



Development of the Piano Course Based on Gordon's Music Teaching Theory Combined with Competency-Based Education to Enhance Music Teaching Competency of Student Teachers in Guangdong Baiyun University

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Received 03/04/2025

Revised 08/04/2025

Accepted 13/05/2025

Abstract

Background and Aim: Based on relevant policies and literature, such as higher education planning at home and abroad, policies of the Chinese Ministry of Education, educational concepts, Competency-Based Education, Gordon's Music Teaching Theory methods, teaching strategies, and teaching evaluations, researchers interviewed teachers and students on the current Piano Course. This research and development aimed to 1) study background information of the Piano Course based on Gordon's Music Teaching Theory combined with Competency-Based Education, 2) develop the Piano Course based on Gordon's Music Teaching Theory combined with Competency-Based Education, and 3) determine the effectiveness of implementing the Piano Course based on Gordon's Music Teaching Theory combined with Competency-Based Education.

Materials and Methods: The sample was 20 first-year student teachers (1 class) majoring in preschool education in Guangdong Baiyun University, People's Republic of China, derived by cluster random sampling. The study consisted of 3 phases: Phase 1: Study the background information, focusing on course components and existing problems of the Piano Course. Phase 2: Develop a Piano Course based on Gordon's Music Teaching Theory combined with Competency-Based Education. Phase 3: The implementation of the Piano Course based on Gordon's Music Teaching Theory combined with Competency-Based Education. The research instruments were 1) eight lesson plans with a very high level of appropriateness ($M=4.80$, $SD = 0.43$), 2) A Learning Achievement Test with a reliability of 0.72. 3) An Evaluation form of Music Teaching Competency with the reliability of 0.74, 4) and A Satisfaction Questionnaire about Piano Course with the reliability of 0.72. The data were analyzed by using mean, standard deviation, and the one-sample t-test.

Results: The findings of this study were as follows: 1) The results from the review literature and interviews with participants found that the main problem of the current teaching strategy was effective to a certain extent, lacked enough innovation and flexibility to fully promote the active learning and personalized development of student teachers. It was necessary to constantly explore and try new teaching strategies, and flexibly adjust and optimize them according to the actual situation and the needs of student teachers. 2) The Piano Course, based on Gordon's Music Teaching Theory, combined with Competency-Based Education, consisted of 6 components: principle, objective, content, instructional strategy, media and resource, and evaluation method. 3) After implementation through the course, the student teachers' music teaching competency (Music knowledge) post-test score was higher than the criterion of 70% at the .01 level of statistical significance ($t = 9.042$, $p = 0.000$). The student teachers' music teaching competency (Basic piano playing skills, Improvisational accompaniment, Teaching skills) post-test score was higher than the criterion of 70% at the .01 level of statistical significance ($t=29.287$, $p=0.000$). The student teachers' satisfaction was statistically higher than the criterion of 70% at the .01 level of statistical significance ($t = 46.078$, $p = 0.000$).

Conclusion: The innovation of this research was: 1) The Piano Course based on Gordon's Music Teaching Theory combined with Competency-Based Education. 2) Instructional strategy, there were 3 steps: step 1: Learn as a whole, and teaching preparation. Step 2: Partial study and optimize the curriculum system, and Step 3: Holistic learning and evaluation, which can enhance the Music Teaching Competency of student teachers. This research confirms the effectiveness of the teaching model based on Gordon's music teaching theory combined with Competency-Based Education to enhance the music teaching competency of student teachers.

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Citation



Song, D., Othakanon, L., & Nilnopkoon, P. (2025). Development of the Piano Course Based on Gordon's Music Teaching Theory Combined with Competency-Based Education to Enhance Music Teaching Competency of Student Teachers in Guangdong Baiyun University. *International Journal of Sociologies and Anthropologies Science Reviews*, 5 (5), 745-760; DOI: <https://doi.org/10.60027/ijasar.2025.7347>



Keywords: Piano Course; Gordon's Music Teaching Theory; Competency-Based Education; Music Teaching Competency

Introduction

In today's era, the education field is undergoing profound changes and development. With the continuous increase in the country's emphasis on preschool education, a series of educational policies have been introduced, pointing out the direction for the development of preschool education majors. The Outline of the National Medium- and Long-Term Education Reform and Development Plan (2021 - 2035) clearly states that it is necessary to vigorously develop preschool education, improve the quality of preschool education, and cultivate high-quality preschool education teachers. Under this policy orientation, the social demand for preschool education professionals is increasing day by day, and higher requirements are put forward for their professional qualities. The double reduction policy is to reduce the excessive homework burden of student teachers and reduce the length and quantity of homework. Chinese education belongs to exam-oriented education, and the uneven development of student-teacher relationships in schools occurs. Parents are afraid that student teachers cannot keep up with the unified pace of the school, and make up for student teachers' shortcomings outside school, which forces them to increase their homework. Out-of-school training providers seize the opportunity to play up anxieties for their benefit. The second is to promote the all-round development of student teachers. Student teachers are under pressure to take examinations for a long time, and their mental health is endangered, which can easily cause student teacher anxiety, and even lead to emotional problems such as weariness and autism. Therefore, the double reduction policy effectively corrects the wrong concept of education, provides positive dynamic factors for our country's political, economic, and social development, and reduces unnecessary lesson expenses for parents. At the same time, it also provides student teachers with a more mature growth environment, so that student teachers' educational anxiety has been effectively alleviated. Student teacher can also better exert their subjective initiative and develop in an all-around way (Jiang, 2023).

Piano Course is a compulsory course for preschool education majors in ordinary colleges and universities in China, and it is the core ability required for this major to master. A Student teacher of this major should have certain piano playing ability and accompaniment ability, which can enrich the teaching form of the classroom, stimulate children's interest in learning, and facilitate the development of children's character. It can show the music cultivation of early childhood educators, and can show the actual teaching and practical operation ability of front-line teachers in early childhood education. Piano Course is not only a skill course, but it is also an important starting point for pre-service education student teachers to develop a persistent and good quality. The cultivation of these excellent qualities will play a positive role in the future career development of student teachers.

