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Study on the Key Competencies Framework for Arts Education Professionals

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Abstract

Background and Aim: Cultivating the key competencies of university students in arts education is increasingly recognized as essential for both global development trends and higher education practices. However, there is a significant gap in the literature regarding a well-defined competencies framework tailored to arts education professionals, particularly one based on outcome-based education (OBE). This study aims to address this gap by constructing a key competencies framework that aligns with learning outcomes, providing a structured tool to better prepare arts educators for the labor market.

Materials and Methods: This study employed a mixed research approach, combining qualitative literature analysis and a quantitative survey. Data was collected through a comprehensive literature review and a survey of senior students and recent graduates from arts education programs. Factor analysis was used to refine the framework and validate its structure.

Results: The study identified nine key competencies categorized into three dimensions: technical intelligences (core academic content and skills, studio art, teaching competencies, academic support, communication and cooperation, information literacy), emotional intelligences & analytical creative intelligences (attitudes and ethical understanding, decision-making skills, thinking ability), and personal intelligences (desirable personal qualities). These competencies are designed to bridge the gap between the training of arts educators and the expectations of the labor market.

Conclusion: The proposed key competencies framework offers a valuable tool for curriculum planning and evaluation in arts education programs. By aligning educational outcomes with market demands, this framework can help institutions optimize their training goals, ensuring that graduates are better equipped to meet the needs of the evolving arts education sector.

Keywords: Art Education Professionals; Key Competencies; OBE; Learning Outcome

Introduction

The training of primary and secondary school art teachers at the undergraduate level in Chinese universities faces significant challenges. Notably, there is a lack of comprehensive humanities and aesthetic education courses, coupled with insufficient teaching and research standards. These deficiencies in training contribute to an overall gap in preparing future art teachers effectively, ultimately affecting the quality of primary and secondary school education. Specifically, the absence of specialized training for art teachers means that there is minimal differentiation between general art education and art teacher preparation (Du, 2022). This lack of specialization results in graduates who are not adequately equipped with the pedagogical and subject-specific skills required by the labor market, significantly impacting their employability and effectiveness as educators (Amulyoto, 2019).

Demand from the labor market plays a fundamental role in guiding the reform and development of higher education (Zhang, 2016). In the context of art education, aligning educational objectives with market needs is crucial to ensure that graduates possess the key competencies necessary for professional success. Previous studies have explored general challenges in art education but often fail to provide a targeted framework that addresses both pedagogical skills and the specific competencies required by art teachers. This research aims to fill that gap by developing a comprehensive competencies framework based on outcome-based education (OBE), tailored specifically to the needs of art education professionals.

OBE focuses on clearly defined learning outcomes, aiming to ensure that students achieve specific competencies by the end of their educational experience. This approach shifts the focus from the process of teaching to the outcomes that students are expected to achieve. By integrating OBE principles into the development of the key competencies framework for art teachers, this study seeks to provide a structured

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tool that aligns the competencies of graduates with the expectations of the labor market, enhancing their readiness and adaptability.

This research is significant because it addresses the critical gap between current educational practices and labor market expectations. By bridging this gap, the proposed framework aims to benefit multiple stakeholders, including educational institutions, students, and employers. Educational institutions can utilize this framework for curriculum planning and evaluation, ensuring that the programs offered are aligned with real-world demands. Students will be better prepared for professional roles, equipped with the necessary skills and competencies. For employers, this alignment ensures that new hires are ready to contribute effectively from the outset, meeting the evolving needs of the arts education sector.

Objectives

1. Construct a key competencies framework for art education professionals by integrating OBE principles: The aim is to create a framework that aligns competencies with specific learning outcomes critical for professional practice in diverse educational settings. This includes focusing on the identification, categorization, and alignment of key competencies to ensure they meet both pedagogical needs and market demands.

2. Utilize empirical data derived from a mixed-methods approach to describe and validate the key competencies: This involves using qualitative data from literature analysis and quantitative data from surveys to comprehensively define and validate the key competencies. The mixed-methods approach is designed to ensure that competencies are grounded in both academic theory and practical application, offering a robust empirical foundation.

3. Develop a comprehensive scale for assessing the key competencies of art education professionals: The goal is to create an assessment tool that is validated through a nationwide survey. This scale aims to gather robust data to refine the competencies framework and provide insights that will inform curriculum development, teacher training programs, and policy formulation in arts education. The development process involves generating items, conducting pilot testing, and refining the scale to ensure reliability and validity.

Literature review

1. Historical Development of Key Competencies

The concept of key competencies has evolved significantly since its inception. Dieter Mertens (1974) introduced the notion of "key qualifications" in his seminal work, initially aimed at vocational education. He emphasized competencies beyond technical skills, such as adaptability and the ability to acquire new knowledge in response to career changes. This concept was further developed in the following decades, forming the foundation for modern competencies frameworks, which aim to prepare individuals for an unpredictable and ever-changing job market.

