

Innovation and Practice of Cello Teaching Model Based on the Outcome-Based Education (OBE) Concept

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Abstract:

This paper examines the limitations of the traditional cello teaching model in Chinese higher education and explores the development of a new model based on the principles of outcome-based education (OBE). The traditional model is teacher-centered, more focused on technical skills, characterized by an inadequate assessment system, and offers limited student autonomy - factors that no longer align with the needs of contemporary education. Grounded in OBE's emphasis on clearly defined learning outcomes and backward design, the proposed model restructures the teaching process around demonstrable performance competencies. It is articulated in three key stages: establishing music performance-oriented learning outcomes, employing backward design for curriculum and resource planning, and incorporating innovative strategies such as modular instruction and formative feedback. A case study involving three undergraduate students illustrates the model's implementation. While challenges such as teacher adaptability, time constraints, and variations in student preparedness remain, the OBE framework offers notable advantages, including greater flexibility, improved educational continuity, and increased student engagement. By prioritizing observable and measurable outcomes, this approach seeks to foster a learner-centered environment, enhance instructional quality, and support the holistic development of cello students - not only in terms of technical proficiency but also in artistic expression. Nonetheless, further research is needed to assess its long-term impact comprehensively.

Keywords:

Outcome-Based Education (OBE), Education, Cello Teaching, Performance Evaluation, Music Education, Learner-centered Education, Modular Instruction

1. Introduction

Outcome-Based Education (OBE) is a pedagogical framework gaining increasing prominence for its focus on clearly defined learning outcomes that students are expected to achieve by the end of their educational experience. This approach necessitates a deliberate alignment of curriculum, instruction, and assessment with

these predetermined goals, shifting from traditional input-focused methods to a learner-centered paradigm. Despite its potential, traditional cello instruction within Chinese higher education institutions often exhibits significant limitations, including overly teacher-centered approaches, disproportionate emphasis on technical skills over musical interpretation, underdeveloped evaluation systems lacking individual consideration, and limited student agency. These shortcomings highlight an urgent need for pedagogical innovation. Addressing this gap, this paper proposes and explores the construction of a cello teaching model based on the OBE concept, designed around a three-stage structure involving the definition of performance-oriented outcomes, backward curriculum design, and the integration of innovative teaching strategies such as modular instruction and formative feedback. Through a case study involving three second year undergraduate students, this research examines the implementation of this model, focusing on shifting the core objective from exam scores to successful staged musical performances, evaluated across dimensions of technical accuracy, musical interpretation, and stage presentation. While acknowledging challenges like teacher adaptation, time management, and varying student readiness, this study aims to demonstrate how an OBE-aligned approach can enhance teaching quality, foster holistic student development, and better prepare students for the role of a performer.

2. Construction of Cello Teaching Model Based on the OBE Concept

2.1. What Is Outcome-Based Education?

Outcome-Based Education (OBE) is a pedagogical approach centered on the learning outcomes that students are expected to achieve upon completion of their educational experience. It emphasizes curriculum design and instructional practices that begin with the end goals in mind. In 1994, William G. Spady published a book named *Outcome-Based Education: Critical Issues and Answers*, which could be the first book that systematically introduce the OBE concept. He pointed out that OBE refers to the deliberate alignment of all components within an educational system—curriculum, instruction, and assessment—with clearly defined outcomes that all students are expected to achieve by the end of their learning journey. This approach begins by identifying the essential competencies students must demonstrate and then designing educational processes to ensure these outcomes are effectively attained [1]. Later in 2003 according to Bouslama's research, OBE does not apply to a single, universally accepted model. However, existing frameworks generally emphasize systemic transformation, focus on observable and measurable learning outcomes, and are grounded in the belief that all students are capable of learning, provided they are given sufficient time [2]. This foundational principle shifts the focus from traditional teaching methods to a learner-centered approach, requiring institutions to align curricula, instruction, and assessment with clearly defined outcomes.

William also indicates that an effective OBE system is characterized by two fundamental principles: one is the formulation of a clearly defined set of learning outcomes that serve as the central focus for all elements of the educational process, the other is the creation of supportive conditions and learning opportunities that empower and motivate all students to achieve these essential outcomes [3]. These principles reflect a shift from traditional content-based models to a learner-centered paradigm that prioritizes demonstrated competence over time spent in instruction.

In Kaliannan's (2012) research, OBE is characterized by three key dimensions: firstly, a strong emphasis on clearly defined learning outcomes; secondly, a curriculum design approach that begins with the intended exit-level competencies and works backward; and thirdly, the obligation of institutions and educators to provide effective learning experiences that support the achievement of these outcomes by all students [4]. This comprehensive framework ensures that every aspect of the educational process is intentionally aligned to facilitate meaningful and measurable student achievement.

