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A Study on the Evaluation Criteria of Academic Examination of University Music General Course Based on the SOLO Taxonomy

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Abstract: Music general courses are the main component of the aesthetic education curriculum in colleges and universities. Building a high-level aesthetic music teaching mode and improving the teaching quality and effectiveness of music general studies courses are important issues in the study of the aesthetic education curriculum system in colleges and universities. Academic examination, as a way to improve the quality of teaching and learning in the course, is not only a basis for academic evaluation of students, but also an important means for teachers to reflect on their teaching, observe the results and expand their teaching methods and approaches. The paper will use the connotation of The SOLO Taxonomy, combined with the characteristics of music subject teaching, to explore the connotation and criteria of teaching evaluation of university music general courses, and provide an effective implementation path for enhancing the means of academic examination of university music general courses.

Keywords: Academic Examination; Music Education; Aesthetic Education; The Solo Taxonomy.

1. Introduction

The Aesthetic Education Course is an important way for higher education institutions to build a moral education and to cultivate talents with a full range of moral, intellectual, physical, aesthetic and labour skills. Improve the aesthetic education curriculum system, upgrade the quality of teaching in aesthetic education courses, improve students' aesthetic and humanistic qualities, and moreover, comprehensively strengthen and improve aesthetic education is an important task of higher education. A Guideline for Public Art Courses in Higher Education was issued by Ministry of Education, PRC in November 2022, and the text puts forward new requirements for teaching evaluation and teaching assessment of public courses in aesthetic education in colleges and universities. Higher education institutions should implement the self-evaluation and annual report system of public art education in higher education institutions according to the characteristics of different professional talents cultivation and the requirements of professional ability and quality, taking into account the advantages of our discipline construction, educational resources in our region and teachers' specialties and research results. The provincial education administrative departments will research and develop an evaluation and supervision index system for public art education in higher education, and conduct regular evaluation and supervision of public art education in higher education [1].

The present method of academic examination in music general course is based on the teacher's assessment of student participation in class, completion of tasks and the effectiveness of classroom interaction. Student's academic standards are often assessed in the form of a diverse range of achievement shows, the academic examination results are a blend of process assessment and stage assessment results. The criteria for evaluating the teaching of music general courses vary greatly for different universities, but in the actual implementation process, students are still mainly judged on the basis of their completion of assignments and their attitude towards learning during the teaching process. From the student's perspective, the assessment results of music general studies assessment are subject to differentiated results arising from non-curricular factors, which often originate from the major, personal conditions and learning experiences. All of these make student attainment levels not an objective reflection of student learning outcomes. Such assessment results do not truly reflect how much students have learned, how deeply they have thought and how well they have learned.

The academic examination model for music courses in higher education should be systematic and standardised, in line with the objectives of aesthetic education, distinguishing between specialist and non-specialist teaching characteristics and reflecting the interdisciplinary nature of music courses. It should be a comprehensive quantitative and qualitative standardised assessment model with universal application so that teachers can give valid assessment results for students from different professional learning backgrounds.

Structure of The Observed Learning Outcome (The SOLO Taxonomy), a critique of Piaget's Stages of Cognitive Development theory, proposed by Australian psychologists John B. Biggs and Kevin F. Collis in 1982, is a framework of criterion-referenced assessment methods based on a hierarchical description of problem solving based on intellectual development. The framework is divided vertically into five levels of structure: pre-structural, uni-structural, multi-structural, relational and extended abstract, with a transitional structure of answers between each level [2], in figure 1. The higher the level of thinking where the learner is located, the greater the appreciation and perception, and the more students' musical thinking activities are observed through a multidisciplinary and integrated assessment tool, which can be used as a criterion for teaching evaluation. The SOLO Taxonomy not only produces qualitative formative assessment, but also assists the assessment subject by quantifying the assessment results and obtaining the corresponding grade scores, using it as a theoretical framework for assessment that also corresponds to the

concept of teaching and learning assessment in aesthetic education in higher education.