The previous Piano Course in the preschool education major of Guangdong Baiyun University was examined from four aspects by the researcher.

1. Music professional ability of a preschool education student teacher. Under normal circumstances, when the school enrolls a student teacher majoring in preschool education, it only requires the student teacher to pass the corresponding cultural examination, and they can be admitted after passing the test. As a result, most student teachers begin to study art subjects such as piano and dance after entering the school. The Student teacher's basic knowledge of piano is too weak, and piano performance requires a long time of learning and accumulation, which is restricted by many conditions, resulting in a poor teaching effect.

2. Course content. The course content is mainly divided into two aspects: piano foundation and children's song playing and singing. Piano Foundation is the basic playing skills of learning piano, which lays the groundwork for the follow-up study of children's song improvisation and accompaniment.

3. Teaching form. Because of the large number of student teachers in the school and the small number of teachers, school teaching is mainly taught in large classes, with a class size of 40 people in A class is divided into two groups at the same time, that is, a group of 20 people.





4. Assessment methods. Assessment is the most effective way to test teaching quality and teaching objectives. The assessment methods of schools are very unified, mainly composed of final grades and regular grades, among which regular grades account for most of the majority, and regular grades are mainly composed of class return grades, attendance, and questions answered in class. As the usual scores do not include the performance level, and the phenomenon of cramming is easy to occur in the final assessment, although they can achieve good results in the assessment, they cannot reflect the actual performance level of a student teacher. This assessment method is too backward, and teachers cannot grasp the learning situation of student teachers in time, which needs to be improved.

In the current teaching process, in terms of teaching content, traditional courses often focus on classic repertoires, which are of high difficulty and divorced from the actual needs of early childhood music education. There is neglect of the cultivation of practical skills such as children's song playing and singing, and simple music composition. The teaching methods are also relatively single, mainly based on teacher demonstration and student imitation, lacking interaction and innovation, which makes it difficult to stimulate students' enthusiasm for active learning. At the same time, the assessment form of the course mostly involves playing established repertoires, and the evaluation criteria focus on playing skills, insufficiently examining students' teaching practice ability, musical literacy, and other aspects. In addition, traditional courses pay little attention to the characteristics of students in the preschool education major, such as uneven musical foundations and the future career scenario of early childhood teaching. Do not fully consider how to combine piano teaching with early childhood education concepts and methods, resulting in students' difficulty in effectively applying what students have learned to early childhood piano enlightenment education after graduation. (Chen, 2018). Therefore, based on such problems, this paper intends to use the Competency-Based Education method and Gordon's music teaching theory to develop a new Piano Course to improve student teachers' music teaching competency.

Competency-Based Education refers to the teaching focus on improving students teachers' ability in the process of education. This teaching model has been particularly popular in the international community, such as the United States and Canada, since the Second World War. This teaching method is also the main direction of international vocational education reform. Competency-Based Education does not emphasize that student teachers grasp some knowledge aimlessly. The improvement of student teachers' vocational skills is the core goal of implementing Competency-Based Education, and practice and operation is the core training direction of Competency-Based Education. Before teaching, it is necessary to comprehensively analyze the characteristics of each occupation. Based on the characteristics of the occupation, educators arrange student teachers to learn the teaching content related to the characteristics of the occupation, so that student teachers can effectively cope with various problems when they enter society. In the process of teaching, teachers must know that the main body of the classroom is the student teacher; only in this way can they ensure that the student teacher masters more skills. Competency-Based Education is to implement some educational content according to the needs of the vocational positions that student teachers will participate in in the future, and set teaching objectives on this basis. In this way, the abilities mastered by student teachers can be put into practice, and it will bring great help to student teachers (Huang, 2020).

Gordon's Theory of Music Learning is a model of music education based on Edwin Gordon's research on musical ability and achievement in the larger field of music learning theory (Gordon, 2007). This theory explains music learning by distinguishing between auditory perception and individual student-teacher musical experiences. The theory considers the concepts of discrimination and inferential learning in terms of tonal, rhythmic, and harmonic patterns (Gordon, 1997). Edwin Gordon, an American music educator and psychologist, developed this theory based on psychological studies on how students learn and how teachers teach music (Shuler, 2021). This approach emphasizes the learner's perspective, focusing on cognitive development and the process of acquiring musical knowledge.

In terms of teaching methods, Gordon's theory aligns with children's physical and mental development to determine appropriate teaching content and methods (Gordon, 2012). Among the five contemporary music teaching methods: Orff, Dalcroze, Kodály, Suzuki, and Gordon. This theory stands





out for placing student-teachers at the center of the learning process, offering a unique perspective on musical understanding (Shuler, 2021). One of the most significant contributions is the development of musical aptitude tests, which assess students' potential in music learning. The fundamental basis for Gordon's theory of music education: 1) Listening to music: the core concept of Gordon's music teaching theory; 2) Music learning sequence: the main content of Gordon's theory of music teaching.

In summary, the researcher is interested in studying the topic of development of the Piano Course based on Gordon's music teaching theory combined with Competency-Based Education to improve the music teaching competency of student teachers, to enhance student teachers' music teaching competency, and also help student teachers become qualified early childhood teachers.

Objectives

1. To study the background information of the Piano Course based on Gordon's music teaching theory, combined with Competency-Based Education.

2. To develop the Piano Course based on Gordon's music teaching theory combined with Competency-Based Education.

3. To determine the effectiveness of implementing the Piano Course based on Gordon's music teaching theory combined with Competency-Based Education.

3.1 To compare the music teaching competency of student teachers after implementing the Piano Course based on Gordon's music teaching theory, combined with Competency-Based Education, with the criterion of 70%.

3.2 To compare the student teachers' satisfaction with the Piano Course based on Gordon's music teaching theory combined with Competency-Based Education, with the criterion of 70%.

