observation Opportunities: Providing practice bases and observation opportunities for teachers to actively participate in practical activities and observe excellent teaching practices, promoting experience accumulation and enhancing teaching capabilities.	1	1	1	1	1	1	valid
Training strategies		1	1	1	1	1	1	valid
41.	Needs Analysis: Understanding teachers' training needs and learning objectives, and customizing training plans tailored to the backgrounds and requirements of individual teachers.	1	1	1	1	1	1	valid
42.	Targeted Curriculum Design: Designing curriculum content that meets the practical needs of kindergarten teachers, covering aspects such as teaching theory, practical skills, and curriculum design.	1	0	1	1	1	0.8	valid
43.	Practice-Oriented: Emphasizing practical exercises and case studies to help teachers apply their knowledge and skills to real-world scenarios, enhancing their practical abilities.	1	1	1	0	1	0.8	valid
44.	Feedback and Evaluation: Establishing an	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	effective feedback mechanism to promptly collect teachers' learning feedback and performance evaluations, in order to provide personalized guidance and support to teachers.							
45.	Peer Support and Sharing: Encouraging teachers to communicate and share experiences with each other, establishing professional communities and collaborative networks to facilitate mutual learning and growth.	1	1	1	1	1	1	valid
46.	Diversified Training Formats: Utilizing a variety of formats such as online, offline, practical, and peer exchanges to cater to different teachers' learning styles and needs.	1	0	1	1	1	0.8	valid
47.	Progressive Training: Adopting a phased and progressive training approach, starting from basic knowledge to professional skills and then to practical abilities development, gradually enhancing teachers' overall competency.	1	1	1	1	1	1	valid
48.	Participatory Training: Encouraging teachers to engage in classroom interactions, group discussions, case studies, and other activities to promote active participation and communication among learners, enhancing	1	1	1	1	0	0.8	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	the effectiveness of learning.							
48.	Incentive Mechanism: Establishing reward systems or certification recognition to incentivize teachers to actively participate in training, enhancing learning motivation and effectiveness.	1	1	1	1	1	1	valid
50.	Ongoing Monitoring: Conducting follow-up evaluations after training, collecting feedback to understand the training effectiveness, and providing further support and guidance to teachers.	1	1	1	0	1	0.8	valid
Training organization		1	1	1	1	1	1	valid
51.	Training Plan and Objectives: Establishing clear training plans and objectives, outlining the training content, format, schedule, etc., to ensure the systematic and continuous nature of the training.	0	1	1	1	1	0.8	valid
52.	Training Facilities: Providing suitable training venues and facilities, including classrooms, laboratories, multimedia equipment, etc., to ensure a comfortable and convenient training environment.	1	1	1	1	0	0.8	valid
53.	Training Evaluation: Establishing an effective training evaluation mechanism to assess teachers' learning progress and performance,	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	making timely adjustments to the training direction and methods to ensure training effectiveness.							
54.	Management Mechanism: Establishing a comprehensive training management mechanism, including training information management, student management, course management, etc., to ensure the orderly and efficient operation of the training program.	1	0	1	1	1	0.8	valid
55.	Incentive Mechanism: Establishing reward systems or certification programs to motivate teachers to actively participate in training, enhancing learning motivation and effectiveness.	1	1	1	1	1	1	valid
56.	Training Faculty: Having a team of experienced and highly qualified training professionals, including education experts, psychologists, instructional designers, etc., to provide professional guidance and support.	0	1	1	1	1	0.8	valid
57.	Training Resources: Providing a wide range of teaching resources and tools, such as textbooks, teaching aids, teaching equipment, educational software, etc., to support teachers' learning and teaching activities.	1	1	1	1	1	1	valid
58.	Training Courses: Designing course content that meets the needs of teachers and training	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	objectives, covering aspects such as early childhood education theory, teaching methods, children's psychological well-being, home-school cooperation, etc.							