Various scholars and institutions have contributed to the understanding of key competencies. The Organization for Economic Cooperation and Development (OECD), through its DeSeCo Project (1997), expanded the concept by defining competencies as the ability to successfully meet complex demands in a range of contexts. This definition introduced the importance of mobilizing cognitive, emotional, and social skills, emphasizing that key competencies are not limited to a specific field but rather are applicable across multiple domains. These historical developments underline the growing recognition of key competencies as essential for personal and professional success in the modern world. In contrast, the EU emphasizes lifelong learning, covering knowledge, skills, and attitudes, while the United States focuses on defining learning outcomes in terms of competencies.

Spady's OBE approach emphasizes the importance of outcomes over the process of learning, which has influenced many educational systems globally, including those focused on professional training. Meanwhile, other countries like China have adopted these global concepts and tailored them to fit local educational goals, stressing the need for developing not only cognitive skills but also moral and social competencies (Spady, 1988).

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The current study synthesizes these definitions by focusing on competencies as a combination of technical knowledge, creative skills, and emotional intelligence, tailored to the context of art education.

2. International Perspectives on Key Competencies Frameworks

Key competencies frameworks have been developed and adapted by various international organizations and educational systems, reflecting regional and cultural differences. For example, the European Union's Key Competences for Lifelong Learning Framework (2018) categorizes competencies into three dimensions: knowledge, skills, and attitudes. This framework stresses the importance of competencies that are applicable across different life stages, advocating for lifelong learning to ensure individuals remain adaptable and capable of contributing to society.

While these frameworks share similarities in their emphasis on adaptability, innovation, and lifelong learning, the implementation can vary significantly depending on regional educational policies and cultural priorities. Understanding these international perspectives is crucial to situating the current study within a global context and identifying how these frameworks can be applied or adapted to art education professionals.

While existing studies offer valuable insights into key competencies, many focus on defining these competencies without thoroughly evaluating their practical applications or limitations in specific educational contexts. For example, frameworks proposed by the OECD or the EU provide broad definitions but often lack detailed guidance on how these competencies should be developed and assessed in arts education settings, leading to a lack of adaptation to local cultural and educational needs.

3. Key Competencies in Art Education

Art education presents unique challenges in the application of key competencies frameworks. Unlike other fields that prioritize technical or vocational skills, art education requires a balance between creative abilities, emotional intelligence, and pedagogical skills. Scholars have argued that art teachers must possess not only deep knowledge of artistic theory and practice but also competencies in critical thinking, creativity, and communication (Zhao & Su, 2020; Ye, 2008).

Research in the field of art education highlights the need for specialized competencies frameworks. For instance, Ye (2008) emphasizes that music education graduates need a combination of professional ethics, teaching abilities, and artistic creativity, while Jiang (2007) underscores the importance of cultural literacy and organizational skills for dance educators. Similarly, Sun (2019) identifies cognitive abilities, innovative thinking, and professional ethics as critical for primary and secondary school dance teachers.

These studies suggest that while art education shares some core competencies with general education (such as communication and adaptability), there is a clear need for a framework that accounts for the unique demands of the artistic disciplines. However, there is limited research that directly addresses the integration of these competencies into a cohesive framework tailored to art education professionals. This study aims to address this gap by developing a key competencies framework specifically for art education professionals, using learning outcomes as the foundation.

Moreover, some studies emphasize theoretical frameworks over practical implementation, which limits their usefulness in curriculum development for art education. There is also a lack of critical engagement with the methods used to assess competencies in art education, with many studies relying on self-reported data or anecdotal evidence. By critically examining the methodologies and findings of these studies, the current research builds a more robust foundation for developing a practical and applicable key competencies framework for art education professionals.

Key competencies are inherently context-specific, and their application in art education must account for regional and cultural differences. In China, for example, the integration of traditional cultural values with contemporary educational practices poses unique challenges for competency development.

Despite the historical and international research on competencies, recent developments in the field remain underexplored in the current literature. With the increasing impact of digital transformation and technological advancements in education, new competencies are emerging, especially in fields like digital media arts and online art education. Studies from the past five years have begun to explore how digital literacy and technological fluency are becoming crucial components of key competencies for art educators

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(Zhu, Yin & Fang, 2022). For instance, contemporary research has shown how art educators are increasingly required to integrate digital tools and online platforms into their teaching practice, particularly as a response to the challenges posed by the COVID-19 pandemic (Zhang, 2016). This shift has highlighted a growing need for art educators to develop competencies in digital media production, virtual collaboration, and online teaching strategies. By incorporating these recent findings, the current study ensures that its framework remains relevant and reflective of the current educational landscape.

This study will explore how key competencies can be modified for different cultural contexts, particularly in Chinese higher education, where there is a growing emphasis on the integration of moral education and aesthetic cultivation into professional training. By addressing these regional differences, the study aims to develop a competencies framework that is both globally informed and locally relevant.

