

An Investigation of Interdisciplinary Thematic Teaching in Music Based on the "C-POTE" Model

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Abstract: *Interdisciplinary theme learning of music in compulsory education refers to comprehensive learning based on a certain research theme, problem or knowledge concept, with music as the main discipline, supplemented by other knowledge of different disciplines, which can help students understand relevant knowledge of the music discipline, and ultimately improve all kinds of core literacy, usually possessing the following characteristics: integration, aesthetics and practicability. With respect to integration, the advantage of interdisciplinary thematic learning lies in the integration of knowledge from different disciplines, which promotes students' construction of intrinsic knowledge connections. Aesthetics highlights the personality characteristic of the music discipline, and "aesthetic perception" is the key to the core qualities of arts. Interdisciplinary learning facilitates the integration of knowledge between different disciplines through aesthetic experience, and eventually enhances students' aesthetic ability. In terms of practicality, interdisciplinary thematic learning in music emphasises students' active participation and experience, enhancing students' interdisciplinary understanding and advancing the achievement of the set teaching goals through specific tasks and activities such as singing and playing. In accordance with the connotation and characteristics of interdisciplinary thematic learning aforementioned, this paper mainly discusses the interdisciplinary thematic teaching practice of the music discipline based on the procedures of Concept Cluster → Problem Chain → Goal Layer → Task Cluster → Evidence Set ("C-POTE" model), and takes the five steps above as the basis for the study of basic ideas and methods.*

Keywords: *Interdisciplinary Thematic Learning; Music; "C-Pote" Model*

1. Introduction

Interdisciplinary thematic learning is a process of carrying out comprehensive learning activities based on a certain research theme, with the curriculum content of a certain discipline as the backbone, using and integrating multidisciplinary knowledge and methods ^[1] (Zhan Zehui, 2022). The Curriculum Programme and Curriculum Standards for Compulsory Education (2022 Edition) to some extent have answered the core questions of "what to teach" and "how to teach" in interdisciplinary thematic learning, specifically requiring that each discipline should invest at least (The Ministry of Education of the People's Republic of China, 2022). ^[2] However, given the differences in content across subjects and districts, teachers' ability to design interdisciplinary teaching and learning activities is uneven, which has become a major challenge in the implementation of interdisciplinary thematic teaching.

To address this issue, Zhan Zehui's team from South China Normal University proposed the "C-POTE" model, which presents a clear set of practical guidelines and clarifies the process and vein of interdisciplinary thematic teaching. The model underlines the use of conceptual cluster, problematic chain, objective tier, task cluster and evidence ensemble as basic building blocks to construct an integrated, progressive and systematic instructional design framework, namely, systematic instructional design framework. Through this framework, teachers are able to design and implement cross-curricular themes in a more balanced and effective way, ensuring that teaching and learning activities are adapted to the characteristics of different disciplines and regions, and promoting the holistic development of students' core literacy. The model is applicable to the subject of music, but differs from other subjects in terms of characteristics and implementation, as discussed below.

2. Characteristics of Interdisciplinary Thematic Learning in Music

2.1 Integration

The core advantage of interdisciplinary thematic learning lies in its integrative nature, a process based mainly on the integration of knowledge from different disciplines, aiming at uncovering common nodes of knowledge across disciplines and interpreting the learning theme from a multidisciplinary perspective. However, students must have a solid mastery of various subdisciplinary programmes before they can construct intrinsic connections between knowledge and ultimately develop the ability to integrate knowledge across disciplines. The lack of in-depth excavation of intrinsic connections of disciplines, coupled with mechanical superimposition of different curricula will inevitably lead to the phenomena of "plattering" and "blending" of knowledge. This results in the neglect of the uniqueness and specialisation of subject knowledge, which may increase the cognitive load of students. Therefore, in the teaching practice of interdisciplinary thematic learning, teachers, as an important role, need to guide students to consciously connect their subject knowledge with real life, and to flexibly apply it to solve specific problems in real-life situations. Such a teaching approach not only reflects the holistic nature of the curriculum, but also significantly enhances students' motivation to learn and expands the depth and breadth of their learning.