Literature review

1. Course components

Ralph Taylor (Ralph W. Tyler, 2008) mentioned that the course consists of four parts: 1) teaching objectives, 2) learning experiences that contribute to the achievement of teaching objectives, 3) organizing learning experiences for effective teaching, and 4) evaluating the effectiveness of learning experiences.

First, there are five sources of teaching objectives: 1) Research on learners themselves, 2) Research on contemporary off-campus life, 3) Subject experts' suggestions on objectives, 4) Use philosophy to choose your goals, and 5) Use the psychology of learning to choose goals. Second, learning experiences that contribute to the achievement of teaching objectives: Learning experience refers to the interaction between the learner and the external conditions in the environment that cause students to react. Learning occurs through student teachers' active behavior; What students learn depends on what they do, not what the teacher does. It is possible for two student teachers to be in the same class but have two different experiences. Third, in developing an effectively organized set of learning experiences, three criteria need to be met, namely, continuity, sequence, and integration. When developing an organizational plan for a course, it is necessary to identify the elements of the course that serve as organizational threads. In mathematics, for example, organizational elements are often concepts and skills. Fourth, the process of evaluation, in essence, is the process of judging the extent to which courses and instructional programs achieve educational goals. The goal is to bring about a desired change in student teachers' behavior patterns, and assessment is one such process. The process of evaluation begins with the objectives of the educational program. The two-dimensional analysis we use as a basis for developing learning experiences can also be the basis for developing assessment procedures. Thus, these two-dimensional analyses of educational objectives can be used as a set of specific items for assessment. Evaluation procedures can identify situations that will give student teachers the opportunity to perform behaviors implicit in educational goals. The only way we can tell if a student has learned a certain behavior is to allow him to demonstrate it. Finally, some scenarios are further tested in practice.

2. Gordon's music teaching theory





According to Wu Zhen (2015), to teach Gordon's music theory, combined with the learning sequence of Gordon's music theory summarized by Xu Bing (2012) and the language learning model proposed by Zhao Jingjie (2019). The researcher synthesized the teaching steps of Gordon's music teaching theory into three steps:

Step 1: Learn as a whole. Teachers introduce student teachers to an overall overview of a knowledge topic so that student teachers have a basic familiarity. At the same time, combined with the process of listening, student teachers can listen to the music more, give play to their subjective imagination, to understand the music.

Step 2: Partial study. The specific study of the various parts of knowledge. Gordon's sequence of learning activities is used to teach, and the specific steps are divided into a skill learning sequence and a content learning sequence. This process is more about developing student teachers' ability to speak, read, and write. Student teachers can imitate the teacher's various short rhythms or melodies. Reading is when student teachers successfully imitate the short rhythm and melody of the teacher, and then enter into the process of matching the specific musical symbols with the rhythm and melody. Writing is when student teachers use the language of music, namely, rhythm notes or melodic notes, to complete the entire dictation.

Step 3: Holistic learning. Review the whole again, understand, and appreciate the whole. This process is to develop student teachers' ability to think and create. Train student teachers to understand the content of music and perceive the style of music through thinking.

3. Competency-Based Education

Competency-Based Education refers to a comprehensive professional ability, which is the comprehensive ability of people to use knowledge, experience, and skills to complete professional activities according to the job duties and tasks stipulated by the occupation (Feng, 2023).

Zhao (2020) believes that Competency-Based Education takes vocational post-ability training as the core. Teachers start from the needs of vocational posts, determine the teaching content and ability goals according to the requirements of vocational posts, organize classroom teaching according to the ability goals, and transform the knowledge learned by student teachers into the ability to solve practical problems. Teachers are not only the lecturers of knowledge, but also the guides, collaborators, and promoters of student teachers' learning. Finally, teachers conduct a comprehensive quality assessment on student teachers' information analysis ability, technology application ability, communication and cooperation ability, and problem-solving ability according to the ability objectives determined by the vocational post's ability requirements. Competency-Based Education has clear teaching objectives, pertinence, and strong effectiveness.

According to Jin Jiaomei's teaching application in nursing (Jin, 2015) and Zhao Yanjun's research on Competency-Based Education, the researcher organized the teaching methods of integrating Competency-Based Education into piano class (Zhao, 2020; Wang, 2015). For student teachers majoring in preschool education, Competency-Based Education is a kind of teaching model that starts from the ability required by student teachers to determine the teaching objectives, design the teaching contents and methods, and evaluate the teaching effects. Based on this educational concept, the Piano Course for preschool education majors needs to be guided by vocational analysis, combine school education with industry needs, change the teaching mode of music majors, and emphasize the use of the piano in practical teaching work.

The researcher synthesized the teaching steps of Competency-Based Education into three steps:

Step 1: Teaching preparation. Before piano teaching, teachers should cooperate and communicate with kindergartens in the surrounding areas, investigate the music teaching activities of kindergartens on





the spot, understand the course system, training objectives and the qualities and skills required by teachers in the kindergartens, and constantly reform the course according to the actual work needs to ensure that student teachers can meet the post needs after graduation.

Step 2: Optimize the course system. For student teachers majoring in preschool education, piano class is not only a simple piano technology teaching class, but piano skills should also lay a good foundation for the follow-up children's song playing and singing. Therefore, it is necessary to prioritize music theory as a pre-theoretical course, and the main learning goal of the whole course system in the early stage should be to lay a good technical foundation. Through a lot of practice, student teachers can master and sort out a set of methods suitable for their accompaniment arrangement. Different student teachers have different learning abilities. Student teachers with a poor foundation are prone to problems such as wrong sound and wrong rhythm when practicing, but they cannot find them in time, so they have been using wrong methods to practice, resulting in low efficiency. On the other hand, student teachers with a good foundation can train their music reading and listening ability by tutoring others, so as to further improve their piano playing ability.