In conclusion, the literature on key competencies offers a broad and varied perspective, but there are gaps in how these frameworks are applied to art education. The current study aims to address these gaps by developing a key competencies framework specifically for art education professionals, drawing on learning outcomes and incorporating both global perspectives and regional considerations. The study builds on existing research while also contributing original insights into how competencies can be cultivated in the unique context of art education.

Research framework

This section outlines the theoretical foundation for adopting the Outcome-Based Education (OBE) approach, which is pivotal for the framework of arts education professionals. OBE, as articulated by William Spady (Spady, 1994), emphasizes the importance of defining specific learning outcomes that students should achieve by the end of their educational experience. This approach aligns seamlessly with the needs of arts education professionals, who must navigate complex educational landscapes that require not only technical proficiency but also emotional intelligence and creativity.

OBE has been successfully implemented in various disciplines, including healthcare and engineering, demonstrating its versatility and effectiveness. In these contexts, OBE has facilitated a clear focus on student learning and the acquisition of competencies that are relevant to real-world applications. The adoption of OBE in arts education allows educators to establish clear expectations for student outcomes, ensuring that graduates possess the skills and knowledge necessary to thrive in the arts sector.

The concept of learning outcomes is integral to OBE. Learning outcomes. The Council for Higher Education Accreditation (CHEA 2003) defines student learning outcomes as "the knowledge, skills, and abilities acquired by students during the learning process" (2003). By framing the key competencies for arts education professionals around learning outcomes, this study aims to bridge theoretical research with practical application. Utilizing established learning outcomes facilitates the assessment of specific skills and successful performance (González & Wagenaar, 2005), which is crucial for the development of a robust framework.

The application of the Three-Circle Model, traditionally used in medical education, to arts education is a unique and innovative approach. This model comprises three dimensions: technical intelligences, emotional intelligences & analytical creative intelligences, and personal intelligences. Each dimension has been specifically tailored to reflect the competencies required by arts education professionals: Technical Intelligences covers the mastery of artistic techniques and skills, including the understanding of various art forms and the ability to effectively use them in teaching and practice. Emotional Intelligences & Analytical Creative Intelligences emphasize the way and attitude towards art education in practical situations, including the correct attitude, morality, and sense of mission, as well as decision-making and thinking ability. Personal Intelligences represent the professionalism of art teachers, demonstrate the art teachers' identification with and sense of mission for the profession, and can also be understood as the personal qualities and abilities of "people suitable to be art teachers."

The framework incorporates learning outcomes from several respected organizations, including the National Art Education Association (NAEA) and the National Association of Schools of Art and Design (NASAD). A more explicit rationale for selecting these specific standards will strengthen the framework.

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This involves comparing different standards and discussing the inclusion or exclusion of certain elements based on their relevance to the competencies needed for arts education professionals.

By clearly defining each competency and providing examples, this framework not only delineates the essential skills but also aids educators in designing curricula and assessments that align with OBE principles. Breaking down competencies into detailed subcategories will offer practical guidance for educators, facilitating a better understanding of how these competencies can be implemented effectively.

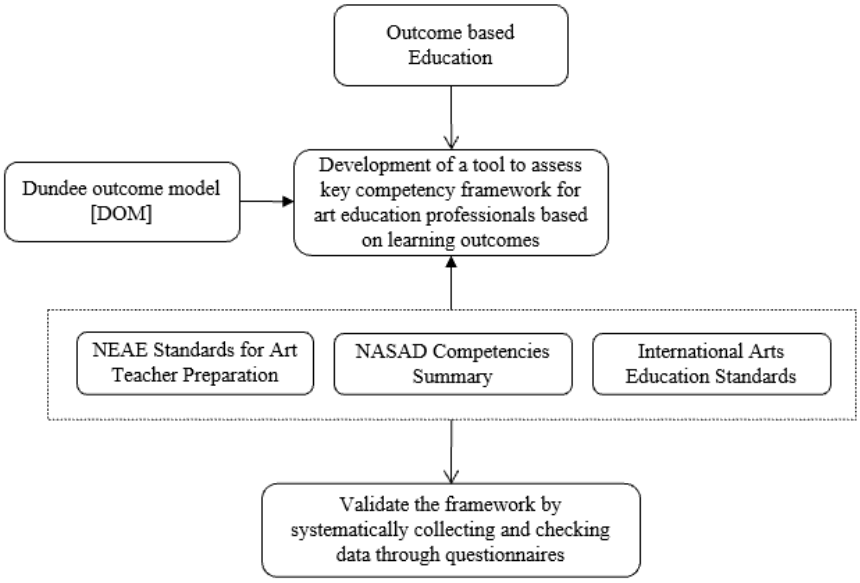

Figure 1 Conceptual Framework
Note: Constructed by the researcher

Methodology

This study employs a mixed-methods approach, integrating both qualitative and quantitative methods to achieve a comprehensive understanding of the key competencies for arts education professionals. This approach is particularly suitable for this research as it allows for the triangulation of data, enhancing the reliability and validity of the findings. The qualitative data from textual analysis supports the development of the quantitative survey instrument by providing a theoretical foundation and contextual insights, while the quantitative findings offer empirical evidence to validate the competencies identified in the qualitative phase.