2.2 Experiential

The core of interdisciplinary thematic learning teaching lies in the active practice and co-operation of students in the classroom. Since the evaluation process of music curriculum is mainly reflected through students' singing, playing and other experiential activities, whether it is a singing class, an appreciation class or an arranging class, students must actively participate in various teaching activities designed by teachers in order to effectively enhance and demonstrate the core qualities of artistic expression and aesthetic perception. Students' personal participation is the key to assessing the effectiveness of learning, because only through actual participation in classroom tasks can teachers accurately judge whether students have truly absorbed and mastered what they have learnt. Given the practical nature of the music subject, compared with other cultural subjects, it places more emphasis on cultivating students' practical skills, interest in engaging in activities, and creative cognition. In the thematic interdisciplinary teaching design of junior secondary music, teachers should be committed to creating plentiful experiential learning opportunities and encouraging students to actively participate in diversified music practice activities, such as choral singing, ensemble playing and improvisation, so as to deepen students' musical experience. At the same time, challenging tasks are designed to stimulate students' interest in inquiry and innovative thinking, to reinforce students' in-depth learning in the music discipline, and to achieve comprehensive enhancement of artistic literacy and personal ability, which can lay a solid foundation for students' all-round development.

2.3 Aesthetic

In music teaching, "aesthetic perception" is the key to core arts literacy. For the music curriculum, it is not only a manifestation of the identity of the subject, but also a core quality shared with individual arts subjects in cross-curricular learning. Through cross-curricular thematic learning, students are capable of establishing connections between different disciplines and deepening their comprehension of music and its interconnections with culture and history. The intrinsic connections between music and other disciplines such as literature and fine arts in terms of emotional expression and cultural transmission provide students with rich aesthetic experience. As to interdisciplinary music teaching design, teachers should pay attention to the cultivation of aesthetic perception as a bridge connecting knowledge of different disciplines, enhance students' aesthetic interest and ability through innovative teaching activities, and promote the formation of a comprehensive aesthetic understanding of students in a multicultural context, finally realizing the fusion of knowledge and enhancement of literacy.

3. Links between Music Education and the “C-POTE” Model

3.1 Conceptual cluster construction

Teachers need to follow the intellectual logic of the music subject, carefully selecting and integrating key big concepts to form a core framework of subject knowledge.

The essence of interdisciplinary learning lies in applying the ways of thinking of different disciplines to solve problems in real situations. Consequently, the construction of conceptual clusters is crucial to the realisation of multidisciplinary integration. When designing thematic activities for interdisciplinary learning, teachers need to explore the intersection between concepts of different disciplines by starting from basic knowledge of each discipline, and construct more macroscopic interdisciplinary concepts. These concepts will then be combined with practical problems in social life to produce interdisciplinary themes of educational significance. Teachers should take the core concepts of the music discipline as the starting point, look for intersections with concepts from other disciplines, and design teaching themes in conjunction with real-life situations, so as to guide students in identifying problems to be solved, to boost students' deeper understanding and mastery of the music discipline, and to intensify their ability to resolve complex problems.

3.2 Issue chain development

Teachers are required to systematically construct a series of chains of questions around identified broad concepts that are designed to lead students to deeper enquiry and promote the development of critical thinking.

The construction of problem chains is a core component of the “C-POTE” model, which is based on conceptual clusters and authentic problem situations, aiming at assessing and facilitating the development of students' procedural knowledge through teacher-designed sequences of poorly structured problems. Teachers need to ensure that problem situations are designed with richness and variety to stimulate students' interest in enquiry and guide them to actively construct knowledge in the process of enquiry so that they can acquire critical skills needed to solve problems. This process not only enables students to learn procedural knowledge in specific problem situations, but also develops their transferable skills to flexibly adopt suitable strategies in different contexts. This is crucial for students to perform the transition from solving specific problems to developing core disciplinary literacy. Through a well-designed problem chain, teachers can effectively promote students' deep learning and critical thinking, and encourage students to achieve deep integration of knowledge and comprehensive enhancement of literacy in the learning of the music discipline, thus laying a solid foundation for students' lifelong learning and all-round development.

3.3 Clarity of target level

Teachers should take the development of students' core literacy as the teaching guide, and clarify teaching objectives, to ensure that teaching activities match students' cognitive development and artistic literacy enhancement.