Step 3: Evaluation. Competency-based teaching evaluation contains four dimensions. The first is the process evaluation, that is, it focuses on the growth process of student teachers' ability. Process evaluation can not be simply equated with performance evaluation. Teaching evaluation should run through the whole teaching stage and implement dynamic evaluation to promote the growth of student teachers' core ability in the process of constantly discovering and solving problems. The second is output-oriented, that is, it focuses on the traceability of the growth of student teachers' learning ability, ensures that student teachers' learning results can be proved by evidence, and pays attention to the collection of process data. Of course, student learning outcomes are an important piece of evidence, which can be presented in different forms. The third is consistency, that is, different evaluation methods should be used to evaluate student teachers' learning effect according to different training standards and core competence standards, so as to ensure the validity of the evaluation.

4. Gordon's music teaching theory combines with Competency-Based Education

The researcher synthesized the teaching steps of Gordon's music teaching theory, combined with Competency-Based Education, into three steps:

Step 1: Learn as a whole and teaching preparation. Teachers design appropriate teaching content according to the students' vocational needs. Teachers introduce student teachers to an overall overview of a knowledge topic so that student teachers have a basic familiarity. At the same time, combined with the process of listening, student teachers can listen to the music more, give play to their subjective imagination, to understand the music.

Step 2: Partial study and optimize the course system. The specific study of the various parts of knowledge. When teachers get the new music, they can not directly let the student teachers start to practice, but ask them to carefully read through all the information on the score. This habit should be cultivated from the beginning of the identification of music, as large as the division of phrases and phrases, as small as the identification of each note, and the meaning of each expression term must be fully understood before playing. Gordon's sequence of learning activities is used to teach, and the specific steps are divided into a skill learning sequence and a content learning sequence. This process is more about developing student teachers' ability to speak, read, and write. Student teachers can imitate the teacher's various short rhythms or melodies. Reading is when student teachers successfully imitate the short rhythm and melody of the teacher, and then enter into the process of matching the specific musical symbols with the rhythm and





melody. Writing is when student teachers use the language of music, namely, rhythm notes or melodic notes, to complete the entire dictation. In this process, the teacher will divide the student teachers into groups and let the student teachers form study groups to help each other and improve their piano level together.

Step 3: Holistic learning and evaluation. Review the whole again, understand, and appreciate the whole. This process is to develop student teachers' ability to think and create. Train student teachers to understand the content of music and perceive the style of music through thinking. In the process of teaching, student teachers must develop the habit of thinking. Many student teachers tend to have empty brains in the practice process, without any thinking exercises; this way of practicing piano is very inefficient. In the teaching process, the teacher should let the student teachers keep thinking, for example, after explaining each technical point, ask the student teachers to repeat. In the teaching process, teachers should constantly interact with student teachers and ask student teachers to give feedback, so that student teachers develop the habit of thinking about how to play each note before playing. And make a corresponding evaluation of the overall learning of student teachers.

5. Music teaching competency component

Music teaching competency refers to the ability of student teachers to carry out music teaching activities on the basis of music knowledge, skills, and teaching skills. Music teaching competency contains four components (Luo, 2021; Song, 2023; Xing, 2022)

1) Music knowledge refers to music reading, notation, harmony, mode, tonality, and other contents, through the mastery of simple basic knowledge of music theory, to improve the student teacher's understanding of pitch and music score.

2) Basic piano playing skills refer to piano training, learn the piano playing methods and characteristics, practicing the flexibility of fingers, so that student teachers can effectively master the basic methods and skills of piano playing. The piano basic course is the basic part of the Piano Course, and the subsequent courses should be based on the basic exercises of the keyboard, constantly strengthening the training of playing skills.

3) Improvisational accompaniment refers to leading children to learn songs, which not only requires student teachers and teachers to have skilled piano playing skills, but also requires them to have a certain ability of impromptu accompaniment. In the later teaching process, the textbook generally does not give the accompaniment melody, which requires student teachers and teachers to carry out the impromptu accompaniment of children's songs by themselves. Student teachers and teachers should have good piano playing ability, musical form analysis and melody analysis ability, harmonic configuration ability, accompaniment tone type, and accompaniment law grasp ability.

4) Teaching skills refer to different direct or indirect practices or behaviors adopted by teachers to enable a better learning experience for their students. There are a variety of teaching skills that a teacher must possess to facilitate agile learning, including competent teaching, simplification of complex concepts to suit the retention and comprehension levels of the student teachers, as well as the ability to make the class interesting. The teaching posture should be cordial, natural, dignified, and generous. The language expression is accurate and standard, lively, inspiring, and appealing. Pay attention to teacher-child interaction, tacit cooperation. Effectively achieve the teaching objectives, the use of information technology to solve the important and difficult teaching problems or to complete the teaching task prominent role, the effect is obvious. The teaching level is clear and progressive, and there is a sense of a kindergarten teaching scene.



Conceptual Framework

In this research, the independent variable was the implementation of the Piano Course based on Gordon's music teaching theory combined with Competency-Based Education, and the dependent variables were student teachers' music teaching competency and student teachers' satisfaction.

