

A Constructivist-based Study of Introductory Cello Instruction

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Abstract. China's cello education stays in the spoon-fed education concept, with excessive pursuit of examination or competition results, thus ignoring the student's subjective initiative and the cultivation of comprehensive quality. This paper will combine the "constructivism" theory, constructivism, teaching methods, and cello teaching to stimulate children to learn cello subjective initiative and develop children's active thinking and problem-solving abilities. This paper will use the theory of "constructivism," constructivism teaching methods, and cello teaching to stimulate the children's subjective initiative in learning cello and cultivate children's active thinking and problem-solving abilities.

Keywords: Constructivism; Cello teaching; Cello initiation education.

1. Introduction

With the popularization of music and art, more and more people are learning cello. The cello is a complex stringed instrument, which requires different levels of cognitive and skill learning, such as body coordination, music perception, etc., at the stage of initiation education. However, traditional cello initiation education is often based on indoctrination, where the teacher imparts knowledge as an authority and the student receives the information passively. Although this method is effective in technical training, it is easy to neglect the cultivation of students' musical perception and aesthetic ability and may also inhibit students' creativity and deeper understanding of music. Under this teaching mode, students at the introductory stage may find it tedious, and it cannot cultivate students' long-term interest in learning. Therefore, the author believes that new educational theories and methods should be introduced to provide new teaching methods for cello initiation education and to cultivate students' musical creativity.

Therefore, based on an in-depth study of the problems of cello initiation education, this paper uses constructivism theory, takes children of concrete operational stages as the research object, and adopts the literature analysis method and case study method to study the initiation teaching of the cello.

2. Research Status

In this paper, we use China Knowledge Network to conduct a literature search to study and research articles on cello teaching and cello initiation teaching combined with constructivism. Tian Hong studied cello initiation teaching and proposed that grassroots music teachers need to have advanced educational concepts, scientific and systematic training methods, and teaching means according to materials, and at the same time let the learners feel the beauty of the cello point of view [1]. Zhao Yanming studied children's cello initiation education and proposed using scientific methods to consolidate, stimulate, cultivate, and maintain the children's interest in learning basic exercises through various forms [2]. Zhongqiu scholars studied the teaching system of the cello curriculum. They proposed to standardize the teaching plan, rationally set up the curriculum and teaching content, and at the same time, cultivate the students' self-thinking and innovative ability in music [3]. Shen Jie studied the theory of constructivism and the construction of music teaching mode and proposed that the use of constructivism in music teaching can prompt students' training, understanding, and performance so that students can feel and experience the beauty of music, construct knowledge in the activities, and create in the construction [4]. After organizing the literature, this paper finds that although constructivism has been deeply developed in several subject areas. However, few scholars use constructivism in cello teaching. We need to mobilize children's perception, understanding, and practical ability in cello initiation teaching, focusing on experiential and interactive learning. This is

very suitable for the active learning and contextual learning emphasized by constructivism. Therefore, this paper introduces constructivist learning theory in cello initiation education, which helps to overcome the shortcomings of traditional teaching methods and enhance students' learning initiative, creativity, and in-depth understanding of music. Through inquiry-based learning, contextualized teaching, cooperative learning, and self-reflection, students can construct their musical knowledge and skills through experience, interaction, and reflection.

3. Basic Theory

3.1 Constructivism

Constructivism regards learning as a more complex and dynamic process, emphasizes the active role of the learner in constructing knowledge and advocates that learning be promoted through one's own experience and social interaction. That is to say, constructivist learning is, in a certain context, that is, the socio-cultural background, with the help of others, that is, through interpersonal collaboration and communication activities to achieve the process of meaning construction [5]. Among them, "context," "collaboration," "communication," and "meaning construction" are the four main elements of constructivist learning theory. Elements of constructivist learning theory. "Context," "collaboration," and "communication" emphasize the conditions and process of learning, and "meaning construction" is the ultimate goal of the whole learning process. The "construction of meaning" is the ultimate goal of the whole learning process.

