# The Applying Discovery Learning Theory in Music Education of China

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## Abstracts

The music class with convergence discovery learning is a step-by-step process to find one correct or the best answer. A solution can be seen when a problem-solving method is applied. For the convergent discovery learning method to be used effectively, Musical knowledge accumulated in guided discovery learning is fundamentally required, and the learner's logical and voluntary. This article presented the applying discovery learning theory in music education in China. The contents included the background knowledge of discovery learning theory and how it can be applied in music education and the current research and study about using discovery learning theory in music education in China.

**Keywords:** applying discovery learning, music education, China

## Introduction

Since the middle of the 20th century, music teaching courses have found that teaching methods have been fruitful in studying foreign learning theory and have defined a positive role in education and teaching. It is found that teaching methods have been applied in Chinese teaching practice, but only vocational music teaching is rarely explored. The use of discovery teaching in vocational music teaching is to enhance the internal motivation of learners and advocate the educators as the main body. Based on traditional teaching, the introduction of the discovery teaching method can not only enrich professional music teaching courses but also improve students' interest in learning so that they can improve their artistic skills, strengthen their musical awareness in the discovery and inquiry, and cultivate their independent, confident and tenacious inquiry character. Therefore, teachers should constantly explore teaching methods and skills to improve the quality of vocational music teaching.

Vocational music discovery teaching cultivates the educators' inquiry ability and "discovery" consciousness so that the music major students can form the ability to complete their work independently. Found that learning is people oriented. Teaching sides communicate and unify teaching materials, works and versions. Using the discovery teaching method can guide students to learn more actively, stimulate their interest in learning, and effectively transfer and internalize knowledge; Teachers have time to explore more optimized and efficient teaching methods and accurately use methods to solve new problems in teaching. Music teaching must follow the principle of art education through continuous exploration and positive innovation to cultivate excellent talents with independent working ability, sunshine, and confidence for society. In the information age, science and technology bring many conveniences to people's lives, and it is a tool for exploring new methods. We can cultivate modern professional music and art talents by following teaching principles, organically combining traditional teaching with discovery teaching, actively exploring other teaching

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methods, and enriching traditional teaching methods. Based on students' independent inquiry of knowledge, the discovery of teaching has become a new mode to assist traditional teaching. Integrate discovery teaching and other teaching modes with traditional teaching, effectively solve the dependence on mechanical thinking and learning and thinking in the traditional teaching process, take students' independent exploration of knowledge, knowledge transfer, and ability internalization as the focus, and the educated become the teaching center. In the professional music discovery teaching process, teachers and students participate in exploring the teaching activities, making the teaching activities more interesting (Wang, 2021: 60-63).

## Discovery Learning Theory

The discovery method was advocated by Jerome S. Bruner (1960:43), a professor of psychology at Harvard University and a world-famous psychologist and educator. The theory is mainly in cognitive and developmental psychology. He absorbed the German "Gestalt" psychology and the theory of Piaget. In the critical inheritance of Dewey and his long-term research, he gradually formed the mode and theory of "Discovery learning."

The Discovery Learning Model integrates the following 5 principles (Pappas, 2021:online):

**Principle 1: Problem Solving.**

Instructors should guide and motivate learners to seek solutions by combining existing and newly acquired information and simplifying knowledge. This way, learners are the driving force behind learning, take an active role and establish broader applications for skills through activities that encourage risks, problem-solving and probing.

**Principle 2: Learner Management**.

Instructors should allow participants to work alone or with others and learn at their own pace. This flexibility makes learning the exact opposite of a static sequence of lessons and activities, relieves learners from unnecessary stress, and makes them feel they are learning.

**Principle 3: Integrating and Connecting**.

Instructors should teach learners how to combine prior knowledge with new and encourage them to connect to the real world. Familiar scenarios become the basis of new information, encouraging learners to extend their knowledge and invent something new.

**Principle 4: Information Analysis and Interpretation.**

Discovery learning is process-oriented, not content-oriented, based on the assumption that learning is not a mere set of facts. Learners learn to analyze and interpret the acquired information rather than memorize the correct answer.