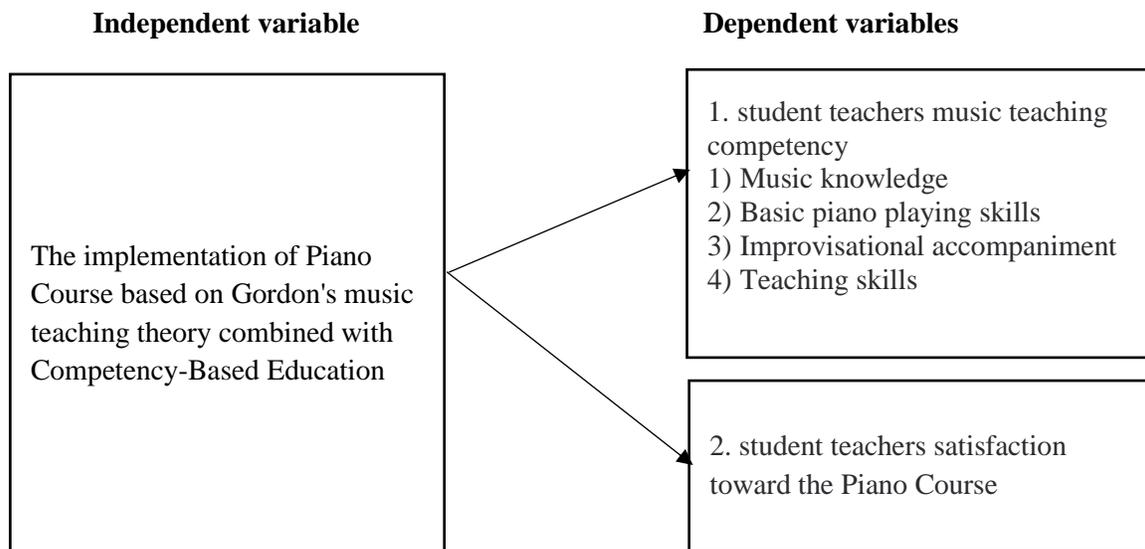


Figure 1 The figure of the research conceptual Framework

Methodology

Phase 1: Study the background information, focusing on course components and existing problems of the Piano Course for student teachers

Study related literature on Piano Course and interview the teachers and student teachers of related majors of Guangdong Baiyun University.

1. Target group

The target group was 6 music teachers in preschool education at Guangdong Baiyun University.

The target group was 20 student teachers of the second year who had already learnt the Piano Course in preschool education at Guangdong Baiyun University. They are derived from purposive sampling.

2. Research instrument

There were two interview forms, one for music teachers, another for student teachers.

Data collection and analysis by using content analysis.

3. Data analysis

1) The data on existing problems is collected by an interviewing process and the voice record tool.

2) The content analysis is used for analyzing and summarizing collected data.

Phase 2: Develop a Piano Course based on Gordon's music teaching theory combined with Competency-Based Education.

The purpose of this phase was to design the draft course document and determine the quality of the draft course document before its implementation.

1. Developing a Piano Course based on Gordon's music teaching theory combined with Competency-Based Education. This step aimed to develop the draft course according to the results from the first phase. The components of the draft course consisted of: 1) Formulate principles of the course; 2) Determine objectives of the course; 3) Select course content; 4) Determine instructional strategy; 5) Select media and resources; 6) Determine evaluation methods.



2. Determining the quality of developing a Piano Course based on Gordon's music teaching theory combined with Competency-Based Education. This step aimed to determine the quality of the draft course document before its implementation. The draft course document was evaluated by five experts regarding the appropriateness of the draft course. Firstly, an appropriateness evaluation involved an appropriateness evaluation of each component of the draft course document, including 1) principles of the course, 2) objectives of the course, 3) the course contents, 4) instructional strategies, 5) media resources, and 6) course evaluation. Secondly, consistency evaluation involved the internal consistency among the components of the draft course document. Experts' recommendations were used to revise the course document.

3. Constructing research instruments. There were 8 lesson plans; consider the overall structure and format of each lesson. Constructing and examining the quality of the Evaluation form of the Learning Achievement test. Construct and examine the Evaluation form of Music Teaching competency. Constructing and examining the quality of the Satisfaction Questionnaire about the Piano Course.

1. Target group

The five experts who evaluated the draft course consisted of 2 specialists in the course field, 2 specialists in instruction relevant to computational thinking, and 1 specialist in the measurement and evaluation field.

2. Research instrument

The instrument used for evaluating the draft course document was the appropriateness and consistency evaluation form.

3. Data analysis

The researcher offered the course evaluation form to a group of experts to examine and evaluate the draft course document. After gathering the data, the collected data were analyzed for the appropriateness of the course document.

Phase 3: The implementation of the Piano Course based on Gordon's music teaching theory, combined with Competency-Based Education

1. Population and sample

The population was 60 first-year student teachers (3 classes) majoring in preschool education at Guangdong Baiyun University, the People's Republic of China.

The sample was 20 first-year student teachers (1 class) majoring in preschool education at Guangdong Baiyun University, the People's Republic of China, derived by using a cluster random sampling method.

2. Research Instruments

Instruments for data collection consisted of three parts:

1) Learning achievement test with a reliability of 0.72. The test includes 30 multiple-choice questions about the mastery of the Piano Course, covering the knowledge learned in the course.

2) Evaluation form of Music Teaching competency with a reliability of 0.74. The Skills are evaluated by the Evaluation form of Music Teaching competency, which consists of 3 aspects: (1) Basic piano playing skill, (2) Improvisational accompaniment, (3) Teaching skills.

3) Satisfaction Questionnaire about Piano Course with a reliability of 0.72. The main purpose of this questionnaire is to explore the impact of Piano Courses based on Gordon's music teaching theory combined with Competency-Based Education on student teachers' music teaching competency. This questionnaire consists of 15 questions, covering satisfaction Piano Course of programming based on Gordon's music teaching theory combined with Competency-Based Education.

3. Data collection

The course was implemented for the samples in the first semester of the 2024 academic year. The procedures of data collection during the course implementation process were as follows:

1) The samples that were assigned as the experimental group are taught using instruction through the developed Piano Course. This group was taught through 8 lesson plans, and the allocated time for instruction was two months.

2) After finishing the instruction, the samples received the posttest by using the instruments.





3) The samples are given the student teachers' satisfaction questionnaire to express their opinion toward the course.

4. Data analysis

In this research, quantitative data were analyzed in line with the research objectives.

1) To compare student teachers' music teaching competency of the student teachers after the implementation of the Piano Course using a t-test for one sample.

2) Statistics used to assess the student teachers' satisfaction with the Piano Course were the arithmetic mean, standard deviation, and t-test for one sample.