Constructing lies in the fact that learners form and adjust their experience structure through repeated, two-way interactions between new and old knowledge and experience [5]. In this constructive process, on the one hand, the learner's understanding of the current information needs to be based on the original knowledge and experience, beyond the external information itself; on the other hand, the use of the original knowledge and experience is not simply extracted and applied, but the individual needs to be based on the new experience to make some kind of adjustments and modifications to the original experience itself.

The basic viewpoints of constructivist learning theory include the knowledge viewpoint, the learning viewpoint, and the student viewpoint. First of all, the knowledge view. Constructivism emphasizes the dynamic nature of knowledge. That is to say, knowledge is not a purely objective reflection of reality, and any kind of symbolic system for transmitting knowledge is not a true representation. It is nothing more than a human interpretation, an assumption, which is constantly evolving and is not the final answer. Knowledge does not precisely summarize the laws of the world, and in specific problems, we need to recreate them for specific situations. Therefore, in cello education, teachers should pay attention to children's cultivation of aesthetic ability, creative ability, independent learning ability, and exploratory ability of the cello, rather than just filling in the blanks. They should also pay attention to the different problems encountered by children when learning the cello. For example, in the cello vibrato technique, after teaching the technique, teachers should let the children practice regularly according to the beat and let the children experience the effect of the vibrato technique in different pieces so that the children can use vibrato according to the needs of the piece after learning the basic technique. The view of learning is that learning is a process in which learners actively construct their knowledge and experience in a social and cultural context through the interaction between people and objects and between people and people [5], i.e., through the two-way interaction between new experiences and the original knowledge and experience to enrich and transform their knowledge and experience. The constructive process of learning has three important characteristics: active construction, social interaction, and contextualization. Therefore, in the initial stage, teachers can let students communicate with each other through group lessons, concerts, and contextualized teaching to encourage children to take the initiative to discover their shortcomings in the process of learning to play the piano and thus improve their playing ability. The student perspective emphasizes the richness and diversity of the student's world of experience. Students do not walk into the classroom with empty heads; they have formed rich experiences in their daily lives

and previous studies. From the smallest things around them, such as food, clothing, housing, and transportation, to the operation of the universe and the stars, from natural phenomena to social life, they almost always have some views of their own. Even if they do not have ready experience of some problems, when the problem is presented to them, they can form some kind of explanation of the problem based on relevant experience and rely on their own reasoning and judgment ability. Therefore, we should abandon the traditional fill-in-the-blank teaching. Instead of having only the teacher teaching in the classroom from beginning to end, we should assist students in identifying the problems and applying their understanding to solve them. For example, in the face of a new piece of music, you can let the students find out the fingering and bowing as well as the way of musical expression, and then the teacher will adjust and guide them for the unreasonable places.

3.2 Piaget's Stages of Cognitive Development

Piaget believed that during the development of an individual from birth to maturity, the cognitive structure is constantly reconstructed in interaction with the environment, thus manifesting the following four stages: the sensorimotor stage from 0-2 years old, the preoperational stage from 4-7 years old, the concrete operational stage from 7-11 years old, and the formal operational stage (from 11 years old to adulthood) [6]. In the sensorimotor stage (0-2 years), children explore the external environment mainly through perception and movement. In the preoperational stage, children begin to think directly through language, symbols, and images. Children's abstract thinking ability is weak in this stage; children's logical thinking ability is not yet fully developed, and thinking is irreversible. Therefore, concrete and figurative teaching methods are applicable. In the stage of concrete operations (7-11 years old), children's thinking ability has improved significantly, and they are capable of logical reasoning and problem-solving. This stage is also the subject of the author's research. In the concrete operations stage, children begin to have the ability to think logically and to use reasoning to solve practical problems. However, this logical thinking is still limited to concrete things and situations; they can only understand things that are directly observed or experienced and cannot yet deal with abstract concepts or hypothetical problems. Children at this stage have acquired reversible thinking, and they are able to understand that certain changes can be reversed, an ability that allows them to solve more complex problems. At the same time, they have moved away from the egocentrism of the preoperational stage, and they are beginning to be able to understand the perspectives and emotions of others, realizing that others may have different views. This shift allows children to be more flexible in social interactions and better able to understand and participate in group activities. The concrete operations stage marks a major shift from perception-based thinking to logical thinking, but children at this stage are still unable to deal with abstraction, and this stage also lays the groundwork for higher levels of abstract thinking.