1. Textual Analysis Method

The first phase of the methodology involves a textual analysis of relevant policy documents, survey reports, journal articles, books, and dissertations that pertain to the curriculum standards for arts education in primary and secondary schools, as well as the competencies and qualification standards for arts teachers. The criteria for selecting the literature were based on relevance, recency, and the authority of the sources.

The collected textual content was systematically organized, coded, and categorized to identify specific themes and patterns. This process involved using qualitative analysis frameworks to facilitate the identification of key competencies. For example, themes such as "technical skills," "emotional intelligence," and "pedagogical strategies" were identified. These findings contributed significantly to the development of the key competencies framework, ensuring that it is grounded in rigorous and systematic qualitative analysis.

2. Questionnaire Survey Method

Building on the insights from the textual analysis, the Key Competencies of Arts Education Professionals Questionnaire was developed, focusing on learning outcomes. The questionnaire consists of

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two parts: the first part gathers basic demographic information of the participants, and the second part assesses key abilities related to arts education professionals through a total of 62 items.

To ensure transparency and replicability, the process of developing the questionnaire included several key steps:

Item Generation: Items were generated based on themes identified in the qualitative analysis and relevant literature. Existing validated scales were adapted where applicable to ensure reliability.

Pilot Testing: Approximately 100 questionnaires were distributed online during a pilot survey involving senior students in arts education programs and recent graduates. Feedback from the pilot test was used to refine the questionnaire, focusing on the clarity and relevance of the items.

Revision Criteria: Items were revised or removed based on criteria established during the pilot testing phase, including participant feedback and item performance metrics.

For the formal survey, the sample distribution covered regions including Shanghai, Jiangsu, Zhejiang, Beijing, Tianjin, Hubei, Guangdong, Sichuan, Shaanxi, Hunan, and Liaoning. A total of 516 valid responses were collected. After excluding 14 responses due to completion times under 60 seconds or duplicate submissions, the final valid sample consisted of 502 responses.

It is important to clarify that a purposive sampling technique was employed to ensure that participants were representative of arts education professionals. Within each region, participants were selected based on their enrollment in arts education programs and recent graduation status, ensuring a focused perspective on the competencies required in the field.

3. Analysis of Data

After collecting all the questionnaires, a series of statistical analyses were performed on the valid responses using SPSS, STATA, and AMOS software.

Descriptive Statistical Analysis**:** This provided an overview of the sample characteristics and initial insights into the responses.

Reliability and Validity Testing**:** The reliability of the pilot survey was assessed using Cronbach's Alpha, ensuring that the items measure the intended competencies consistently. The validity of the instrument was confirmed through exploratory factor analysis, which helped in identifying underlying factor structures.

Exploratory and Confirmatory Factor Analysis**:** These analyses were conducted to verify and refine the key competencies framework based on learning outcomes. Steps involved in these analyses included assessing the adequacy of the data for factor analysis using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity. The criteria for assessing reliability and validity were strictly followed, ensuring that the results were interpretable and meaningful.

The choice of SPSS, STATA, and AMOS was deliberate, as these tools are well-suited for handling the complexities of the data analysis required in this study. SPSS and STATA facilitated the initial data cleaning and descriptive statistics, while AMOS was utilized for conducting confirmatory factor analysis, allowing for a robust examination of the framework's structure.

The data management process included meticulous steps from data entry and cleaning to analysis. Each software tool facilitated specific analyses: SPSS for descriptive statistics, STATA for regression analyses, and AMOS for structural equation modeling. This comprehensive approach not only provides a clearer picture of the methodological workflow but also enhances the rigor and credibility of the research.

Result

1. Construction of a key competencies framework for art education talents based on outcome orientation

In the field of teacher education, the dominant paradigm in global academic literature and discussions appears to be the professional education model of clinical practitioners (Shulman, 1987; Sockett, 2008). This model, which is used in medical student education, draws on the ethos of the medical profession, portraying teachers as reflective practitioners who actively engage in research and critically apply scientific knowledge to guide their practice.

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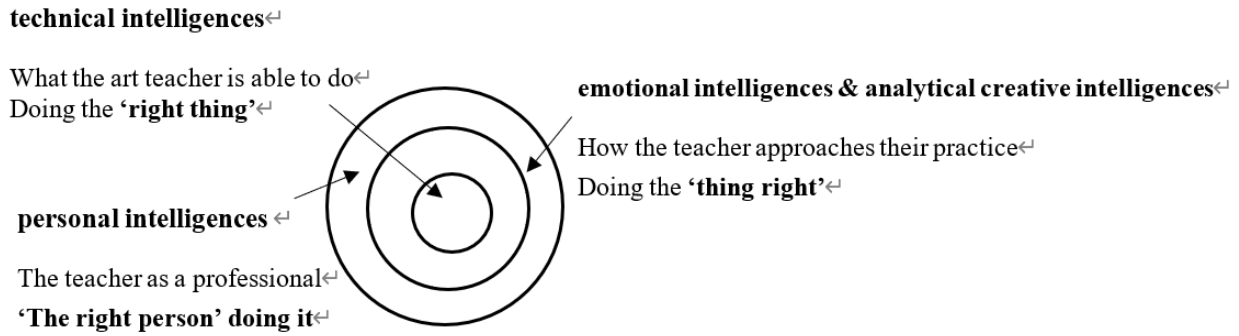