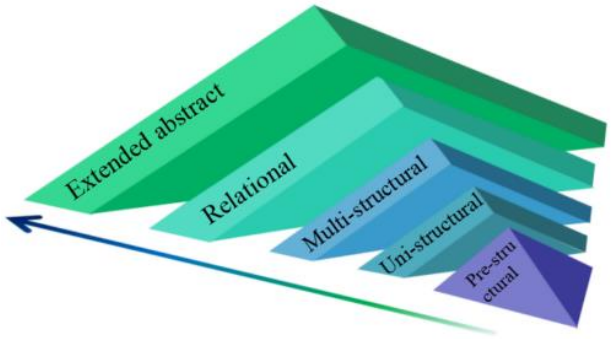


Figure 1. Levels grade

2. The Concept and Value of Music General Studies

Aesthetic music programmes in higher education are delivered in both general course and public courses, with general studies courses originating from the concept of liberal arts education. The meaning of liberal education before the 19th century generally refers to primary and secondary education. From the early 19th century, American colleges and universities began to introduce general education for students of all majors in order to enhance their overall competence in an elective system. General education in higher education reflects the philosophy of the university and is characterised by its non-specialist and non-vocational nature. General Studies is taught to non-majors, and it covers all types of education in higher education, as well as all levels and majors. In conjunction with professional education, it constitutes higher education and is a constituent and important part of the higher education curriculum [3].

Some people think that public courses are equivalent to general courses, but there is an essential difference between these two types of courses in figure 2. First, there is the difference between the types of courses: general studies courses are non-specialist elective courses in which students can choose a specific course of study, while public courses are non-specialist but compulsory, which makes a big difference in the way the courses are organised and the content of study. Secondly, from the point of view of the type of school, the composition and teaching resources of comprehensive universities and independent colleges are different, and the students' own conditions are also very different. As to whether the aesthetic music course should be offered as a public course or a general studies course, it should be considered comprehensively in the light of the specific conditions of universities.

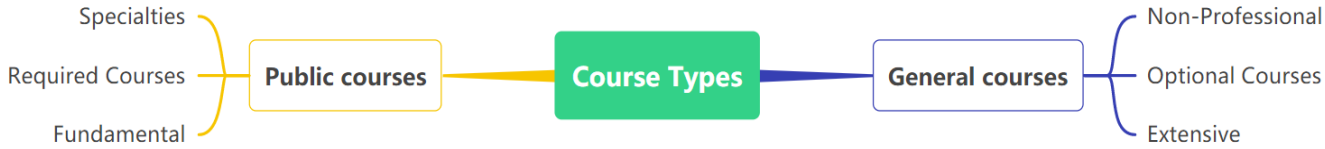


Figure 2. Characteristics of Public and General Courses

There are three main concerns for non-specialist university music courses: developing perceptual music listening skills; acquiring the ability to relate music to other aspects of human culture; and expressing one's musical understanding and preferences [4]. In practical terms, music general studies course is essentially a form of arts education, but the aim of the course is the perception of aesthetics rather than the pursuit of artistic skills, and the teaching structure should be more balanced in terms of the weighting of musical performance techniques and musical appreciation skills. The final goal of the course is not to train students to master certain musical skills and become the main subject of musical performance, but to enable students to understand what beauty is through music, to encounter the laws of beauty through the laws of music, to gain the ability to delve into the knowledge and cultural connotations of music, and to correctly establish the aesthetic value of "truth, beauty and goodness" in man and nature, and in man and society. To become aesthetically competent individuals with certain knowledge and skills. As an important part of the university's aesthetic education system, music general studies courses also serve to connect the individual to the public consciousness, making music a channel for dialogue. The teaching content of the music general studies course has the principle of wholeness, through the music content that carries a richer social and spiritual civilisation, assisting university students to build a complete knowledge structure and enhance aesthetic cognition and judgement, in order to achieve the goal of cultivating a well-rounded human being.