Results

Phase 1: Study the background information, focusing on course components and existing problems of the Piano Course for student teachers

The purpose of this phase was to investigate by interview key informants and review the relevant literature about current course components of Piano Course components and existing problems: 1) Background information focusing course components 2) Gordon's music teaching theory 3) Competency-Based Education 4) Music teaching competency 5) Existing problems as well as study the related research such as the relevant documents and current situation. The findings of this phase, which were used in designing a course, were presented as follows:

1. The findings of studying the relevant documents on the Piano Course

The results of studying the relevant literature and books reveal the information needed to develop teaching models. Collect and analyze course development, Piano Course, and course instructional materials from relevant literature, books, and documents, strategies, Scientific inquiry teaching ability, and other teaching data, to get an idea of designing the draft teaching model (including the teaching model development process). Collect, analyze, and summarize relevant literature through subject coding analysis or content analysis. The findings can be summarized as follows: Course development for this study. Combining these two models, the researchers obtained six components of the Piano Course:

- (1) Course Principle
- (2) Course objective
- (3) Course content
- (4) Instructional strategy
- (5) Instructional material
- (6) Course evaluation

2. The findings of interviewing the teachers and student teachers of the Piano Course at Guangdong Baiyun University

The researcher applied course development content to teaching, conducted research on different teaching methods, collected data from 6 other teachers in the same subject, and ultimately formed a new curriculum system for the Piano course based on Gordon's music teaching theory combined with Competency-Based Education, to improve student teachers' music teaching competency. Based on the above course problems, solutions were proposed, and corresponding teaching plans were formulated.

In terms of teaching strategies, the main problem is that although the traditional teaching strategies are effective to a certain extent, they may lack enough innovation and flexibility to fully promote the active learning and personalized development of student teachers. Therefore, it is necessary to constantly explore and try new teaching strategies, and flexibly adjust and optimize them according to the actual situation and the needs of student teachers.

Phase 2: Develop a Piano Course based on Gordon's music teaching theory combined with Competency-Based Education.

1. The finding of course development

The draft course document consists of six components:





1) Course principle. Based on the principle of gradual progress, the new Piano Course integrates the musicality and the Competency-Based teaching theory of Gordon's music teaching theory. The course not only focuses on students' skills, but also attaches more importance to stimulating students' musical potential and cultivating students' musical literacy and comprehensive ability. At the same time, the course also emphasizes the individual development of students and respects the differences of each student. The new course pays more attention to stimulating students' musical potential and cultivating students' musical literacy, while the traditional course lays more emphasis on the teaching of skills. The new course emphasizes personalized development, while the traditional course pays more attention to uniform teaching progress and standards.

2) Course objective. This course objective innovative teaching strategies, based on Gordon's music teaching theory and Competency-Based Education theory, to improve student teachers' music teaching ability. 1) Knowledge and skills: The new course pays more attention to students' musical expression and improvisation ability, while the traditional course focuses more on the mastery of skills. 2) Process and method: The new course puts more emphasis on students' autonomous learning and problem-solving ability, while the traditional course pays more attention to practice and imitation. 3) Emotional attitude and values: stimulate students' love and pursuit of music, cultivate students' innovative consciousness and team spirit, and form a positive attitude towards music learning.

3) Course content. Retain some basic etudes, and add a large number of simple pieces suitable for children to appreciate and play, such as piano music adapted from children's songs. At the same time, it covers the theoretical knowledge of children's music education, such as the characteristics of children's music psychological development, children's music teaching methods, and so on. The traditional course content is professional and difficult, mainly aimed at improving the performance level. The content of the new Piano Course is more diverse, integrated into the content of early childhood education, and more practical.

4) Instructional strategy. New teaching steps based on Gordon's Music Teaching Theory combined with Competency-Based Education. Teaching steps: Step 1: Learn as a whole, and teaching preparation. Step 2: Partial study and optimize the course system. Step 3: Holistic learning and evaluation.

5) Instructional materials. In addition to the basic piano teaching materials and music scores, it is also equipped with a wealth of children's music education books, children's music teaching case sets, children's music game materials, multimedia teaching software, etc. The traditional course materials mainly focus on piano performance itself, while the new Piano Course materials extend to the field of early childhood music education to provide students with more comprehensive learning resources.

6) Course evaluation. A diversified evaluation method is adopted to evaluate not only students' piano playing skills, but also students' teaching design ability, classroom organization ability, and mastery of preschool music education theory. The evaluation methods include classroom performance, group work, simulated teaching display, theory examination, and so on.

2. The findings of the course document evaluation by experts

This step aimed to determine the quality of the draft course before its implementation. The draft course was evaluated by experts regarding the appropriateness of the draft course. The findings of the course evaluation, which were collected and analyzed were indicate that the experts rated the overall course development at a very high level, with a mean score of 4.83 and a standard deviation of 0.38.

3. The evaluation of lesson plans by experts

This step aimed to determine the quality of the lesson plans before their implementation. The lesson plans were evaluated by experts regarding the appropriateness of the lesson plans. The findings of the lesson plans evaluation, which were collected and analyzed were indicate that the experts rated the overall lesson plans at a very high level, with a mean score of 4.80 and a standard deviation of 0.43.

4. The findings of the Evaluation form of Music teaching competency by experts

This step aimed to determine the quality of the Music teaching ability includes three aspects: (1) Basic piano playing skill, (2) Improvisational accompaniment, and (3) Teaching skills before its



implementation. The Music teaching ability was evaluated by experts regarding the reliability and consistency of the Music teaching ability. The findings of the Music teaching ability evaluation, which were collected and analyzed were indicate that the experts rated the IOC equal to 1.00 for every item, and reliability equal to 0.74

Phase 3: The implementation of the Piano Course based on Gordon's music teaching theory, combined with Competency-Based Education

The finding of a comparison of student teachers' music teaching competency after learning through the Piano Course based on Gordon's music teaching theory, combined with Competency-Based Education.

Table 1 The findings of comparing student teachers' music teaching competency (Music knowledge) after implementing through Piano Course based on Gordon's music teaching theory, combined with Competency-Based Education, with a criterion set at 70%

Group	n	Full score	Criteria score	M	S.D.	t	p
Experimental group	20	30	21	26.9	2.92	9.042**	0.000

** $p < 0.01$

As presented in Table 1, after implementing through Piano Course based on Gordon's music teaching theory combined with Competency-Based Education, the student teachers' music teaching competency (Music knowledge) was higher than the determined criterion of 70% at a significance level of .05 ($M = 26.9$ out of 30, $SD = 2.92$, $t = 9.042$, $p = 0.000$).