59.	Training Activities: Organizing various training activities, such as lectures, seminars, workshops, field visits, hands-on guidance, etc., to provide different forms of learning opportunities.	1	1	1	1	1	1	valid
60.	Financial Support: Providing necessary funding support for teacher training to ensure the smooth progress and quality assurance of training activities.	1	1	0	1	1	0.8	valid
Training operations		1	1	1	1	1	1	valid
61.	Training Needs Assessment: Conducting targeted needs assessment before the start of training to understand teachers' training needs and expectations, providing a basis for the design of subsequent training content and formats.	1	1	1	0	1	0.8	valid
62.	Developing Training Plan: Based on the results of the needs assessment, creating a detailed training plan that includes training content, schedule, training formats, etc., to ensure clear and targeted training objectives.	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
63.	Sharing and Communication: Encouraging teachers to share training experiences and teaching practices with each other to promote mutual learning and growth, and to establish a collaborative and learning-oriented teacher team.	1	1	1	1	1	1	valid
64.	Faculty Preparation: Providing necessary training materials and teaching aids for trainers to ensure that they possess professional knowledge and training skills, enabling them to effectively impart knowledge.	1	1	1	0	1	0.8	valid
65.	Practical Guidance: Providing practical opportunities and guidance to help teachers apply the knowledge they have learned to actual teaching, enhancing their practical skills and teaching abilities.	1	0	1	1	1	0.8	valid
66.	Follow-up Coaching: Conducting follow-up coaching after training to continuously monitor the learning and growth of teachers, providing necessary support and guidance to help teachers continually improve.	1	1	1	1	1	1	valid
67.	Feedback Evaluation: Establishing an effective feedback mechanism to collect teachers' feedback and training effectiveness evaluations, making timely adjustments and	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	improvements to training programs to enhance training outcomes.							
68.	Ongoing Monitoring: Conducting follow-up assessments after training to understand teachers' learning outcomes and practical application, and providing further support and guidance to teachers.	1	1	1	1	1	1	valid
69.	Selecting Training Formats: Based on the training content and teachers' specific circumstances, choosing appropriate training formats such as online courses, offline seminars, practical guidance, etc., to enhance teachers' learning effectiveness.	1	1	1	1	1	1	valid
70.	Continuous Support: Providing ongoing support and guidance to teachers after the training, encouraging them to continue learning and improving, and promoting their professional development.	1	1	1	1	0	0.8	valid
Training evaluation		1	1	1	1	1	1	valid
71.	Goals and Standards: Clearly define the training objectives and assessment criteria to ensure that the evaluation targets and content are aligned with the training goals.	1	1	1	1	1	1	valid
72.	Assessment Content: The assessment content should include aspects such as	1	1	1	1	1	1	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	knowledge mastery, skill application abilities, teaching effectiveness, etc., to comprehensively evaluate the training outcomes of teachers.							
73.	Assessment Schedule: Determine the timing and frequency of assessments, which can be conducted before, during, and after the training, as well as follow-up assessments at certain intervals after the training.	1	1	1	1	1	1	valid
74.	Feedback and Improvement: Provide feedback based on the assessment results to guide teachers in improving teaching methods and practical skills, promoting their professional development.	1	1	1	1	1	1	valid
75.	Formative Assessment: Evaluate the diversity, flexibility, and effectiveness of training formats, including assessments of online courses, offline seminars, practical guidance, and other forms of evaluation.	1	0	1	1	1	0.8	valid
76.	Engagement Assessment: Evaluate teachers' engagement and enthusiasm, including attendance rates, classroom interactions, completion of assignments, etc., to understand the level of acceptance and involvement of teachers in the training.	1	1	1	1	1	1	valid
77.	Satisfaction Assessment: Evaluate teachers'	1	1	1	0	1	0.8	valid