**Principle 5: Failure and Feedback.**

Learning does not only occur when we find the correct answers. It also occurs through failure. Discovery learning does not focus on finding the right end result but on the new things we discover. Furthermore, it is the instructor’s responsibility to provide feedback since, without it, learning is incomplete.

Traditional teaching mostly only pays attention to the value of knowledge, emphasizing that a person "learns" a certain amount of knowledge through school; modern teaching not only pays attention to the value of knowledge but also emphasizes the value of ability and methods, requiring students to "learn" knowledge through learning, that is, "learn to learn."

Bruner once stressed that the purpose of students studying in school is that "learning should not only take us somewhere but also make it easier for us to move on later. "Based on

this understanding, Bruner strongly advocates the discovery and learning method and pays attention to theoretical analysis.

The core of *discovery learning* is discovery. So, what is discovery? The so-called discovery generally refers to the processing and reorganizing of existing things and reconfiguring of various elements.

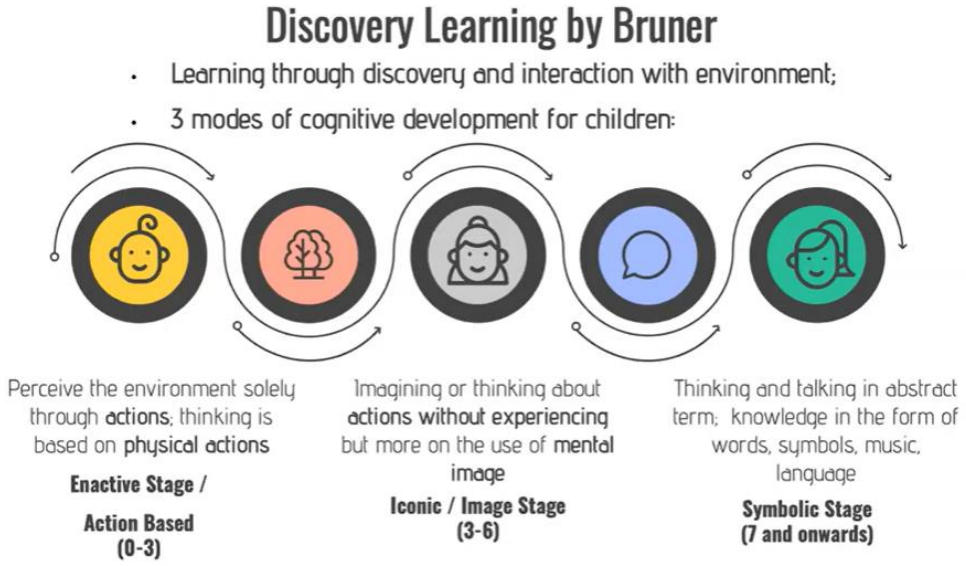


Figure 1, Discovery learning by Bruner (Koo, 2008:online)

**1. Emphasize the inner motivation**

In Bruner's view, making children's cognitive activities efficient is mostly about getting them out of direct control of the rewards and punishments given by their environment. Learning, such as parents and teachers who praise or fail, often leads to clues or hints about how to match people's expectations, even if such children learn well. They are not outstanding in transforming learning into a living thinking structure and are less able to analyze problems than children who do not seek high grades. Therefore, Bruner proposed the hypothesis that "to be able to achieve learning methods as a task of discovery rather than learning, and to achieve a child will have a tendency to reward his learning activities, more precisely, to develop their learning activities with discovery as a reward." The tendency of self-reward mentioned here is an intrinsic motivation for learning, and the stimulation of this motivation depends on children's discovery and learning (Bruner, 1966:6).

Bruner also believes that from the conclusion of cognitive process development research, behaviorism focuses on the drive weakening (retreat) learning model, contrary to many important phenomena of development. He advocates strengthening the discovery learning of internal motivation. He believes that when "competence or superior motivation reaches the level of controlling behavior, the role of strengthening external favors in cultivating behavior will gradually disappear."

**2. Emphasize intuitive thinking**

Bruner expounds on the characteristics of intuitive thinking through the comparative analysis of thinking and intuitive thinking. Bruner argues, " Analytical thinking is characterized further before one. The steps are obvious and can often be properly reported by the thinker to

others." When it comes to intuitive thinking, he believes that "intuitive thinking is very different from analytical thinking. It is not characterized by careful and prescribed steps forward", proposing that intuitive thinking "enables thinkers to leap forward, leap forward and take shortcuts."