Table 2 The findings of comparing student teachers' music teaching competency (Basic piano playing skills, Improvisational accompaniment, Teaching skills) after implementing through Piano Course based on Gordon's music teaching theory, combined with Competency-Based Education, with a criterion set at 70%

Group	n	Full score	Criteria score	M	S.D.	t	p
Experimental group	20	70	49	67.75	2.86	29.287**	0.000

** $p < 0.01$

As presented in Table 2, after implementing Piano Course based on Gordon's music teaching theory combined with Competency-Based Education, the student teachers' music teaching competency (Basic piano playing skills, Improvisational accompaniment, Teaching skills) was higher than the determined criterion of 70% at a significance level of .05 ($M = 67.75$ out of 70, $SD = 2.86$, $t = 29.287$, $p = 0.000$).

Table 3 The findings of comparing the student teachers' satisfaction after implementing the Piano Course based on Gordon's music teaching theory combined with Competency-Based Education, with the criterion of 70%

Group	n	Full score	Criteria score	M	S.D.	t	p
Experimental group	20	5	3.51	4.92	2.07	46.078**	0.000

** $p < 0.01$

As presented in Table 3, the mean scores of student teachers' satisfaction after implementing Piano Course based on Gordon's music teaching theory combined with Competency-Based Education was 4.92



from a possible full mark of 5 and the standard deviation was 2.07 which was statistically higher than the criterion of 70% at .05 level of statistical significance ($t = 46.078, p = .000$).

Discussion

In the field of preschool education, the Piano Course, as an important professional skills course, plays a crucial role in cultivating students' musical literacy and teaching abilities. However, currently, there are still some problems in the teaching content and teaching methods of the Piano Course for preschool education majors in colleges and universities, which makes it difficult to meet society's demand for high-quality preschool education talents. Therefore, exploring a scientific and effective teaching theory and model is of great significance for optimizing the piano curriculum setting and improving the teaching quality (Wei, 2023). The Competency-Based Education teaching model takes competency as the core and the needs of professional positions as the orientation, emphasizing the cultivation of students' practical operation abilities and professional qualities. This teaching model breaks the shackles of the traditional discipline system, closely combines the teaching content with the knowledge, skills, and attitudes required by professional positions, and attaches importance to students' practical experience and ability improvement in the learning process. Under the Competency-Based Education teaching model, the teaching objectives are clear and specific, the teaching process emphasizes individuality and autonomous learning, and the teaching evaluation is based on students' actual ability performance. (Wei, 2022)

Combining Gordon's music teaching theory with the Competency-Based Education teaching model and applying it to the Piano Course for preschool education majors has important practical significance. On the one hand, Gordon's music teaching theory provides scientific teaching concepts and methods for the Piano Course, which helps to cultivate students' comprehensive musical literacy and enables them to better understand and interpret musical works. On the other hand, the Competency-Based Education teaching model, guided by the needs of professional positions, can enable students to clarify their future career directions during the learning process, purposefully improve their piano teaching abilities and professional qualities, and meet the actual needs of kindergartens for piano teachers (Ma, 2024).

This course is implemented for 20 20-year students majoring in preschool education at Guangdong Baiyun University to evaluate the effectiveness of the course. The Piano Course, based on Gordon's music teaching theory combined with Competency-Based Education, can improve the music teaching competency of student teachers. This may be due to the following reasons: Gordon's music teaching theory focuses on cultivating students' music aural ability, guiding students to start from the perception, analysis, and understanding of musical elements, and deeply exploring the essence of music (Zhao, 2019). The introduction of this theory enables students, during the piano learning process, to no longer merely stay at the level of mechanical skill training but to truly understand the connotation of music, laying a solid foundation for subsequent music teaching. Competency - based education, on the other hand, is oriented towards the practical abilities required by students in their future careers, allowing students to clarify their goals during the learning process, that is, to master how to use the piano for early childhood music teaching, which is highly consistent with the training objectives of pre - school education majors (Lin, 2023).

In teaching practice, this combination is reflected in many aspects. The transformation of teaching objectives enables students not only to improve their piano playing skills but also to pay more attention to cultivating their early childhood music teaching abilities. Through the analysis of early childhood music teaching cases, students can reasonably select repertoire and design teaching methods according to the age characteristics and interests of young children, which fully prepares them for their future careers in pre-school education (Wang, 2023). In terms of teaching methods, the integration of the sequential teaching principle and the practical teaching concept allows students to continuously consolidate their knowledge and skills through practical activities in the process of step - by - step learning. Activities such as simulated early childhood piano classes and kindergarten music teaching internships enable students to exercise themselves in real-life teaching situations, improve their teaching abilities, and also give them a deeper understanding of early childhood music education. The comprehensiveness and rationality of teaching





evaluation ensure an accurate assessment of students' learning achievements. It not only pays attention to students' playing levels but also attaches great importance to students' performance in teaching practice and their understanding and application of early childhood music education concepts. This evaluation method guides students to develop comprehensively and improve their overall qualities.

The piano teaching model based on the combination of Gordon's music teaching theory and competency-based education has significant advantages and promotional value. It not only improves students' learning effectiveness, meets the society's demand for high-quality pre-school education talents, but also provides useful references for the reform of the Piano Course in pre-school education majors in colleges and universities. In future teaching, the research and practice of this teaching model should be further deepened, and the teaching content and methods should be continuously improved to make greater contributions to cultivating more outstanding pre-school education talents.

Conclusion

This research confirms the effectiveness of the teaching model based on Gordon's music teaching theory combined with Competency-Based Education to enhance the music teaching competency of student teachers. The enhancement of performance through theoretical tests and practical projects confirms that this research can effectively combine theoretical knowledge and practical operations to enhance student teachers' music teaching competency, knowledge, and skills.