4. Application of constructivism in cello initiation teaching

4.1 Focus on students' existing experience and knowledge background in the process of cello teaching

According to constructivism theory, knowledge is not unilaterally output to students by teachers but is actively constructed by children based on their own existing experience and knowledge [5]. Therefore, the main task of the teacher is to guide children to form an understanding of cello performance through the connection and integration of old and new knowledge on the original knowledge framework. Teachers should pay full attention to children's existing experience and knowledge background in order to better construct knowledge.

Children may already have some experience with music theory or other instruments before learning the cello. Other children may have learned about and appreciated cello playing through audiovisual and other forms. They have more or less their understanding and knowledge of this instrument. Therefore, before starting teaching, teachers should be aware of the children's existing musical experience and knowledge background. Teachers can identify the children's musical

background by communicating with them and assessing their level of knowledge of music theory. This step helps the teacher to design a curriculum that is appropriate to the children's current level of proficiency to achieve the goal of tailoring instruction to the children's needs. A central part of the teacher's teaching is to make connections between the children's own new and old knowledge. For example, if the children have a simple understanding of music theory, such as scales and intervals, the teacher can apply this knowledge to the teaching of scales and finger exercises on the cello. This can help children to understand cello left-hand techniques such as major positions and to construct better interconnections between different positions, fingerings, and intervals, thus improving their control of intonation. However, not all children have a background in music theory, and direct instruction may not be sufficient for children to understand a particular technique. In this case, teachers can try to use analogies to relate cello-playing techniques to familiar experiences. For example, when explaining how to find the best point of articulation for a right-handed bow, visualize the preparation of the right hand before starting by drawing a circle in the air, with the arm falling naturally to imagine that you are trying to carry the sound to the other side of the sea. Use your body's natural weight on the strings to carry the bow so that the sound comes out nice and round. These real-life physical experiences can help children visualize the power control of the stroke and the correct tone. This analogy not only reduces the difficulty of children's understanding of playing techniques but also stimulates children's creative thinking, allowing them to combine learning to play the cello with their own life experiences and gradually build a deeper understanding of playing techniques. In daily practice and feedback, teachers can encourage children to use their learning experiences to improve their playing. For example, shifting is a technique that is often difficult for children in the early years. If children have difficulty practicing shifting, teachers can guide them to recall and utilize their knowledge of music theory to understand the distances between intervals and the connection between fingerings and handles. Through daily practice and application, children can gradually internalize their existing experience in cello-playing and thus gain a deeper understanding of playing techniques and musical expression.

4.2 Establish cello teaching scenario

In cello playing and learning, in addition to mastering the basic playing skills, we also need to pay attention to the expression of the music's emotion. Some teachers think that the children in the specific algorithmic stage cannot fully understand the expression of emotion in music or do not know how to guide the children to express their emotion in music, thus ignoring this important part of the performance. However, children do not learn with an empty head; they already have some knowledge and experience in life and learning, so teachers should create a multi-dimensional, immersive learning situation in cello teaching and guide children to express their emotions in music. Before the beginning of the lesson, teachers can use some multimedia technology, such as video animation, to introduce a new piece. For example, when teaching the piece "Madrigal," some short pieces can be played to introduce the musical background of the piece so that children can be immersed in the scene of "the wind blowing the grass and seeing the cows and sheep." This kind of immersion experience can stimulate their emotional resonance with the piece, allowing them to express the vitality and vigor of the piece more naturally in their performance. When explaining the emotions of the piece, teachers can guide children to recall their own experiences of similar musical emotions, making it easier for them to incorporate their own emotions into their performance. For example, when learning Bach's Minuet No. 2, many children will play it mechanically when they first encounter the piece due to the repetitive rhythmic pattern. When teaching this piece, the teacher can guide the children to visualize their right-hand bow as a dancer's light footsteps. The teacher can then assist the student by singing the score and experiencing the emotion of the piece vocally. In this way, the children will have a deeper understanding of the piece they are playing and will be able to express themselves more emotionally. In addition, teachers can also set up some musical games that require children to make different performance choices in different emotional scenarios, such as expressing joy, sadness, and other emotions by changing the intensity and playing techniques. This kind of musical game can make

children feel different ways of musical expression in a relaxing atmosphere, internalize the understanding of feelings and playing skills into their own experience, and gradually cultivate children's natural musical expression.