In junior secondary music education, before designing interdisciplinary teaching and learning activities, teachers must first establish clear teaching objectives, specify the programme goals and themes, and integrate them with the teaching philosophy and expected learning outcomes of the music discipline. Through careful analyses of students, teachers are able to grasp students' music learning needs in order to advance students' all-round development in music knowledge, skills and related literacy, as well as to heighten their in-depth understanding of music and their ability to solve practical problems. The cross-curricular teaching objectives of the music subject depend on the "three-level" structure of core literacy, covering knowledge and skills, processes and methods, and affective attitudes and values, with emphasis on the holistic development of individuals. Teachers need to translate music knowledge from theory to practice, refine it into specific, structured and assessable teaching objectives, which are clearly communicated to students and guide them to focus on the musical content, learning methods and creative activities required to achieve the established objectives. This helps students to gain a deeper understanding of a variety of musical materials for effective transfer and application of knowledge, which provides a solid foundation for in-depth learning and creative problem-solving in music and interdisciplinary fields.

3.4 Task cluster design

Teachers need to design a series of interrelated task clusters at the level of teaching objectives, aiming to stimulate students' active learning and co-operative enquiry through diversified teaching activities.

The design of task clusters is an important way to achieve the organisation and practice of

knowledge. After designing contextual tasks that are coherent, graded and extended, teachers break them down into a number of core activities that motivate students to apply the broad concepts they have developed to solve real-world problems. In the process, teachers present clusters of challenging tasks in a learning community and lead students to break down these tasks to guarantee active participation of each member. Through the study, screening and comparison of knowledge from different disciplines, an overall network of teaching concepts is formed, and the understanding of interdisciplinary concepts is deepened through transfer and application. In addition, interdisciplinary thematic learning focuses on diversified learning outcomes, and task formulation should prioritise the use of verbs such as "design", "write" and "create", so as to enhance students' initiative and creativity, and also attach more importance to the transfer and application of students' conceptual understanding. In particular, when students face a "learning gap" and find it difficult to internalise and extract concepts effectively, learning scaffolds such as contextual and communicative scaffolds should be provided in a timely manner. By addressing the tasks designed in interdisciplinary thematic activities, students can promote their in-depth understanding of the subject of music, thus laying a solid foundation for the development of their interdisciplinary and lifelong learning abilities.

3.5 Integration of evidence sets

Teachers should systematically collect and integrate evidence sets in the course of their teaching practice in order to comprehensively assess students' learning processes and outcomes and ensure the accuracy and validity of teaching assessment.

Evaluation, as the final part of interdisciplinary classroom teaching, tests whether that learning process achieves the desired goals and enhances students' core literacy. This evaluation process originates from the conceptual teaching evaluation model proposed by Julie Stern et al. With innovative practices at the core, evaluation activities are subdivided into three levels: learning evaluation, evaluation of learning, and learning-based evaluation. To complete the evaluation of all aspects of teaching and learning, music teachers ought to actively record students' learning outcomes, such as song presentations and concert co-operation, and ultimately provide immediate feedback based on students' performance. In addition, teachers should guide students to conduct in-depth self-evaluation and reflection on their own creative practice process through multidisciplinary discourse analysis and presentation of compositions, etc., so as to achieve the literacy goal of teaching evaluation. Finally, through this multi-dimensional evaluation method, teachers can more accurately grasp the extent of students' interdisciplinary knowledge connections, and promote students' self-learning cognition and interdisciplinary understanding.

4. Reflections and Recommendations

Under the guidance of the "C-POTE" model, interdisciplinary thematic learning underlines the coherence and progression of teacher-student interaction in the teaching process, which breaks through the limitations of "platter" learning in traditional education. In "platter" learning, although all subjects seem to be centred on the same theme, there is a lack of substantive integration, and the contents of each subject are independent of each other, failing to explore the intrinsic connection of the theme in depth, which makes it difficult for students to establish deep recognition and comprehension of the theme. As pointed out by Wen Xiaojun in his research, this kind of learning is often only formally interdisciplinary and lacks depth and effectiveness.^[3] In response to this problem, the interdisciplinary thematic learning design advocated by the "C-POTE" model pays more attention to the directionality of the objectives and profound integration of the contents. Under this design, each subject is no longer an isolated unit, but an organic whole that is interrelated and mutually supportive. Teachers need to carefully design teaching activities to assure that students can gain coherent and smooth knowledge experience in interdisciplinary exploration and gradually develop a deeper understanding of the meaning of the selected themes.