The piano teaching model based on the combination of Gordon's music teaching theory and competency-based education has significant advantages and promotional value. It not only improves students' learning effectiveness, meets the society's demand for high-quality pre-school education talents, but also provides useful references for the reform of the Piano Course in pre-school education majors in colleges and universities. In future teaching, the research and practice of this teaching model should be further deepened, and the teaching content and methods should be continuously improved to make greater contributions to cultivating more outstanding pre-school education talents.

Recommendation

Recommendation for implication

1) Improvement in teaching strategies and curriculum design. The structured learning sequence helps student teachers develop step-by-step mastery of musical and pedagogical skills, ensuring better retention and application in teaching. Teachers are encouraged to design course content that progressively builds on prior knowledge and aligns with real-world teaching needs in preschool education.

2) Develop student teachers' teaching posture, classroom interaction, and lesson delivery techniques. By emphasizing engaging, interactive, and developmentally appropriate teaching methods, student teachers learn to create dynamic and child-centered music lessons.

3) Implementation of a structured three-step teaching approach. Step 1: Holistic Learning and Teaching Preparation: teachers design lessons based on vocational needs and introduce student teachers to a general overview of a topic through listening and analysis. Step 2: Partial Study and Course Optimization: student teachers systematically break down musical components, engage in imitation, reading, and writing exercises, and work in collaborative groups to refine their skills. Step 3: Holistic Learning and Evaluation: student teachers revisit the entire learning content, engage in critical thinking, and apply their knowledge creatively, with regular teacher feedback and assessment.

Recommendation for further research

1. Explores the application of action research in refining piano teaching methodologies. Researchers actively participate in teaching sessions, identify challenges, implement strategic adjustments, and assess their effectiveness in real-time. The findings contribute to developing a more adaptable and student-centered piano instruction model.





2. Examines the effectiveness of differentiated instruction in piano education, catering to students with varying levels of musical experience. It investigates how customized lesson plans, individualized pacing, and adaptive learning methods impact students' motivation, retention, and skill development.

3. Study and explore how psychological, educational, and sociological theories influence piano teaching and learning. It aims to identify how factors such as cognitive development, motivation, and social interactions shape students' musical growth, providing a holistic approach to curriculum design.

4. Investigates the use of digital tools, such as AI-driven music analysis applications and intelligent piano training software, in enhancing students' independent learning and skill acquisition. It evaluates their effectiveness in fostering self-directed practice and musical accuracy.

5. Study and examine the impact of integrating online platforms and multimedia resources in piano instruction. It evaluates how modified learning, interactive exercises, and real-time feedback influence students' motivation, creativity, and learning efficiency.

References

- Chen, Y. (2018). Approaches to improving the ability of piano improvisational accompaniment for students majoring in preschool education. *Journal of Hubei Adult Education Institute*, 28(6), 1-12.
- Feng, S. (2023). The curriculum development of deep learning in secondary vocational schools is based on the competency standard. China: Guizhou Normal University.
- Gordon, E. E. (1997). *Learning sequences in music: Skill, content, and patterns*. Chicago: GIA Publications.
- Gordon, E. E. (2007). *Learning sequences in music: A contemporary learning theory*. Chicago: GIA Publications.
- Gordon, E. E. (2012). *Music learning theory for newborn and young children*. Chicago: GIA Publications.
- Huang, W. (2021). Analysis of the application of competency-based education in college English teaching. *Overseas English*.
- Jiang, W. (2023). The integration of practicality and aesthetic appreciation in primary school music education under the "Double Reduction" policy. *Instruction in the New Curriculum*, 18, 1-16.
- Jin, J. (2015). Evaluation of the implementation effect of the reform of the organizational mode of the online course of nursing psychology. *Health Vocational Education*, 33(10), 1-8.
- Lin, Z. (2023). Analysis of the piano course reform in higher vocational preschool education under the competency-based concept. *Journal of Minxi Vocational and Technical College*, 25(1), 1-10.
- Luo, Y. (2021). Measures for improving the teaching ability of music teachers in the preschool education major of vocational schools. *Modern Vocational Education*.
- Ma, L. (2024). Cultivation of practical skills in piano teaching for preschool education majors. *The World of Writers*, 7.
- Ralph, W. T. (2008). *Basic principles of curriculum and instruction*. China Light Industry Press.
- Shuler, S. C. (2021). A Critical Examination of the Contributions of Edwin Gordon's Music Learning Theory to the Music Education Profession. *Visions of Research in Music Education*, 16(2). Retrieved from <https://digitalcommons.lib.uconn.edu/vrme/vol16/iss2/7>
- Song, Q. (2023). Cultivation of the ability to accompany children's songs on the piano for students majoring in preschool education. *Academy*.
- Wang, J. (2023). Analysis of the teaching paths of the piano course for preschool education majors. *Journal of Hubei Industrial Polytechnic*, 36(3), 6-12.





- Wang, W. (2015). Analysis and evaluation of the postgraduate education process based on the competency-based concept. *Education Exploration*, 12, 294.
- Wei, F. (2023). A brief discussion on the piano teaching reform of the preschool education major. *The Home of Drama*, 16, 460.
- Wei, H. (2022). Thinking on competency-based teaching evaluation of preschool education in higher vocational colleges. *Journal of Contemporary Educational Research*, 6(4), 123–126.
- Wu, Z. (2015). Thoughts on the application of Edwin E. Gordon's music learning theory in teaching. *China Music Education*.
- Xing, C. (2022). Investigation and countermeasure research on music knowledge and skill in the infant care specialty. China: Guangxi Normal University.
- Xu, B. (2012). *A study of Edwin E. Gordon's theories about music learning and teaching* (Doctoral dissertation). Fujian Normal University, China.
- Zhao, J. (2019). Thoughts and reflections on the theory and practice of Gordon's music teaching method. *Northern Music*.
- Zhao, Y. (2020). Research on the application of the positive teaching method based on competency-based education in higher vocational college classrooms. China: China Educational Technology.