4.3 Learning Cello in " Collaboration"

The student perspective in constructivist learning theory emphasizes the importance of interaction and interaction between learners and other things and people. Therefore, in addition to the teacher's teaching to provide and create learning situations for students, the student's initiative, students, teachers, and parents are also very important in collaboration and cooperation.

In the initial stage, children's knowledge of the cello comes entirely from the teacher's teaching in the classroom. Unlike the piano and other keyboard instruments, the left and right hands of a stringed instrument have completely different tasks when playing the cello. Especially the right hand's bow grip and bow movement, children at the beginning stage often focus on the left hand's stringing and neglect the right hand's posture because they haven't yet established a good playing posture and habit. This also leads to distortion of their playing posture, which can affect the playing effect and even cause illnesses if practiced incorrectly for a long period of time. Therefore, maintaining correct playing posture is an important but difficult task for children at the beginning stages of their education. Teachers should suggest or ask parents to accompany their children to lessons at the beginning of their education, to record the correct playing posture taught by the teacher by taking pictures during the lessons, to guide their children to practice the correct posture when they go home to practice at home after the lessons, or to give feedback to the teacher by taking pictures and videos of their children practicing. By taking photos and videos of children practicing, you can provide feedback to the teacher on the children's practicing situation, thus achieving higher efficiency in practicing the piano. In addition, parents can also play the role of supervision and encouragement. Because of the limited concentration and attention span of children in the concrete computing stage, some children may find it difficult to keep practicing for a long period of time. Therefore, parents should supervise and encourage their children to practice to gradually increase the children's practicing time. However, parents should never replace or force children to learn and practice. Parents should play a guiding role and let children find the fun of learning cello by themselves.

In cello teaching, the previous teaching mode is to one-on-one form. Although this one-to-one teaching mode can most effectively realize the goal of the teacher to teach students according to their aptitude, the lack of communication and interaction between learning peers may lead to children's cognitive development of the cello being incomplete and musically thin, being closed, so the teacher can be based on the one-to-one course to carry out small group lessons. In a group lesson, the teacher can let the children experience the concepts of intervals and harmony through repertoire exercises. Starting from the basic scales, children can get a basic understanding of intervals and chords, such as intervals in thirds, sevenths, etc., and at the same time, they can practice the children's grasp of intonation. In addition, simple cello duo or trio pieces, such as those found in Guo Luyan's Cello Duet Course, can be taught. The practice of repertoire allows children to establish the concept of vocal parts and at the same time enables them to learn the importance of cooperation. Unlike the solo, the repertoire requires more rhythm and intonation, and if there is a mistake, the music will be dissonant. So this can exercise children's grasp of rhythm and intonation, as well as feel their problems in cooperating with others, thus mobilizing the enthusiasm for practicing and learning. Teachers can also organize student concerts. After children learn cello for a period of time, students should be allowed to perform on stage, which can not only improve children's interest in practicing but also be a good opportunity for learning and communication. When children see different students performing on stage, this can help children refine their perception of cello playing and their learning. This new knowledge will provide the child with new inspiration and references for his or her playing and practicing and may even stimulate the child's enthusiasm for learning. Therefore, in addition to individual learning and practicing, it is also important to learn and interact with peers.

5. Summary

The idea of "constructivism" has been developed for many years in the educational research and practice of other disciplines and has gradually developed into one of the influential theories of the times. It emphasizes the learner as the core, active in acquiring knowledge and giving full play to its subjective initiative. The author believes that this theory is also applicable to the teaching of cello. This paper specifically describes the implementation strategies of constructivism in cello education, aiming to stimulate and maintain the enthusiasm of students in the initiation stage and cultivate students' creativity.

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