NO.	Training model of comprehensive information technology teaching method for kindergarten teachers	Experts					IOC	Validity
		1	2	3	4	5		
	satisfaction and feedback on the training program, collect constructive opinions and suggestions to improve and optimize the training plan.							
78.	Ongoing Monitoring and Evaluation: Conduct continuous tracking and evaluation after the training to understand the application and effectiveness of the training content in teachers' work, promoting sustained improvement in training outcomes.	1	1	1	1	1	1	valid
79.	Training Effectiveness Evaluation: Taking into account the above elements, assess the overall training effectiveness and impact, analyze the strengths and weaknesses of the training program, and provide improvement suggestions and directions for future training.	1	1	1	1	1	1	valid
80.	Teaching Effectiveness Evaluation: Evaluate the effects demonstrated by teachers in actual teaching after training, including improvements in teaching methods and enhancements in teaching quality.	1	1	1	1	1	1	valid

**Experts test the training model of teacher comprehensive
information technology teaching method
(Consistency evaluation)**

NO.	Elements of teacher comprehensive information technology teaching method training model	Experts					IOC	Validity
		1	2	3	4	5		
Training Needs		1	1	1	1	1	1	valid
1	Professional Knowledge and Skills	1	1	1	1	1	1	valid
2	Teaching Resources and Tools	1	1	1	1	1	1	valid
3	Updating Teaching Methods and Strategies	1	1	1	1	1	1	valid
4	Personal Development Needs	1	1	1	1	1	1	valid
5	Social Needs	1	0	1	1	1	0.8	valid
6	Individual Differences and Feedback Comments	1	1	0	1	1	0.8	valid
Training Content		1	1	1	1	1	1	valid
7	Teaching Methods and Techniques	1	1	1	1	1	1	valid
8	Child Psychological Health and Behavior Management	1	1	1	1	1	1	valid
9	Early Childhood Education Theory	1	1	1	1	0	0.8	valid
10	Professional Competence Enhancement	0	1	1	1	1	0.8	valid
11	Multicultural Education	1	1	1	1	1	1	valid
12	Special Education Needs	1	1	1	1	1	1	valid
Training methods and tool		1	1	1	1	1	1	valid
13	Practical Activities and Observation	1	1	1	1	1	1	valid

NO.	Elements of teacher comprehensive information technology teaching method training model	Experts					IOC	Validity
		1	2	3	4	5		
	Classes							
14	Training Manuals and Teaching Materials	1	1	1	1	0	0.8	valid
15	Group Discussions and Collaboration	1	1	1	1	1	1	valid
16	Practical Teaching	1	1	1	1	1	1	valid
17	Learning Communities and Discussion Platforms	1	1	1	1	1	1	valid
18	Assistive Technologies	1	1	1	1	1	1	valid
Training strategies		1	1	1	1	1	1	valid
19	Diversified Training Formats	1	1	1	1	1	1	valid
20	Participatory Training	1	1	1	1	1	1	valid
21	Targeted Course Design	1	1	1	1	1	1	valid
22	Peer Support and Sharing	1	1	1	0	1	0.8	valid
23	Progressive Training	1	1	1	1	1	1	valid
24	Incentive Mechanisms	1	1	1	1	1	1	valid
Training organization		1	1	1	1	1	1	valid
25	Training Plans and Objectives	1	1	1	1	1	1	valid
26	Management Mechanisms	1	1	1	0	1	0.8	valid
27	Incentive Mechanisms	1	1	1	1	1	1	valid
28	Training Activities	1	1	1	1	1	1	valid
29	Training Resources	1	1	1	0	1	0.8	valid
30	Financial Support	1	1	1	1	1	1	valid
Training assessment		1	1	1	1	1	1	valid

NO.	Elements of teacher comprehensive information technology teaching method training model	Experts					IOC	Validity
		1	2	3	4	5		
31	Evaluation Content	1	1	1	1	1	1	valid
32	Formative Assessment	1	1	1	1	1	1	valid
33	Training Effectiveness Evaluation	1	1	1	1	1	1	valid
34	Participation Assessment	1	1	1	1	1	1	valid
35	Continuous Monitoring Evaluation	1	1	0	1	1	0.8	valid
36	Satisfaction Assessment	1	1	1	1	1	1	valid

Kindergarten Teachers Training Model for Integrated IT Teaching Methods (Results)