2.2. The Limitations of the Traditional Cello Teaching Model

Within Chinese higher education institutions, the traditional pedagogical model for cello instruction has long maintained a dominant position in music education. Although it offers a degree of structure and standardization, this traditional approach increasingly shows its limitations when examined through the contemporary educational theories and the diverse needs of students, thereby underscoring the pressing need for critical reassessment and pedagogical innovation.

Bingbing (2024) identified several issues prevalent in current cello education within Chinese higher education institutions, two of which could be found particularly insightful and resonate with my own perspective. The one is current pedagogical approaches in cello performance programs often exhibit limited methodological diversity. The prevalent model in higher education institutions typically integrates theoretical knowledge with practical instruction but remains largely instructor-centered. This dominant teaching and learning process is significantly shaped by the individual pedagogical styles of the educators, with differentiated instruction rarely implemented [5]. This lack of instructional variety can hinder students' artistic development, as it overlooks their diverse learning preferences, skill levels, and creative potentials.

The other is Bingbing further indicated the curriculum design for the cello major, that certain colleges and universities place disproportionate emphasis on the development of technical proficiency, prioritizing the practice of fundamental skills. However, this focus often comes at the expense of fostering students' analytical abilities and interpretive understanding of musical works, thereby limiting their capacity to engage deeply with the emotional and expressive content of the repertoire [6]. This imbalance not only restricts the holistic development of musical artistry but also undermines students' ability to perform with nuance, personal expression, and a deeper connection to the cultural and historical contexts of the pieces they study.

In addition, two further limitations will be discussed here. First, the evaluation system for music performance majors in higher education institutions remains underdeveloped. Current assessment methods primarily emphasize technical proficiency and apply uniform standards to all students, which fails to account for individual differences in effort and progress throughout the learning process. This approach lacks a comprehensive evaluation of students' overall abilities and potential. Moreover, the singular nature of the evaluation criteria does not adequately reflect the breadth of students' learning outcomes or developmental trajectories. Second, students' sense of agency tends to be weak. Within the traditional teaching model, learners have limited opportunities for independent study and critical reflection. Most students focus on fulfilling teachers' requirements as their primary learning objective, often resulting in a dependency mindset. This diminishes their capacity for deep

engagement with musical works and the development of personal expression, ultimately impeding their aesthetic appreciation and individual artistic growth.

In summary, the traditional model of cello instruction has revealed numerous shortcomings within the current educational context, highlighting the urgent need for the adoption of new pedagogical concepts and methods, such as OBE concept to enhance teaching quality and support the holistic development of students.

2.3. Designing a Cello Teaching Model Under the OBE Concept

Based on the above, there is a plan to design a cello teaching strategy under the OBE Model. Wenhao (2021) argued that application-oriented undergraduate institutions should place greater emphasis on developing students' ability to apply knowledge in practical settings. Practical courses not only immerse students in authentic performance environments, but also embody the "outcome-oriented" principle of the OBE concept. At the same time, they promote the internal expansion of the curriculum, which refers to the ongoing exploration of higher levels of academic depth and technical complexity within course content [7]. The university I work at is also a practice-oriented institution, and the cello course is categorized as a practical course. Therefore, integrating the principles of OBE into such a course is highly appropriate.

The course structure will be designed in three stages. The first stage involves setting the learning outcomes. Traditional instrumental performance courses often define objectives based primarily on students' exam scores—essentially, how well they perform during assessments. To introduce differentiation, this plan proposes redefining the learning outcome as the successful completion of a staged musical performance. The second stage is the backward design of course content and structure, whereby the final learning outcome is used to guide curriculum planning and resource allocation. The third stage centers on innovation in teaching methods and strategies. This includes modular instruction, collaborative learning, formative feedback at various stages, and personalized guidance tailored to individual student needs.

3. Implementation of an Outcome-Based Cello Performance Curriculum

3.1. A Case Study of Teaching Practice

The core objective of this cello performance course is no longer merely achieving high exam scores, but rather the successful completion of a staged musical performance through a phased learning process. This shift means that both instruction and assessment are centered around the student's role as a "performer." To ensure the learning outcomes are specific and measurable, they are categorized into three key dimensions: the accuracy and consistency of technical execution, the depth and stylistic awareness in musical interpretation, and the confidence and expressiveness demonstrated in stage presentation. For instance, in the case of the three second-year students selected as experimental participants, the final learning outcome is defined as the public performance of a selected piece at the end of the semester, tailored to their individual levels and characteristics. Interim objectives may include mastering technically challenging passages, developing expressive phrasing across musical sections, or improving posture and stage presence during performance. In the process of practical observation, key points of analysis will include students' receptiveness to

the new performance-based goals, their initial proficiency in technique, musicality, and performance readiness, as well as how both students and teacher collaboratively interpret, adjust, and internalize these revised objectives through interactive teaching.