3. Principles and Concepts of Evaluation

The main features of teaching evaluation in music general courses are reflected in the non-specialist nature of the evaluation subject and the interdisciplinary nature of the evaluation content. This is a kind of programme in which music education is provided by specialist teachers to a non-specialist group of students, and the teaching process includes elements of music theory and music practice, i.e. basic music knowledge and music skills.

In the teaching process, there is a high degree of overlap between the content of music general studies courses and music major courses, which has led some teachers and students to believe that music courses are in fact music major courses with reduced requirements, and some institutions with a shortage of aesthetic education teachers have also turned music general studies courses into music major courses by equating them with music appreciation courses, music theory knowledge, instrument or singing skills training, etc. This has led to many teachers relying on simple musical performances or single topic end-of-course essays to make judgements about students' learning outcomes when assessing academic performance. In order to reduce the workload, some teachers even assign marks to process assessments as a result of academic examination, which in fact only reflects the students' performance in classroom interactions. The results of such assessments are not objective for the students and the marks or grades given do not reflect the deficiencies in their learning, nor do they meet the objectives of aesthetic

education from the point of view of aesthetic education. Music education is only a means to achieve aesthetic education and not an end in itself, let alone the achievement of aesthetic education work [5]. Therefore, the results of the assessment reflect the philosophy and principles of music general studies assessment, and not just a single mark or grade to replace the whole learning process. At the same time, the process evaluation is organically combined with the final academic performance, and the evaluation results are given in a systematic and standardized evaluation mode with a combination of rubrics and scores in figure 3.

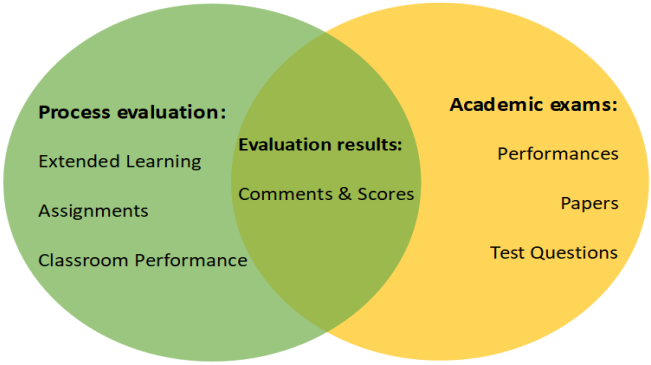


Figure 3. Content and presentation of the evaluation

Most university use a combination of summative and process assessment for their music general studies courses, combining students' responses in class, assignments and attitudes to learning with their learning outcomes at the end of a particular stage of study to form a final academic examination score. Although this mode of assessment can quickly and efficiently examine students' learning processes and results, it is ultimately a closed assessment result, and even if it is supplemented by a variety of assessment tools, the content and subject of the assessment is still slightly single, which cannot truly reflect the teaching objectives and outcomes of music general studies courses. Meanwhile, aesthetic competence is difficult to quantify and the paradigmatic results of qualitative assessment should also be used as the basis for evaluating the specifics of students' aesthetic competence in music general studies. The ultimate goal of academic examination is to reflect the final outcome of the whole teaching period. It should not be based solely on performance in the learning process or on the completion of assignments, nor should it be based solely on classroom 'performance' .

Non-specialist nature is a fundamental feature of Aesthetic music general studies course, and the subject of teaching evaluation is also non-specialist in nature. Students do not take general music courses for the purpose of specialisation, let alone an in-depth study of professional theory. The evaluation of the teaching and learning of general music courses needs to focus on the relationship between the theory of knowledge and the practice of skills. Unlike the specialised elite education, the evaluation of the curriculum of music general studies course needs to emphasise the social function of aesthetic education and its aesthetic value orientation. The philosophy of evaluation should uphold a non-specialist approach, distinguishing the teaching and learning evaluation philosophy of music students and students of related disciplines. However, the non-professional nature of the subject of teaching evaluation does not mean that the evaluation process and the evaluation results are generated arbitrarily. The purpose of teaching evaluation is ultimately to observe the development of students' aesthetic skills through the analysis of the music education process and the exploration of the teaching results of aesthetic education courses. Thus, the assessment results must be a true and objective reflection of student learning outcomes.