Figure 2 Three-Circle Model of Key Competencies for art education professionals based on learning outcomes
Note: Constructed by modifying the DOM

In 1999, the Association for Medical Education in Europe (AMEE) published a guide to outcome-based education, which introduced the three-circle model for outcome-based education (Davis & Harden, 1999), also known as the outcome-based model (DOM). This study adopts the three-circle model as the design basis for constructing a key competencies framework for art education professionals, primarily drawing on the model's success in medical education. The model provides a useful tool for OBE, encouraging a holistic approach to outcome-based education. It has been initially proven to be applicable at all stages of medical education and can be easily adapted to meet the needs of different regions and environments (Harden et al, 1999). Similar frameworks can also be applied in other healthcare industries to promote the development of various professional education methods.

Although the training of art teachers differs from that of doctors, the two professions share a high degree of similarity. Both require solid professional knowledge, qualified professional skills, and general problem-solving abilities; a responsible and serious attitude; and a commitment to lifelong learning. Teachers and doctors both work with people and are professionals dedicated to promoting mental and physical health. Simply put, both professions are considered "conscientious work," where the outcome varies greatly depending on whether the work is done with care or not. Therefore, many of the advantages of the three-circle model are highly aligned with the paradigm and approach for constructing outcome-based learning results in art education. Firstly, it offers a macro perspective, emphasizing both the integrality and interconnectedness of education while also highlighting the interaction between different outcomes. While these outcomes are interconnected, the model stresses the evidence-based and reflective nature of art education practice. The model uses an intuitive, user-friendly, and transparent approach—the three circles in the model represent three dimensions: what an art teacher can do, how they do it, and what kind of teacher they become, clearly defining and communicating the expected learning outcomes of the training goals for art education professionals. Because learning outcomes are directly related to work, this relevance and effectiveness make the model easier for art education professionals, both teachers and students, to accept and understand. Furthermore, the learning outcomes are competency-based, composed of discrete elements of competencies, with the three dimensions precisely corresponding to the three dimensions of key competencies—knowledge, skills, and attitudes. This approach allows for a clear communication of these outcomes with sufficient detail to form well-defined learning outcomes expected at graduation, without overwhelming stakeholders with excessive complexity. It helps reconcile the tension between vocational and academic education, highlighting the attributes of the art education discipline while emphasizing the coherence of the learning plans that students need to study and understand.

After defining the framework dimensions, this study referenced the National Art Education Association [NAEA] Standards for Art Teacher Preparation; the National Association of Schools of Art and Design [NASAD] Competencies Summary; and the International Arts Education Standards: A Survey of the Arts Education Standards and Practices of Fifteen Countries and Regions to select learning outcome categories that align with the framework dimensions. Regarding the drafting of learning outcomes, McNeil (1993) suggests that "for most schools, the key seems to be crafting outcomes that are broad in vision but specific enough to be effectively taught and measured." In other words, having a framework structure that

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is easy to remember and understand is advantageous and allows for comparisons between result groups from different sources.

For the selection of specific competencies, this study referenced DeSeCo's criteria for key competencies, which become Key Competencies when the concept is based on contributing to the expected outcomes of living a successful life and functioning well in society; cross-contextual and cross-domain application; and being crucial for all individuals to successfully meet complex demands. At the same time, when selecting learning outcomes representing the key competencies of art education professionals, it is important to note that learning outcomes encompass not only the intensity of memory, understanding of professional knowledge, and teaching practice skills acquired by students over four years of university study, but also the acquisition of implicit abilities during the learning internalization process, including the grasp of correct values, the cultivation of a sense of mission, responsibility, and professional ethics related to the teaching profession, among others.

Accordingly, this study preliminarily identified nine learning outcomes for the key competencies of art education professionals, categorizing them into the three dimensions of the Three-Circle Model. Six learning outcomes were selected for the dimension of professional knowledge and skills, namely artistic knowledge and skills, art practice, teaching ability, academic support, communication and cooperation, and information literacy. Two learning outcomes were chosen for the dimension of higher-order cognition and innovation, namely attitude and ethics, and decision-making and thinking. One learning outcome was selected for the dimension of ideal personal qualities, which is personal qualities.

2. Validation of the Key Competencies Framework for Art Education Professionals

2.1 Preliminary Survey and Its Reliability and Validity Testing

The reliability of the scale was tested using Cronbach's Alpha. After deleting items with a score lower than 0.4, the Cronbach's α coefficient for the Key Competencies Scale for Art Education Professionals was 0.984, which is greater than 0.8, indicating that the data has a high level of reliability and is suitable for further analysis.