According to Bruner, intuitive thinking is extremely important to scientific discovery activities. In scientific discovery, establishing assumptions or assumptions mainly depends on the role of intuitive thinking. If in other teaching methods, analytical thinking almost plays the only leading role in discovery and learning, analytical thinking and intuitive thinking are the two carriages driving together.

**3. Emphasize the basic structure of learning**

The role of teachers is to form a situation in which students can explore independently, not just to provide ready knowledge. The main purpose of learning is not to remember the teacher and the textbook but to learn the basic structure and establish the knowledge system of the discipline. As Bruner said, no matter what subject we choose to teach, to make the students understand the basic structure of the subject ".

In Bruner's book "The Educational Process," "the importance of structure" is a chapter it which makes it easy to see the position that "structure" occupies in Bruner's theory. The Discovery method is a learning method strongly advocated by Bruner. For Bruner, the implementation of the discovery method is based on learning the basic structure.

What is the basic structure of the discipline? First, Bruner believes that the basic concepts and principles are the most basic elements of the discipline structure; second, Bruner believes that the basic concepts and principles of the textbook are not separate but interconnected, so he proposes that "learning structure is learning how things are interrelated"; again, Bruner believes that "the knowledge of the basic concepts of an academic field includes not only mastering the general principles, but also developing learning and investigation, speculation and premonition, and the possibility of problem-solving independently." The implementation of the discovery method should be based on mastering the basic discipline structure; meanwhile, it is an effective method to master the discipline structure.

What is the significance of discovering the implementation of the learning method? In other words, what benefits can people gain from discovering this learning experience for themselves? It can be summarized as follows:

First, it is conducive to fully tapping the students' wisdom potential. Traditional teaching is often more important than teaching. Most students are in a passive acceptance position; students are more rote learning or mechanically applying and copying knowledge. Their thinking is in a passive, inhibitory state. In the discovery of learning, students can learn independently, explore knowledge, constantly activate their thinking, and fully mobilize and show the potential of wisdom.

Second, it is conducive to the memory of knowledge. Finding that learning emphasizes the basic knowledge structure of learning. By learning the basic structure of knowledge, it is easier for us to understand and grasp the knowledge as a whole better, helping the knowledge memory. As Bruner says, "the purpose of learning universal or basic principles is to ensure that the loss of memory is not all lost, and the legacy will enable us to reconceive things when we need them."

Third, it helps to cultivate students' abilities and creativity. A problem is a certain kind of problem that needs to be solved. Problem-solving refers to any activity conducted to achieve the specified goal, in which the cognitive representation of the existing experience and all aspects of the current situation is reorganized; this reorganization of knowledge can only be

gradually formed through a joyful analysis, exploration, and practice. In addition, the solution to problems is not a simple reorganization of the existing knowledge but depends more on personal creative insights, and this creativity cannot be owned overnight. It cannot be separated from a long-term exploration and discovery action.

Fourth, to find that the learning method is not the only way to learn knowledge. Although the discovery and acceptance methods have stimulated students' internal motivation and wisdom potential and cultivated creative advantages, the found method takes more time than the learning system. What is more, accepting the learning system knowledge, thinking vastness, and creativity is very important, and accepting learning can effectively expand classroom knowledge capacity. Any optimization method is not a single one; the best method can only be a method system with complementary effects. Discovery learning and acceptance learning must be organically combined in teaching (Bruner, 1971:5).

**Characteristics of "*Discovery learning*"**

1. Learning Process "Discovery learning" emphasizes the learning process, not the result of learning. The main purpose of teachers' teaching is to make students personally participate in the system construction of the knowledge they learn, think by themselves, and discover the knowledge by themselves. Bruner believes that only the knowledge the student finds is what belongs to himself. The purpose of teaching is not to require students to remember the content stated in teachers and textbooks but to cultivate students' ability to discover knowledge and their excellent intelligence. In this way, students are like getting the "key" to open the door to knowledge and can move forward independently.