Subsequently, some targeted suggestions are put forward to further optimise the practice of interdisciplinary theme-based learning under the "C-POTE" model, so as to promote students' in-depth understanding of the theme and enhance their comprehensive literacy. These suggestions cover a wide range of aspects such as instructional design, subject integration and learning activity arrangement, with the aim of providing teachers with practical guidance to help students achieve better results in interdisciplinary learning.

4.1 Constructing conceptual clusters across the disciplines surrounding music

Teachers need to construct an interdisciplinary cluster of concepts by gaining insight into the core concepts of the subject of music and identifying the concepts of other subjects that are linked to it, such as history, geography and mathematics. By integrating these concepts and creating an interconnected network of knowledge, students can learn music while understanding the intrinsic connections between music and other disciplines.

4.2 Designing problem-chain orientated teaching and learning activities

Based on the concept clusters, teachers should design a series of problem chains which should be centred on cross-disciplinary themes to encourage students' extensive exploration and reflection. Problem chains should be designed in a hierarchical manner, from simple to complex, gradually leading students deeper into the themes while developing their problem-solving skills and critical thinking.

4.3 Establishment of a clear hierarchy of objectives and clusters of tasks

The target tier should be formulated based on the core literacy, identifying the level of knowledge and skills, as well as the emotions, attitudes and values that students are expected to attain through interdisciplinary learning. Task clusters, on the other hand, are specific learning activities to be designed around the target level to ensure that each task can support students' progress towards the target level. Tasks should be varied, including independent work, group work, project research, etc., to cater for different learning styles of students.

4.4 Collection and application of evidence sets based on evaluation criteria

Evidence sets are key to assessing students' learning outcomes, and teachers need to design effective assessment tools and methods to collect evidence of student learning. Evidence may encompass students' assignments, projects, performances, reflective journals, etc. Through such evidence, teachers can observe and monitor students' learning progress and provide timely feedback and guidance.

Through the implementation of the above recommendations, interdisciplinary thematic teaching of music will become more systematic and profound, which will be beneficial for students to build up a comprehensive knowledge system and enhance their core literacy, and simultaneously improve teachers' instructional design and assessment skills.

5. Conclusion

In the practice of thematic interdisciplinary teaching in the subject of music, the core task of teachers is to guide students to meet their individual learning needs based on core literacy through careful layered instruction. Teachers should design a series of closely linked, step-by-step teaching activities, so that students not only can learn music knowledge and skills in the process of participation, but also are more aware of the connections between music and other disciplines, thereby realizing comprehensive enhancement of the competence of the music discipline and the literacy of other disciplines.

In the future educational picture, this mode of teaching is expected to be further developed and improved. Advances in educational technologies, such as virtual reality (VR), augmented reality (AR) and artificial intelligence (AI), can provide a more immersive and interactive learning experience for music teaching. Students are able to "travel" to different historical periods and cultural backgrounds with the aid of these technologies, and experience the evolution and social role of music, thus deepening their perception and understanding of music. As globalisation continues, cross-cultural communication and the cultivation of an international outlook will become important elements of music education. Students will have plenty of opportunities to come into contact with and learn about music styles and expressions from all over the world, to explore the value and significance of music in different cultures, and to develop cross-cultural communication skills and an attitude of respect for multiculturalism. In addition, with the increasing demand for creativity and comprehensive quality in society, music teaching will also place more emphasis on developing students' creativity, critical thinking and problem-solving capabilities. Through activities such as theme-based interdisciplinary

projects, music composition and performance, and the integration of music and technology, students will be able to develop their creativity and hone their abilities in practice, laying a solid foundation for their future studies and work.

In conclusion, thematic interdisciplinary teaching in the subject of music can not only promote students' in-depth learning in the field of music, but also stimulate them to achieve self-development and intensify their abilities in a wider range of knowledge areas. The future of music education will be a field full of innovation, integration and exploration, which will provide students with abundant and diversified learning opportunities and cultivate them to become composite talents with global vision, innovative spirit and social responsibility.

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