Item	Elements of the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers	Md	Mo	IOR	Consensus
Training needs		5.0	5.0	0.0	95.24%
1.	Professional Knowledge and Skills	5.0	5.0	0.0	95.24%
2.	Teaching Resources and Tools	5.0	5.0	0.5	90.48%
3.	Professional Development and Career Planning	3.0	4.0	1.0	42.86%
4.	Updating Teaching Methods and Strategies	4.0	5.0	0.5	80.95%
5.	Child Development and Educational Theories	3.0	4.0	1.0	33.33%
6.	Curriculum Design and Evaluation Abilities	3.0	4.0	1.0	42.86%
7.	Education Policies and Regulations	3.0	4.0	1.0	42.86%
8.	Personal Development Needs	5.0	5.0	0.5	90.48%
9.	Social Needs	4.0	5.0	0.5	80.95%
10.	Individual Differences and Feedback	5.0	5.0	0.5	90.48%
Training Content		4.0	4.0	0.0	85.71%
1.	Curriculum Design and Assessment	3.0	4.0	1.0	42.86%
2.	Teaching Methods and Techniques	5.0	5.0	0.5	85.71%
3.	Curriculum Design and Teaching Plans	3.0	4.0	1.0	42.86%
4.	Child Psychological Health and Behavior Management	5.0	5.0	0.5	90.48%
5.	Early Childhood Education Theory	5.0	5.0	0.0	95.24%
6.	Professional Competence Enhancement	5.0	5.0	0.5	90.48%

Item	Elements of the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers	Md	Mo	IOR	Consensus
7.	Principles of Early Childhood Education	3.0	4.0	1.0	47.62%
8.	Creative Education and Artistic Expression	3.0	4.0	1.0	42.86%
9.	Multicultural Education	5.0	5.0	0.0	85.71%
10.	Special Education Needs	5.0	5.0	0.0	95.24%
Training methods and tool		5.0	5.0	0.5	90.48%
1.	Practical activities and observation lessons	5.0	5.0	0.5	90.48%
2.	Training manuals and textbooks	5.0	5.0	0.5	90.48%
3.	Group discussions and collaboration	5.0	5.0	0.0	85.71%
4.	Practical teaching	5.0	5.0	0.0	95.24%
5.	Case studies and sharing	3.0	4.0	1.0	33.33%
6.	Workshops and seminars	3.0	4.0	1.0	47.62%
7.	Video tutorials and demonstrations	3.0	4.0	1.0	47.62%
8.	Learning communities and discussion platforms	4.0	5.0	0.5	80.95%
9.	Peer assistance	3.0	4.0	1.0	47.62%
10.	Assistive technology	5.0	5.0	0.0	95.24%
Training resources		3.0	4.0	1.0	42.86%
1.	Teaching Resource Library	3.0	4.0	1.0	47.62%
2.	Online Platforms and Repositories	5.0	5.0	0.0	95.24%
3.	Learning Communities and Interactive Platforms	5.0	5.0	0.0	85.71%
4.	Teaching Materials and Tools	5.0	5.0	0.5	90.48%
5.	Educational Technology Support	5.0	5.0	0.5	90.48%

Item	Elements of the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers	Md	Mo	IOR	Consensus
6.	Assessment and Feedback	3.0	4.0	1.0	33.33%
7.	Educational Books and Journals	3.0	4.0	1.0	42.86%
8.	Experts, Scholars, and Lecturers	3.0	4.0	1.0	33.33%
9.	Educational Institutions and Professional Organizations	4.0	5.0	0.5	80.95%
10.	Practice Bases and Observation Opportunities	4.0	5.0	0.5	80.95%
Training strategies		5.0	5.0	0.5	90.48%
1.	Diversified Training Formats	4.0	5.0	0.5	80.95%
2.	Practice-Oriented	3.0	4.0	1.0	47.62%
3.	Needs Analysis	3.0	4.0	1.0	47.62%
4.	Participatory Training	5.0	5.0	0.0	95.24%
5.	Targeted Curriculum Design	5.0	5.0	0.5	90.48%
6.	Peer Support and Sharing	4.0	5.0	0.5	80.95%
7.	Feedback and Evaluation	3.0	4.0	1.0	42.86%
8.	Continuous Monitoring	3.0	4.0	1.0	42.86%
9.	Progressive Training	5.0	5.0	0.0	95.24%
10.	Incentive Mechanisms	5.0	5.0	0.5	90.48%
Training organization		5.0	5.0	0.0	95.24%
1.	Training Plans and Objectives	5.0	5.0	0.0	95.24%
2.	Management Mechanisms	4.0	5.0	0.5	80.95%
3.	Trainer Resources	3.0	4.0	1.0	33.33%