The course content and sequence will be reorganized according to the requirements of achieving the performance-based learning outcomes. For example, if the final performance piece demands advanced bowing techniques, the early stages of the course will focus on intensive bowing exercises. If the piece involves complex phrasing, more time will be allocated to musical expression and phrase analysis. Correspondingly, the assessment methods will also shift—moving away from purely technical evaluations toward a more holistic appraisal of overall performance quality, including tone, expressiveness, coherence, and stage presence. For the three second-year students in the experimental sample, their daily practice routines, assigned tasks, and mid-term evaluations will be closely aligned with their selected performance pieces. The instructor will adopt a learner-centered approach, anticipating potential technical challenges, interpretative difficulties, or psychological barriers the students may encounter during the preparation process. Based on these insights, the teaching plan and resource allocation will be continuously adjusted. Observational records will focus on changes in students' motivation under their new identity as "performers," how they integrate technical skills and musical understanding to support performance, and the impact of the restructured curriculum on their practice efficiency and overall performance outcomes.

The entire instructional process will also focus on the innovation of teaching methods and strategies to more effectively support students in achieving their performance goals and enhancing their overall learning experience. The course incorporates modular instruction, breaking down cello learning content into discrete skill-based or repertoire-based units, allowing students to progress according to their individual needs and pace. Collaborative learning is actively encouraged—for instance, students may engage in peer listening and critique or jointly prepare small chamber music performances, thereby increasing interaction and engagement. A key feature of this approach is formative, process-oriented feedback. Rather than relying solely on summative evaluation at the end of the term, the instructor provides timely, specific, and targeted feedback during various stages of practice, rehearsal, and mock performances. For the three experimental sample students, personalized instruction is tailored to their individual characteristics and developmental trajectories—for example, assigning additional technical exercises to students with weaker skills or recommending targeted listening resources for those struggling with musical interpretation. The practical records will document these innovative modes of instructional interaction, including the extent of student engagement—such as whether they actively seek feedback or participate enthusiastically in collaboration—and how these approaches are reflected in their intermediate progress and final performance. Particular attention will also be given to whether individualized guidance enhances students' confidence and problem-solving abilities, ultimately supporting their successful attainment of performance-oriented learning outcomes.

3.2. Difficulties and Challenges

In traditional cello instruction, teachers often assume the role of transmitters of knowledge and technical skills, with teaching objectives primarily oriented toward examination results. This teacher-centered approach tends to overlook students' agency and creativity. Ali (2023) illustrate in research that “In students view teachers

are their guide, mentor, role-model, advisor, life-coach, supportive, friendly, etc” [8]. In this way, the teacher’s role should shift from that of a transmitter to a facilitator and guide—emphasizing the cultivation of student competencies and the achievement of clearly defined learning outcomes. This transformation not only requires a conceptual shift in teaching philosophy but also demands mastery of new instructional strategies such as backward curriculum design, formative assessment, and diversified teaching methods. However, such a shift is not achieved overnight. Many educators may face difficulties in adapting due to entrenched habits, insufficient professional development, or a limited understanding of new pedagogical principles, thereby impeding the effective implementation of educational reform.

Based on the OBE concept, the reorganization of course content—including the planned introduction of modular instruction, the establishment of staged learning outcomes, and the provision of personalized feedback—places higher demands on instructional time management. Traditional courses typically schedule technical training on a weekly basis, with singular objectives and a fixed pace. In contrast, OBE-oriented courses emphasize project-based learning, task-driven activities, and ongoing interaction between teachers and students. Killen’s (2000) research argues that the curriculum must be designed with flexibility, allowing students to engage in appropriate learning activities at stages most conducive to their comprehension and skill acquisition. Assessment of student learning should emphasize the depth of understanding rather than the sheer amount of content absorbed [9]. Consequently, instructors face greater challenges in managing class time, controlling instructional progress, and coordinating teaching resources. If course scheduling is not well-designed, it may result in excessive pressure on students, hinder the achievement of learning goals, and ultimately undermine the effectiveness of the teaching reform.

