

# Bibliometric Synthesis of Research on Aesthetic Education for Middle School

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**Abstract.** This study aims to investigate the current state and trends in aesthetic education for middle school students through bibliometric analysis. Utilizing the Bibliometrics package in the R programming language, we analyze a dataset comprising 111 documents published from 1970 to 2023. This analysis offers insights into the field's development, including document production trends, author performance, and the most cited publications. The research reveals a steady annual growth rate of 4.63% in scholarly publications since 2011, highlighting the field's emerging nature. The average document age of 5.45 suggests growing scholarly attention. Author performance analysis identifies key contributors, with notable Chinese scholars prominent in the field. This study's value lies in providing a comprehensive overview of the research landscape in aesthetic education for middle school. It sheds light on evolving trends and influential scholars, facilitating informed decision-making for educators, researchers, and policymakers.

**Keywords:** aesthetic education, middle school, bibliometrix

## 1 Introduction

In the realm of education, the significance of cultivating artistic awareness and comprehending the theories underpinning the arts cannot be overstated. While past endeavors have endeavored to champion the cause of arts and aesthetic education, a more robust foundation and defense in this domain are essential. In the forthcoming discourse, I aim to construct and support a philosophical rationale that underscores the imperative nature of instructing the artistry and techniques of creative expression, artistic appreciation, and art theory – including its historical facets – to middle school students. This argument rests upon the distinctive value inherent in such pursuits.

This narrative embarks on a journey of scrutinizing and evaluating two prevailing arguments, each vying to uphold arts education. The first, rooted in the expressivist perspective of art, contends that the arts are vehicles for the expression and evocation of distinct emotions. Thus, arts education is believed to empower students to creatively and constructively express themselves, a dimension often constrained in conventional subjects like history, mathematics, and science. This assertion, however, prompts introspection on whether self-expression is intrinsically virtuous and whether it transcends various forms of expression and utterances. Moreover, it underscores the need to expand the purpose of art beyond self-expression and recognize its role in belonging, tradition, sharing knowledge, craftsmanship, and even the conveyance of ideas.

Similarly, an argument emerges that advocates for the inclusion of arts in education to bolster moral development. This approach aligns with virtue ethics, positing that exposure to art can cultivate moral habits and emotions. Engaging with narratives, for instance, can evoke sympathy, empathy, and compassion, nurturing an individual's capacity to treat others with consideration. While this assertion bears validity, it predominantly emphasizes narrative artworks and their potential to foster moral dispositions. However, it does not inherently encompass the broader spectrum of art forms or provide a comprehensive justification for embracing aesthetic education as a whole.

In the contemporary milieu, where a disproportionate emphasis on science, technology, engineering, and mathematics (STEM) subjects is palpable, the arts confront challenges. The arts and humanities face declining student engagement and resource allocation, prompting a need to champion their value and significance. Consequently, a pivotal question emerges: why should aesthetic education be deemed indispensable? This query serves as a clarion call to underscore the intrinsic worth of the arts in fostering aesthetic experiences. The engagement with art and its appreciation emerges as a vital facet in leading a flourishing and meaningful life, inherently enriching the educational journey.

As societal trends veer towards the utilitarian and economically-driven, the inclusion of aesthetic education in middle school curricula becomes paramount. This discourse is an earnest endeavor to establish that art education transcends mere instrumental utility – it is a vital conduit for self-expression, moral formation, and ultimately, a profound connection with the human experience. The arts deserve a place not only on the educational agenda but also in the hearts and minds of students, laying the foundation for lives enriched with aesthetic profundity and creative fulfillment. Thus, this research aims to provide an insight into realm of aesthetic education for middle school, with the assisting of bibliometric analysis.

## **2 Methods**

In this study, the research tool utilized is the Bibliometrics package based on the R programming language. Developed by the team led by Massimo Aria[1], this bibliometric analysis tool offers advantages such as user-friendly operation, open-source data, and comprehensive statistical capabilities. It operates by employing specific algorithms to filter and analyze data based on the literature input sample, thereby constructing data matrices for co-citation, coupling, scientific collaboration analysis, and co-word analysis. This approach allows for a thorough exploration of relationships between various documents [2]. Furthermore, the software supports data visualization analysis, generating diverse knowledge maps that visually depict the panoramic view of research fields and the evolution of research topics. Distinct from other visualization tools, Biblio-metrics not only encompasses the statistical analysis functions of all literature metrics software, but it also enables the application of different algorithms in literature analysis (such as factor analysis in the field of text mining), dissecting the conceptual structure of data samples to enhance the reliability and accuracy of bibliometric results [4]. For instance, unlike VOSviewer, which merely displays the final visualization graph of data, it lacks the flexibility to choose calculation methods according to analytical needs (e.g., literature impact, developmental trends, vocabulary analysis) and export corresponding results [7]. In light of this, the current study adopts Biblio-

metrics as a research tool, harnessing its data visualization analysis capabilities to conveniently and efficiently explore the current research status and development trends.

The corpus date of this study was obtained from Web of Science. Following search strategy was conducted to retrieve relevant publications: TOPIC: (aesthetic education) and (middle school); LANGUAGE: (English); The data of publication was exported and saved in *bibtex* format. For this study, a total of 111 publications were retrieved.