Item	Elements of the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers	Md	Mo	IOR	Consensus
4.	Incentive Mechanisms	5.0	5.0	0.5	90.48%
5.	Training Facilities	3.0	4.0	1.0	42.86%
6.	Training Activities	5.0	5.0	0.5	90.48%
7.	Training Evaluation	3.0	4.0	1.0	33.33%
8.	Training Courses	3.0	4.0	1.0	42.86%
9.	Training Resources	4.0	5.0	0.5	80.95%
10.	Financial Support	5.0	5.0	0.5	90.48%
Training Operations		3.0	4.0	1.0	42.86%
1.	Developing Training Plans	3.0	4.0	1.0	42.86%
2.	Selecting Training Formats	4.0	5.0	0.5	80.95%
3.	Practical Guidance	5.0	5.0	0.5	90.48%
4.	Ongoing Support	5.0	5.0	0.0	95.24%
5.	Training Needs Assessment	4.0	5.0	0.5	80.95%
6.	Trainer Preparation	3.0	4.0	1.0	33.33%
7.	Sharing and Communication	5.0	5.0	0.5	90.48%
8.	Feedback and Evaluation	3.0	4.0	1.0	42.86%
9.	Tracking and Coaching	4.0	5.0	0.5	80.95%
10.	Continuous Monitoring	3.0	4.0	1.0	42.86%
Training assessment		5.0	5.0	0.5	90.48%
1.	Goals and Standards	3.0	4.0	1.0	42.86%
2.	Content Evaluation	5.0	5.0	0.0	95.24%

Item	Elements of the Training Model of Comprehensive Information Technology Teaching Methods for Kindergarten Teachers	Md	Mo	IOR	Consensus
3.	Formative Evaluation	4.0	5.0	0.5	80.95%
4.	Training Effectiveness Evaluation	5.0	5.0	0.5	90.48%
5.	Feedback and Improvement	3.0	4.0	1.0	42.86%
6.	Evaluation Period	3.0	4.0	1.0	42.86%
7.	Engagement Evaluation	4.0	5.0	0.5	80.95%
8.	Teaching Effectiveness Evaluation	3.0	4.0	1.0	33.33%
9.	Continuous Monitoring Evaluation	4.0	5.0	0.5	80.95%
10.	Satisfaction Evaluation	4.0	5.0	0.5	80.95%

Training manual

Information Technology training manual for kindergarten teachers

Preface

This manual aims to provide a set of systematic and comprehensive information technology training guide for kindergarten teachers, to help teachers master advanced teaching modes such as live online teaching and online and offline mixed teaching, and to skillfully use teaching tools such as PPT and random capture, so as to improve the teaching quality and effect.

Introduction of training methods and tools

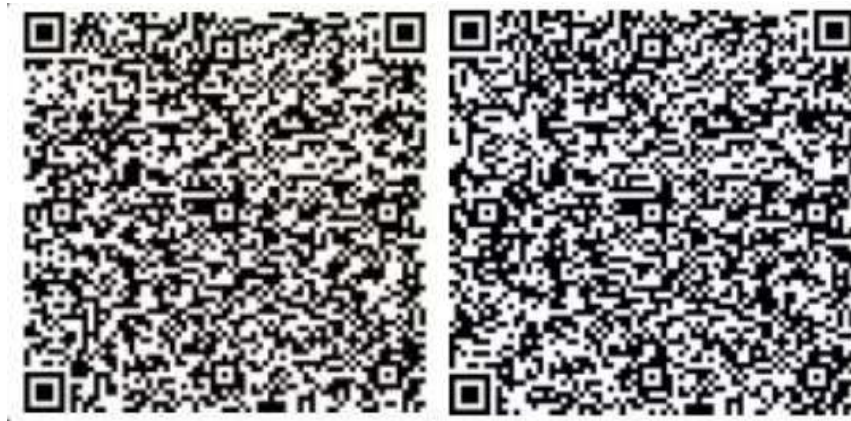
1 Live online teaching and training

Tool selection: It is recommended to use mature online education platforms such as Dingding, Tencent Conference and Zoom. These platforms support live video broadcast, screen sharing, interactive chat and other functions, which are suitable for the live broadcast teaching needs of kindergarten teachers.