Under the OBE model, students are no longer passive recipients of knowledge or "examinees," but active participants, autonomous planners, and engaged "learners" and "performers" who grow through authentic tasks. However, due to significant differences in students' foundational skills, learning habits, and individual characteristics, their ability to adapt to this shift varies greatly. Some students may struggle with self-motivation or experience anxiety related to performance tasks, resulting in low engagement and reduced learning efficiency. In addition, as Killen pointed out in research, one potential issue that may arise from encouraging students to take responsibility for their own learning is that they may struggle to accurately self-assess whether they are effectively learning [10]. This necessitates that, during the implementation of instruction, educators remain attentive to students’ emotional and cognitive states, adjust the pace and difficulty of the coursework as needed, and provide targeted support to facilitate a smooth transition and help students achieve the intended learning outcomes.

3.3. Advantages and disadvantages

Many scholars have offered varying perspectives based on theoretical analyses and practical experiences related to the OBE concept. It will be discussed three viewpoints, the first is flexibility. According to Harden’s (1999) research, it does not prescribe fixed teaching formats or specific pedagogical strategies; rather, it emphasizes that all instructional processes should align with clearly defined learning outcomes. As such, any modifications to the teaching approach may be implemented as long as they effectively support the achievement of these predetermined goals, allowing for dynamic and responsive course adjustments throughout the learning process [11]. In

the context of cello education, this flexibility enables instructors to adapt their methods—such as integrating individualized technical exercises or incorporating historically informed performance practices—based on students’ progress and artistic needs, without compromising the overarching educational objectives. The second advantage lies in its contribution to enhancing the continuity of education. As Harden further argues that, as OBE clearly defining the learning outcomes at each educational stage, outcome-based education facilitates a smooth articulation among basic education (such as the undergraduate level), graduate education (such as professional training), and continuing education [12]. In cello education, this structured progression allows students to build a coherent trajectory from foundational technique and musicianship in undergraduate study to specialized interpretative and performance skills at the graduate level, and ultimately to lifelong artistic development through continuing education. The third advantage lies in its ability to foster students’ intrinsic motivation for active learning. Thirumoorthy (2021) pointed out in his research that Outcome-based education emphasizes active student engagement in the classroom, which is one of its core principles. This not only enhances students’ level of participation but also encourages them to take greater responsibility for their own learning process [13]. In cello education, this principle translates into students being more involved in setting personal practice goals, critically evaluating their performances, and actively seeking feedback, thereby cultivating greater autonomy and ownership over their artistic development.

With regard to the aspect of disadvantages, the first is that it may impose excessive constraints on students, particularly children. Critics argue that education should remain open-ended, encouraging children to develop freely within the limits of their individual abilities, rather than being confined by overly specific predetermined outcomes [14]. I believe that for young children, the OBE approach may indeed impose certain developmental limitations. However, for university students or those at more advanced stages of learning, the clearly defined objectives within the OBE framework can help enhance learning efficiency. The second is pointed out by Villaluz (2017) that in outcome-based curricula, course designers and instructors hold a dominant role and prioritize the achievement of predefined outcomes as the primary goal. This, to some extent, diminishes students’ autonomy and may also constrain creative expression within the teaching and learning process [15]. In the context of cello education, this may manifest in overly rigid performance expectations or repertoire selection, limiting students’ opportunities to explore their own musical interests or develop interpretive individuality. The third disadvantage lies in the difficulty of measuring certain learning outcomes. As noted in Dastagiri’s research, outcomes related to character development or soft skills are often challenging to quantify, which may introduce a degree of subjectivity into the assessment process [16]. This challenge is also present in cello education, where aspects such as musical expressiveness, stage charisma, and artistic interpretation—though essential to performance—are inherently qualitative and often resist standardized evaluation methods.

4. Conclusions

In conclusion, this paper has explored the development and initial implementation of a cello teaching model grounded in the principles of Outcome-Based Education within the context of Chinese higher education. The traditional, instructor-centered model, with its limitations in adaptability, holistic assessment, and fostering student

agency, necessitates a pedagogical shift. By adopting an OBE framework that redefines learning objectives around performance outcomes, utilizes backward design for curriculum structure, and integrates innovative teaching strategies, this study demonstrates a promising approach to addressing these shortcomings. While challenges such as teacher adaptation, time management, and varying student readiness were observed during the case study, the findings suggest that orienting teaching and assessment towards demonstrable performance capabilities can enhance student motivation and better align educational processes with practical artistic goals. Despite the inherent difficulties in quantifying certain qualitative outcomes, the flexibility, potential for educational continuity, and emphasis on active learning inherent in OBE offer significant advantages for music performance education. Ultimately, this research underscores the potential of an OBE-informed model to foster a more learner-centered, outcome-driven environment, promoting the holistic development of cello students as autonomous and expressive performers beyond traditional technical proficiency and examination results. Further research is needed to assess the long-term impact and scalability of this model.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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