The validity analysis showed that the KMO value was 0.905, which is greater than 0.8, indicating that the research data is very suitable for extracting information and that the validity is good. In Bartlett's test of sphericity, $p < 0.001$, indicating the presence of correlated factors among the variables, making the data suitable for factor analysis.

2.2 Formal Survey and Its Reliability and Validity Testing

The reliability of the scale was again tested using Cronbach's Alpha. The Cronbach's α coefficient for the Key Competencies Scale for Art Education Professionals was 0.988, which is greater than 0.8, indicating a high level of data reliability and suitability for further analysis.

The validity analysis showed that the KMO value (Table 1) was 0.980, exceeding 0.7, and the $p<0.001$, indicating that the results collected by the questionnaire meet the requirements for factor analysis.

Table 1 Kaiser-Meyer-Olkin Measure

KMO Value		**0.980**
Bartlett	Approximate Chi-Square	34893.515
	df	1891
	p-value	0

The results of the rotated factor loadings and communalities show that the absolute values of all the coefficients are greater than 0.4, indicating that there is a corresponding relationship between each item and the factors.

Based on the factor extraction situation and the amount of information extracted by the factors, it can be observed that a total of 9 factors were extracted through factor analysis. The rotated variance explained by these 9 factors is as follows: 14.011%, 13.781%, 13.029%, 7.423%, 6.988%, 6.524%, 6.185%, 6.146%, and 4.249%. The cumulative variance explained after rotation is 78.337% (Table 2).

Table 2 Total Variance Explained

Factor	**% of Variance (Unrotated)**			**% of Variance (Rotated)**		
	Eigen value	**Eigen % of Variance**	**Cumulative % of Variance**	**Eigen value**	**% of Variance**	**Cumulative % of Variance**

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1	36.123	58.263	58.263	36.123	58.263	58.263	8.687	14.011	14.011
2	3.514	5.669	63.932	3.514	5.669	63.932	8.544	13.781	27.792
3	1.990	3.209	67.141	1.990	3.209	67.141	8.078	13.029	40.821
4	1.507	2.430	69.571	1.507	2.430	69.571	4.602	7.423	48.244
5	1.384	2.232	71.803	1.384	2.232	71.803	4.332	6.988	55.232
6	1.180	1.903	73.706	1.180	1.903	73.706	4.045	6.524	61.756
7	1.155	1.863	75.570	1.155	1.863	75.570	3.835	6.185	67.941
8	0.975	1.572	77.142	0.975	1.572	77.142	3.811	6.146	74.087
9	0.741	1.196	78.338	0.741	1.196	78.338	2.635	4.249	78.337

3. Confirmatory Factor Analysis (CFA)

After deriving the structure of the scale through exploratory factor analysis, the study employed AMOS software to conduct CFA on the dependent variable "key competencies."

In practice, within the Key Competencies Scale for art education professionals, the average values of six dimensions—artistic knowledge and skills, art practice, teaching ability, academic support, communication and cooperation, and information literacy—were used to reflect the basic information of the technical intelligences construct. The average values of two dimensions—attitude and ethics, and decision-making and thinking—were used to reflect the basic information of the emotional intelligences & analytical creative intelligences construct. The average value of the personal qualities dimension was used to reflect the basic information of the personal intelligences construct.

The internal structure of the key competencies for art education professionals, which includes three dimensions—technical intelligences, emotional intelligences & analytical creative intelligences, personal intelligences—was identified through exploratory factor analysis. To validate the construct validity of the scale, the study employed confirmatory factor analysis to create the model diagram shown in Figure 3.6 and conducted a series of steps to test the model's fit and validity. As shown in the figure, the standardized coefficients between the three latent variables of key competencies for art education graduates and their corresponding items range from 0.84 to 0.92 (Figure 3).

Figure 3 CFA
Note: Constructed by the researcher

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Table 3 presents the goodness-of-fit test results for the confirmatory factor analysis model of key competencies for art education graduates. The CMIN/DF (Chi-square to degrees of freedom ratio) is 2.641, which is less than the critical value of 3, and the RMSEA (Root Mean Square Error of Approximation) is 0.057, which is less than 0.1, meeting the model fit criteria. Additionally, the fit indices of CFI, TLI, and IFI all meet the required standards, indicating that the confirmatory factor analysis model of key competencies for art education graduates has a good fit.

Table 3 Verification of Model Fit in CFA

Test Indicator	Fit Criterion	Fit Index	Fit Effect
CMIN/DF	<3	2.641	ideal
RMSEA	<0.1	0.057	ideal
CFI	>0.9	0.982	ideal
TLI	>0.9	0.978	ideal
IFI	>0.9	0.982	ideal

Table 4 presents the standardized loading values of each dimension and specific items within the key competencies framework for art education professionals, as well as the calculated convergent validity and composite reliability based on these values. As shown in the table, the absolute values of the standardized loadings for the items corresponding to each dimension are all greater than 0.6, indicating that the items within each dimension reliably reflect the information of the latent variables. The tests for convergent validity and composite reliability of each dimension show that the Average Variance Extracted (AVE) values range from 0.74 to 0.752, all of which are greater than the critical value of 0.5, and the CR values range from 0.857 to 0.952, all greater than the critical value of 0.7. This indicates that the key competencies scale for art education professionals has good convergent validity and composite reliability.