Platform operation: introduce in detail how to create live broadcast, invite students to join, screen sharing, interactive question and answer and other basic functions.

Teaching design: explain how to keep children's interest and attention in the live broadcast, and design interactive links, such as asking questions, games, etc.

Coping with technical faults: teaching teachers to deal with technical problems such as network delay and unclear voice.



Visit live: The Shipyard

Visit live: flower factory

2 Mixed online and offline teaching and training

Tool integration: introduces how to use online teaching platforms (such as the platform mentioned above) and offline teaching tools (such as physical teaching AIDS, interactive whiteboards, etc.).

Teaching mode: explain the mixed teaching process of "independent learning at the front line + classroom learning + online consolidation after class", emphasizing the importance and implementation method of each link.

3 PPT With the random capture technology

PPT Production skills: train teachers to use PowerPoint or other demonstration software to make teaching courseware, especially how to insert video, audio, pictures and other multimedia materials, as well as how to set the animation effects and interactive functions.

Random capture interaction: introduce the use of PPT or other interactive teaching tools (such as 101 education PPT) to realize random roll call and question drawing functions, increasing the interactivity and interest of the classroom. At the same time, teachers can be taught how to use a mobile phone or camera to randomly capture a child's performance as teaching feedback or presentation.



4 Other software applications

In addition to live teaching, other software applications that contribute to integrate online and offline teaching, such as:

Teaching aid software:Using PPT, Shivo whiteboard and other software to make exquisite teaching courseware, through animation, sound and other means to attract children's attention. Use random roll call, question drawing and other functions to increase the classroom interaction and interest.

Home co-education software:It is recommended to use home co-education APP or small programs, such as kindergarten, baby bus, etc., to facilitate the communication and cooperation between teachers and parents, and pay attention to children's learning and growth.

Training methods and practice cases

Theoretical explanation and demonstration. Through PPT, video and other ways, systematically explain the application principle and operation skills of information technology in early childhood education. Live demonstration of live teaching, mixed teaching and other processes, so that teachers can intuitively feel the charm of information technology.

Practical exercise. Organize teachers to conduct practical exercises in groups to simulate live teaching, mixed teaching and other scenarios to deepen understanding and memory. Provide specific cases such as museum courses, guide teachers to use PPT and other tools to make teaching courseware, and try to randomly capture children's performance.

Experience sharing and exchange. Experienced teachers are invited to share their application experience and successful cases of information technology in teaching. Organize teachers to discuss in groups, share their practical experience and problems encountered, and find solutions together.

Follow-up support and guidance. Establish an information technology application support group or platform to provide teachers with continuous technical support and resource sharing. Visit the teachers regularly to understand the problems and difficulties they encounter in the application process of information technology, and provide targeted guidance and help.

Through the above training methods and methods, kindergarten teachers' information technology application ability can be effectively improved, so that they can better combine the current education trend, and carry out high-quality live teaching and mixed online and offline teaching. At the same time, it can also stimulate children's interest and enthusiasm in learning and promote their all-round development.



Appendix D

Certificate of English



This is to certify that

Mrs. Lin Suyun

Achieved BSRU English Proficiency Test (BSRU-TEP) level

C2

Given on 22nd August 2021

A blue ink signature of Dr. Kulsin Aphiratoradej is written in the bottom right corner of the certificate.

(Assistant Professor Dr Kulsin Aphiratoradej)
Director

Appendix E

The Document for Acceptance Research

Researcher Profile

Name-Surname: Lin Suyun

Birthday: May 26, 1975

Place of Birth: Wenzhou City, Zhejiang Province, China

Educational Background:

- In 2021, obtained a Doctorate degree in Educational Digital Technology Management from Bangsue Rajabhat University.
- In 2008, obtained a Master's degree in Business Administration from Macau University of Science and Technology.
- In 2006, graduated from Jinggangshan University, majoring in Education.

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