Another feature of the Music General Studies programme is its interdisciplinary nature. Although the lack of standards in interdisciplinary curricula is often considered a major disadvantage of interdisciplinary educational assessment, it may be a major advantage because it requires us to focus on the development of students' intellectual abilities rather than on a fixed message [6]. In terms of the curriculum, the aesthetic education system is originally multidisciplinary, and the music general studies course is a blend of aesthetic education and music education, with a philosophical view of aesthetics presented in a rich musical content, which becomes the basic condition for the interdisciplinary nature of the general music course. From the perspective of individual student development, young students are at the concrete operational stage of Piaget's four stages of cognitive development, where thinking is reversible, compensatory and flexible. University students have the ability to hypothesise and reason deductively about problems, as well as logically abstracting knowledge and forming their own unique opinions. At the same time, music course classes are usually composed of different majors to different grades, and the course is mostly taught by teachers specialising in music skills or music theory, thus creating an interdisciplinary teaching ecology. Students from different professional backgrounds in the classroom will think about and analyse the same musical content in a way that is similar to the scope of their own field of expertise, and will perceive the aesthetic in a fundamentally different way. Students' perceptions of aesthetics in the classroom often show leaps and bounds, responses that may be a departure for traditional music specialist teaching, but reflect the interdisciplinarity that is a key feature of the aesthetic music curriculum. Students who participate in interdisciplinary programs are more likely to gain an integrated perspective and solution-focused strategies than to gain content-specific knowledge from a single discipline [7].

4. Structure and Content of the Model

The SOLO Taxonomy provides a tightly regulated operating system for assessment and differentiates the types of student responses along four dimensions. These are, respectively, the capacity or breadth of working memory to form individual competencies; the operation of thinking consisting of the way in which clues are linked to responses; the student's attitude to the conclusions of the questions, showing consistency and convergence; and the material outside the course content contained in the results of the responses, or the teaching examples that have been shown and the material and principles that have not been provided in the teaching process.

Biggs argues that the overall cognitive structure of students is not easily observable, but we can observe the complexity in the structure of thinking in terms of the cognitive outcomes that students exhibit when faced with a particular task or problem. This means that students' learning behaviour cannot be measured, but the results of students' learning behaviour can be observed and judged. We can evaluate students' learning process by observing their learning results and describe the results of learning at five structural levels,

forming a system of teaching evaluation based on learning results [8] in Table 1.

In open-ended assessment, each level of the SOLO theory structure reflects the student's level of thinking rather than the mastery of a single point of knowledge. The SOLO framework allows teachers to observe how well students are able to integrate musical content and aesthetic imagery with their own internal psycho-spiritual activities, rather than to determine how well they remember what they have learnt through assessment results. For non-specialist music general education courses, this is where the focus should be, so the SOLO taxonomy offers an effective solution to the problem of assessing music practice skills in combination with music appreciation and perceptual skills.

Table 1. Structural learning model.

Structural level	Results of observable learning
Pre-structural	Students are largely unaware and unaware of the content and issues.
Uni-structural	Students have an initial understanding but not in depth.
Multi-structural	Pupils have a greater understanding of the issues and can make connections to other knowledge, but their understanding is still incomplete.
Relational	Students have a holistic grasp of the problem and are able to solve it independently with integrated knowledge content.
Extended abstract	Pupils are able to grasp the overall context of the problem and to abstract the problem so that it can be applied to new problem situations.