Table 4 Convergent Validity and Composite Reliability in CFA

simply Path			Estimated Value	AVE	CR
ZSJN	<---	technical intelligence	0.879	0.752	0.948
YSSJ	<---	technical intelligence	0.864		
KCJX	<---	technical intelligence	0.839		
XYCJ	<---	technical intelligence	0.856		
GTHZ	<---	technical intelligence	0.838		
XXSY	<---	technical intelligence	0.923		
TDDD	<---	emotional intelligence & analytical creative intelligence	0.891	0.751	0.857
JCSW	<---	emotional intelligence & analytical creative intelligence	0.841		
GRPZ1	<---	personal intelligences	0.863	0.74	0.952
GRPZ2	<---	personal intelligences	0.85		
GRPZ3	<---	personal intelligences	0.858		
GRPZ4	<---	personal intelligences	0.844		
GRPZ5	<---	personal intelligences	0.876		
GRPZ6	<---	personal intelligences	0.869		
GRPZ7	<---	personal intelligences	0.861		

Table 5 presents the results of the discriminant validity test for the scale. The correlation coefficients between the dimensions are greater than the square root of the corresponding AVE values for each dimension, indicating that the discriminant validity of the latent variables is not satisfactory, and there are certain shortcomings.

Table 5 Results of the discriminant validity test for each dimension of key competencies

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variable	technical intelligence	emotional intelligence & analytical creative intelligence	personal intelligences
technical intelligence	0.87		
emotional intelligence & analytical creative intelligence	0.905	0.87	
personal intelligences	0.848	0.94	0.86

Note: The diagonal line is the arithmetic square root of AVE, and the remaining values represent the standardized correlation coefficients between each dimension.

Discussion

The study finds that the framework of key competencies for art education professionals consists of nine key competencies, which span across three dimensions: technical intelligences, emotional intelligences & analytical creative intelligences, and personal intelligences. In the technical intelligences, six learning outcomes were selected: core academic content and skill of art, studio art, teaching competencies, academic support, communication and cooperation, and information literacy. In the emotional intelligence & analytical creative intelligence, two learning outcomes were selected: attitudes and ethical understanding, decision-making skills, and thinking ability. In the personal intelligences, one learning outcome was selected, which is desirable personal qualities.

The Three-Circle Model of key competencies for arts education professionals, based on learning outcomes, provides a clear framework for understanding the classification of competencies required for graduates in art education programs. This model illustrates not only the essential tasks of art teachers but also the underlying competencies necessary for effective practice.

The proposed key competencies framework contributes to the theoretical understanding of arts education within the context of OBE. By establishing a structured approach to defining and assessing competencies, this framework advances the conversation on how arts education can be effectively aligned with contemporary educational practices. It highlights the importance of not only technical skills but also emotional and personal intelligence in shaping effective educators.

The findings of this study align with and expand upon existing frameworks, such as those established by the OECD and the European Union. For example, while the OECD emphasizes competencies that foster lifelong learning and adaptability in various contexts, this study's model integrates specific competencies tailored to the unique challenges faced by arts educators. The overlap between these frameworks and the Three-Circle Model suggests a comprehensive understanding of the competencies necessary for effective teaching in the arts, highlighting both similarities and divergences.

The implications of this study for arts education professionals and policymakers are significant. The Three-Circle Model not only serves as a tool for shaping curriculum planning and evaluation but also offers a pathway for integrating competencies systematically into current arts education programs. To implement these competencies effectively, institutions must consider specific changes to curricula, such as incorporating more experiential learning opportunities, fostering collaboration among disciplines, and emphasizing the development of both hard and soft skills. By adopting these recommendations, educational institutions can better prepare future arts educators to meet the demands of their roles.

This study acknowledges several limitations, particularly in its methodological approach. The reliance on self-reported data may introduce bias, and the geographical concentration of survey respondents limits the generalizability of the findings. Future research could explore the applicability of the Three-Circle Model in diverse cultural and educational contexts, testing its effectiveness in various settings to enhance its robustness.

Moreover, longitudinal studies could assess the impact of implementing the framework on student outcomes over time, providing deeper insights into its effectiveness. Research could also investigate the intersection of the identified competencies with broader educational trends, such as the increasing focus on social and emotional learning, further situating this study within the ongoing discourse on education reform.

Conclusion

This study aimed to construct a comprehensive framework for key competencies in arts education based on the principles of OBE. By employing a mixed-methods approach that included textual analysis

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and questionnaire surveys, the research identified critical competencies required for arts education professionals. Key findings indicate that the Three-Circle Model effectively categorizes these competencies into technical intelligences, emotional intelligences & analytical creative intelligences, and personal intelligences, offering a clear pathway for curriculum development and assessment.