2. Intuitive Thinking In the process of "discovery and learning," students '"intuitive thinking" (intuitive thinking) is very important to students' discovery activities. The so-called "intuitive thinking" is to ask the students not to use normal logical thinking in the learning process but to use the students 'rich imagination to develop the students' thinking space and to acquire much knowledge. Bruner believes that "intuitive thinking" may not necessarily get the correct answer because "intuitive thinking" can fully mobilize students' positive mental activities. It may become a prelude to "discovery and learning," which is very helpful for students to discover and master knowledge.

3. Internal motivation: Students 'inner motivation is key in promoting learning activities. Bruner attaches great importance to the influence of internal motivation on students' learning direction. He believes that in the process of learning, "discovery learning" can best stimulate students 'curiosity (inquiry reflection), and students' curiosity is the prototype of their internal motivation. It is the primary form of students' internal motivation, and external motivation must also be transformed into internal motivation to work. He said: " Children's intellectual development is reflected in the restructuring and expansion of the internal cognitive structure. It is not a simple connection from stimulus to response, but a process of constantly forming and changing the cognitive structure in mind." Therefore, Bruner opposes the use of external, mandatory means to stimulate students 'learning, advocating that teachers should build on teaching activities as far as possible to arouse students' interest in learning and fully mobilize students' learning enthusiasm to achieve good learning results.

4. Information Extraction. Human memory function is an essential condition in learning activities. Bruner makes a different view that many people regard "storage" (storage) as the main function of memory. He believes that the primary problem of human memory is not the

"storage" of information but the "extraction" of information (retrieva1). The key to extraction is organization, knowing where the information is stored and how it can be extracted. He said: " The material that a person organizes according to his interests and cognitive structure is the most promising material to access freely in his memory.

Find the general steps of the learning method

(1) Put forward and clarify the questions that interest students in

(2) Make students experience some degree of uncertainty about the problem to stimulate the desire to explore

(3) Provide various assumptions to solve the problem

(4) Assist the students in collecting and organizing the information available for drawing conclusions

(5) Organize the students to review the relevant materials and draw the due conclusions

(6) Guide students to use analytical thinking to verify the conclusion and, finally, solve the problem

In short, in the whole process of solving the problem, teachers are required to provide materials to students so that students can personally find the due conclusions or rules so that students become the discoverer.

**Discovery learning theory in music education**

The discovery approach to learning and its adaptability to music education. Professional literature relating to the discovery approach was reviewed and summarized. Conclusions and implications for music education were drawn from these summaries. Examining educational trends' philosophical implications and learning's nature was also made. This examination was made to gather perspective on the need for evaluating and exploring educational approaches and methods that affect learning. It was concluded that no one method or approach could be accepted as the all-encompassing answer in music education. However, the discovery approach does hold great promise as another way of teaching music to the child in a creative manner. Through the discovery approach, the child can be allowed to experience personal success and expertise in the art of music. He can enjoy exploring and discovering the elements of music as learning evolves from his perspective and point of view (Song, 1999: 78-80).

Human thinking experience is important. In a music class to which convergence discovery learning is applied, the learner solves a given problem. All musical knowledge and information are collected to achieve higher-order application, analysis, and synthesis. Various cognitive functions are used. For example, the learner may change the structure of temporary tables, scales, or chords to different tones. It can also be applied to the composition of the instrument played after listening to a piece of music and the form of performance composed of this arrangement. It is necessary to be able to analyze the form of a piece of music and to have comprehensive thinking by integrating previous musical knowledge. should be the teacher presents a problem or question, watches the learner find the answer, and If so, the teacher can give feedback. When convergence discovery learning appears in the form of individual learning, learner-centered individual learning It is learning, and when it appears in group learning, it is learner-centered cooperative learning (Seung, 2009: 475-495).