It is more important that SOLO has a multidisciplinary nature of examining learning outcomes and is able to show how well students are able to integrate after disciplinary segmentation, especially at the level of multi-point structures, linked structures and abstract expansion, where knowledge developed at this stage is multidisciplinary [9]. The interdisciplinary integration mechanism allows the interdisciplinary character of the music general studies course to be directly reflected in the assessment results, and is more inclusive of students from different disciplines within the same teaching space, which means that the assessment criteria become less homogeneous and avoid academic examination results falling into a situation of constantly diverging assessment criteria in interdisciplinary learning.

Prior to using SOLO as a teaching evaluation tool, we should first analyse several generic coding concepts in the teaching of aesthetic music education, such as aesthetic perception, cultural understanding, artistic expression and creative practice. The pedagogical objectives are then corresponded to each code, coded in a longitudinal structure into the structure of SOLO, based on the preparation of scoring rules that qualitatively describe the specific objects to be evaluated in five levels. The results can then be obtained to reflect the specific thinking of the students and to enhance the validity of the assessment of open-ended questions and qualitative assessment measures.

The instruments and methods of academic examination in music general studies course must also be diverse, and the SOLO based teaching evaluation criteria can be applied to a variety of evaluation methods. For questions and oral responses and other question and answer assessments, the level of thinking can be observed by observing students' responses to open-ended questions based on the characteristics of each structural level. After receiving a student's response or observing a student's reflection, the teacher promptly focuses on consistency and convergence, i.e. drawing a conclusion to a question and maintaining the reflection of that conclusion; the higher the level of the response the stronger the consistency of the result and the earlier the response does not converge in figure 4 [10]. For the Performance category, teachers can get an idea of the level of the student's performance in terms of how well the student sings and performs the characteristics of each structural level. It is important to note that the assessment of non-specialist teaching should not focus on aspects such as pitch, rhythm and vocal technique, but rather on the level of participation, interpretation, creativity and integrity of the students' performance.

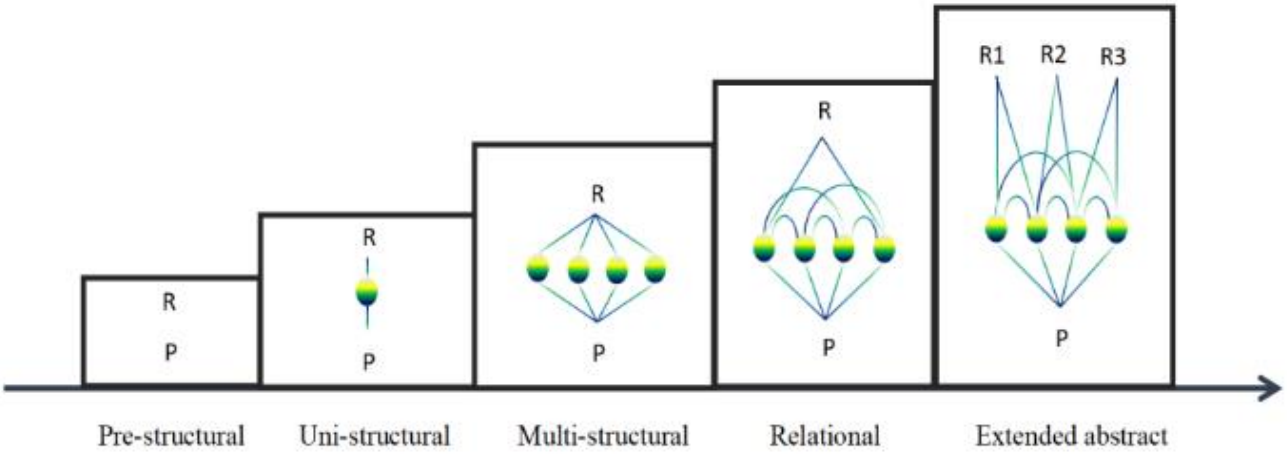


Figure 4. Relationship between question clues and answers

Note: In the diagram, "R" indicates a response; "P" indicates a question; indicates an example of a student's response.