The primary contribution of this study lies in its development of a structured framework that not only highlights essential competencies but also aligns educational practices with market demands. The framework serves as a practical guide for arts education programs, emphasizing the need to regularly update training objectives to remain responsive to evolving industry requirements. This ensures that graduates possess the skills necessary to thrive in their careers.

The findings of this study have significant implications for arts education professionals, policymakers, and educational institutions. To implement the key competencies framework effectively, educational programs should adopt specific strategies, such as:

Integrating Competencies into Curricula: Institutions must systematically incorporate the identified competencies into their curricula, ensuring that courses reflect the competencies necessary for successful careers in the arts.

Enhancing Teacher Training Programs: Teacher training programs should focus on equipping future educators with both the technical and soft skills required in the arts, promoting a holistic understanding of what it means to be an effective arts educator.

Ongoing Curriculum Development: Regular assessments of industry trends and feedback from employers can inform necessary updates to training objectives, helping programs stay relevant and aligned with labor market needs.

Supporting Student Development: Educational institutions should also emphasize the importance of non-cognitive skills, such as life values, career preferences, and professional ideals, tailoring support to the personalized development needs of students.

While this study offers valuable insights, it is important to acknowledge certain limitations. The reliance on self-reported data may introduce biases, and the geographical focus on specific regions may limit the generalizability of the findings. Acknowledging these constraints enhances the credibility of the research and provides context for understanding the applicability of the results.

Future research could explore several avenues, including: Longitudinal Studies**:** Assessing the effectiveness of the key competencies framework over time could provide insights into its impact on student outcomes and professional readiness. Cultural Contexts**:** Investigating how different cultural contexts might necessitate adaptations to the framework could enrich its applicability and relevance across diverse educational settings.

In conclusion, this study reinforces the transformative potential of well-structured competency-based education in shaping future arts educators. By emphasizing the need for educators who are not only skilled and knowledgeable but also ethically grounded and adaptable, the proposed framework addresses the evolving demands of the arts education landscape. The integration of key competencies into arts education programs is crucial for developing professionals who can respond effectively to societal needs and contribute positively to the arts community.

Recommendation

The key competencies framework for arts education professionals serves as a valuable tool for both curriculum planning and evaluation. By adopting a "top-down design" approach, educational institutions can ensure that curriculum development is aligned with clearly defined learning outcomes. However, to effectively implement this framework, institutions need to follow specific strategies and consider potential challenges.

To ensure the successful adoption of the key competencies framework, educational institutions should follow a phased approach:

Initial Planning and Stakeholder Engagement: The first step involves engaging key stakeholders, including faculty, administrators, policymakers, and industry professionals, to ensure that the competencies reflect the needs of the labor market and the broader educational goals. Consensus-building at this stage is critical for aligning the institution's vision with the competencies framework.

Curriculum Design: Once the competencies are established, curriculum designers can map learning outcomes to specific courses and programs. The "top-down" approach begins with high-level competencies, ensuring that these are clearly defined and understood before translating them into specific learning

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objectives at the course level. This ensures that the broader educational goals are consistently reflected across the curriculum.

Iterative Refinement Based on Feedback: After initial implementation, the curriculum should undergo iterative refinement. Feedback from both students and faculty, along with assessments of student performance, can help identify areas for improvement. This stage ensures that the curriculum remains responsive to changing educational needs and industry demands.

Assessment and Evaluation: Continuous evaluation is essential to ensure that the curriculum effectively addresses the desired competencies. Institutions should use both formative and summative assessments to measure student progress and the effectiveness of the curriculum, making adjustments as needed.

Certainly, implementing the key competencies framework in arts education may encounter several challenges.

Resistance from Faculty: Faculty members may resist changes to the curriculum, particularly if it requires significant adjustments to their teaching practices. To mitigate this, institutions should invest in professional development programs that help faculty understand the value of competency-based education and provide them with the tools to align their courses with the framework.

Misalignment with Existing Curricular Structures: The "top-down" design approach may not align seamlessly with existing curricula. Institutions should conduct a comprehensive review of current programs to identify areas of overlap or misalignment and make the necessary adjustments to ensure coherence.

Resource Limitations: Implementing a new framework requires resources, both in terms of time and finances. Institutions may face constraints in allocating sufficient resources for curriculum development, faculty training, and assessment tools. Mitigating this challenge involves prioritizing key areas for immediate implementation and gradually expanding the scope of the framework as resources become available.

In conclusion, the "top-down design" method offers a robust approach to curriculum development in arts education. By following a structured implementation process, addressing potential challenges, and drawing on best practices, educational institutions can effectively integrate the key competencies framework into their programs. The proposed framework not only aligns with market demands but also prepares students to be adaptable, creative, and ethically grounded professionals. Future research and continued refinement of the framework will ensure that it remains responsive to the evolving needs of both educators and students.

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