**Applying discovery learning theory in music education in China**

Vocational music discovery teaching cultivates the educators' inquiry ability and "discovery" consciousness so that the music major students can form the ability to complete their work independently. Found that learning is people-oriented. Teaching sides communicate and unify teaching materials, works and versions. The discovery teaching method can guide students to learn more actively, stimulate their interest in learning, and effectively transfer and internalize knowledge. Teachers have time to explore more optimized and efficient teaching methods and accurately use them to solve new problems in teaching. Music teaching must follow the principle of art education through continuous exploration and positive innovation to cultivate excellent talents with independent working ability, sunshine, and confidence for society. In the information age, science and technology bring many conveniences to people's lives and are tools for exploring new methods. We can cultivate modern professional music and art talents by following teaching principles, organically combining traditional teaching with discovery teaching, actively exploring other teaching methods, and enriching traditional teaching methods. Based on students' independent inquiry of knowledge, the discovery of teaching has become a new mode to assist traditional teaching. Integrate discovery teaching and other teaching modes with traditional teaching, effectively solve the dependence on mechanical thinking and learning and thinking in the traditional teaching process, take students' independent exploration of knowledge, knowledge transfer, and ability internalization as the focus, and the educated become the teaching center. In the professional music discovery teaching process, teachers and students participate in exploring the teaching activities, making the teaching activities more interesting (Wang, 2021: 60-63).

The revelation of *Discover learning*. In 2020, the principle of interactive teaching was based on the discovery and learning method. In China's new teaching, it pays attention to emphasizing the composite interaction between teachers, students, and teaching materials. This interaction activates the classroom atmosphere and fully stimulates the student's interest in learning, mobilizes the students to give full play to their imagination, and form to participate in classroom teaching personally. The interactive teaching principle emphasizes that the interaction between students and students is the most critical. In music teaching, stimulating the interaction between students and students can close the feelings between students and make up for the deficiencies in personal learning. In the interaction process, learn from each other, and promote the student's all-around development. The interaction between teachers is also particularly important. Teachers play a key guiding role in the whole process of music teaching. Teachers can inspire each other, complement and discuss with each other through collectively preparing lessons and listening to each other to achieve the collision of wisdom to promote the formation of new theories, which is conducive to improving the quality of teaching content.

Music teaching is inseparable from aesthetics. Aesthetic teaching, that is, to recognize beauty, to discover the beauty, and to create beauty. The aesthetic principle is reflected everywhere in music learning. Through aesthetics, it can cultivate students' emotional experience, form character setting, and eventually become an all-round person.

Aesthetic penetration of music classroom. Through the aesthetic teaching aesthetic interest, improve the aesthetic ability. Improve the aesthetic quality, and edify the aesthetic sentiment. The principle of aesthetic education runs through music learning, optimizing the teaching content, and improving the teaching effect. With the development of society and the progress of science and technology, studying music has also brought much convenience. Due to the restriction of experimental conditions, we cannot return to nature in every class. However, teachers can make courseware through multimedia and lead students to achieve the

effect of understanding the course through rich courseware content and student role-playing. Teachers can guide students in teaching, make the content concrete, and visualize. By playing a role, students personally participate in teaching, experience the teaching content, and improve their learning ability (Zhi, 2002: 43-46.).

The principle of inquiry teaching, also known as the discovery method, is one of Bruner's discoveries and learning. Emphasize that students personally explore and improve students learning ability. The principle of inquiry teaching is the concept of "people-oriented" in modern education. Centering on students as the main body, giving full play to students 'inquiry ability, through analysis, we draw "concepts" and "conclusions," guide students to practice activities, and cultivate the active role of students' independent learning. The principle of inquiry teaching is an important means of quality education. Quality education is to cultivate students to develop in an all-around way. Teaching plays a key role in the moral, intellectual, physical, aesthetic, and labor inquiry. Through students' independent research, they find problems, solve problems, and draw conclusions. In this process, intellectual, aesthetic, and labor education are fully cultivated and, finally, form an all-around development of people (Zhang, 2019:265).

## Conclusion

The musical ability still tends to be regarded as equivalent to a practical skill, and in the school setting, music. It can be seen that ability is perceived as a talent rather than intelligence. Intelligence is something that must be developed. However, the reality is that talent is perceived as good if it is present or not. But musical intelligence, Musical thinking ability and musical thinking function are unique human abilities that must be developed through school education. It is an independent domain that cannot be replaced by any other kind of intelligence, ability to think, or thinking function. It is a mental ability that must be developed through intellectual inquiry.

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