In addition, transitional responses occur when students are moving to a new level within the 5 structural levels, but have not yet done so. Transitional responses are denoted by 1A, 2A, 3A and 4A respectively. By integrating and analysing the five basic structures and the four transitional structures, an attempt can be made to construct an evaluation criterion for teaching

music general studies based on the SOLO evaluation theory in Table 2.

Table 2. Description and grade in each structure.

Structural level	Description	Assignment of points and grade
Pre-structural	For university students, this stage of learning is a state of non-access to learning. This is the stage where students are not able to change their thinking through learning and where the lowest level of thinking is assessed.	0-60; f; not pass
1a	The initial state of learning, the stage where students are able to change their lesser ways of thinking and perceiving the aesthetics of music.	60-64; d; pass
Uni-structural	At this stage students begin to think progressively more deeply about the aesthetic content of music, but can only use simple means to express a mood or emotion.	65-69; d+; pass
2a	On the basis of uni-structure, students may use more relevant examples or practical tools to support ideas or ways of practising music that have been developed in their personal minds.	70-74; c; average
Multi-structural	Students are able to apply interdisciplinary content of knowledge to understand or appreciate music and to express the full range of music in their own personal perspectives and approaches. This structure is a level that most college students can easily achieve through their studies.	75-79; c+; average
3a		80-84; b; good
Relational	For non-specialist students it is a reflection of higher learning outcomes and enables further in-depth musical experiences based on a multi-structural. This structure fully meets the requirements of aesthetic education and is a reflection of a high level of music general education.	85-89; b+; good
4a		90-94; a; excellent
Extended abstract	The structure means that students are confronted with questions that produce open convergent conclusions, grasp the problem with an open perspective and recognise that some things are not absolute. Students are able to go beyond their lived experience and use complex abstract thinking to describe the content of music, or adapt existing musical material with depth of perception.	95-100; a+; outstanding

5. Conclusions

The philosophy of evaluation of academic standards in music general studies course should not be to pursue the performance of students' professional skills, but rather to make the ultimate pursuit of how many outcomes are obtained from the content in music general studies, what aesthetic thinking is acquired, and whether aesthetic education is opened up to the possibilities of the final learning outcomes of students. The assessment criteria and process must not only reflect the interdisciplinary character, but also encompass the principles and tools of interdisciplinary teaching and learning assessment, as well as the scale of assessment for non-specialist students, and must not be overly harsh from a professional point of view. This does not mean, however, that the results of the assessment of academic standards in music general studies are formed entirely by a combination of subjective teacher assessment and singularised formative assessment. The performance of learning outcomes in the subject of music is often characterised by unpredictability, subjectivity, sensitivity, creativity and interiority. The assessment of music teaching and learning is therefore not suited to the goal-based approach of behavioralist, which does not form the results of assessment by making narrow behavioural prescriptions about students' performance in terms of the desired outcomes [11].

It is clear from the characteristics of SOLO that there is an opportunity for this theoretical framework to be applied to the evaluation of teaching and learning in music general studies. However, in the specific application, attention should also be paid to the relevance of the evaluation questions and the limitations of the theory itself. In practical teaching, the SOLO classification theory is by its nature a qualitative description that correctly determines the level of students' learning structures and thus their level of thinking, and there is no longer a uniform standard for students' responses and reflections. The analysis of the assessment results will cause many distractions for the teacher, so it is important to consider the whole process of teaching and learning in both open-ended and closed-ended quizzes. Next, SOLO is more oriented towards the evaluation of open-ended test questions, and because of its own theoretical thinking characteristics, it does not have a greater advantage in closed questions (objective questions), and how to apply different levels of structure to test questions and the preparation of assessment criteria still depends on the teachers' personal experience and ability to judge.

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