### 3 Results

Table 1 and Figure 1 present a comprehensive summary of bibliometric analysis results, encompassing various aspects of scholarly publications within a specific timespan, sources, document statistics, keyword information, and author-related data. A total of 111 documents, ranged from 1970-2023, involved 98 distinct sources, served as the foundation for this bibliometric study, offering a substantial dataset for comprehensive research analysis. Before 2011, annual paper production can be ignored, yet, after 2011, the annual publication production steadily increased. The annual growth rate for the analyzed documents was found to be 4.63%, indicating a steady increase in scholarly publications over the specified timeframe. Document average age was 5.45, indicating this field is emerging and attracting attentions.

**Table 1.** Main information of analyzed corpus

Description	Results
Timespan	1970:2023
Sources (Journals, Books, etc)	98
Documents	111
Annual Growth Rate %	4.63
Document Average Age	5.45
Keywords Plus (ID)	307
Author's Keywords (DE)	453
Authors	326
article	74
article; book chapter	2
article; early access	6
article; proceedings paper	1
article; retracted publication	1
letter	1
meeting abstract	2
proceedings paper	20
review	3
review; early access	1

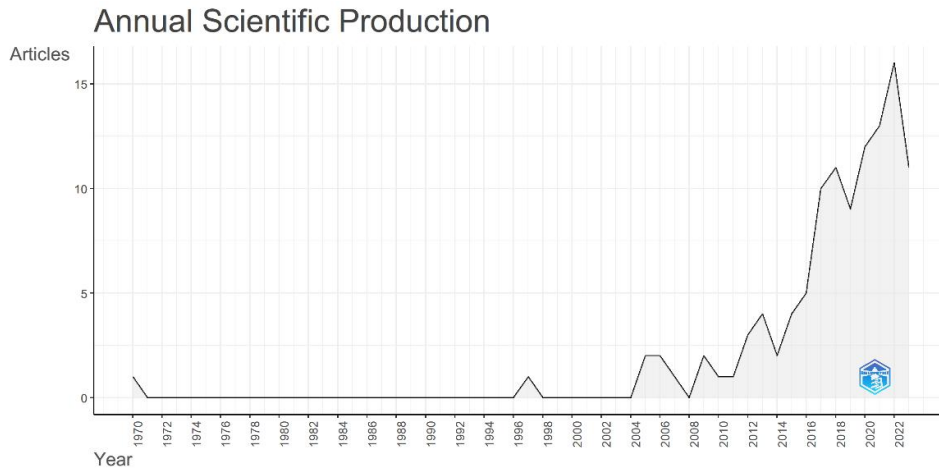


Figure 1 Annual scientific production in the field of aesthetic education for middle school

For author performance, a total of 326 authors were involved. Table 2. presents authors performance measured by total citation (TC). Kim HJ was the most cited authors, published 3 articles, been cited 47 times. It was noticed that, 8 authors out of 10 were from China, indicating Chinese scholars were advance to scholars of other regions.

Table 2. Authors performance

Authors	h index	g index	m index	TC	NP	PY start
KIM HJ	3	3	0.2	47	3	2009
LI Y	3	3	0.375	42	3	2016
GUO X	2	2	0.333	32	2	2018
HE X	2	2	0.5	19	2	2020
KIM SH	2	2	0.133	42	2	2009
LIN X	2	2	0.25	20	2	2016
WANG J	2	2	0.5	26	2	2020
WANG L	2	2	0.667	13	2	2021
WANG Z	2	2	0.25	20	2	2016
ZHANG W	2	2	0.5	19	2	2020

Figure 2 shows the most cited publications. A paper that has been highly cited, indicating it has been critically reviewed over and over again by peers. This paper may provide a theoretical basis for corresponding field, or identified an fancy further research topic.

Thematic map (Figure3) was generated based on keywords cluster, which visually presented the research topics in the field of aesthetic education for middle school. All topics are distributed to a X-Y axis, according to its centrality and density. The first quadrant is the moter themes, means important and need to be further dig into.

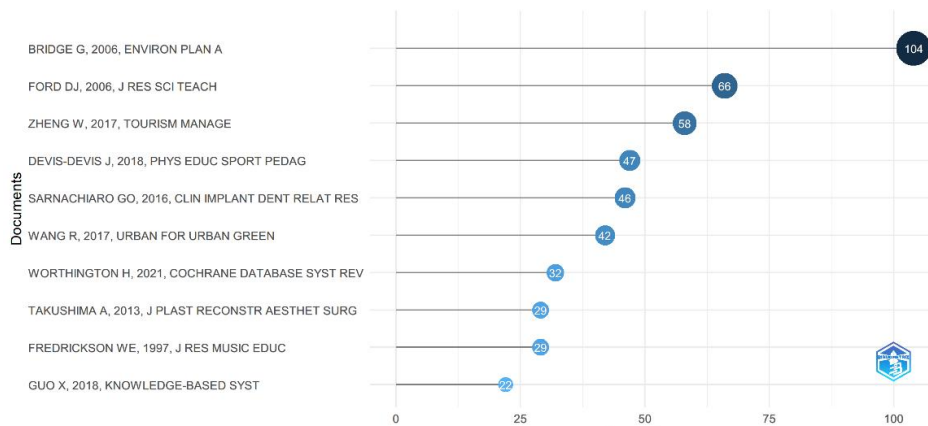


Figure 2 Most Cited publicats in the field of asethetic education for middle school

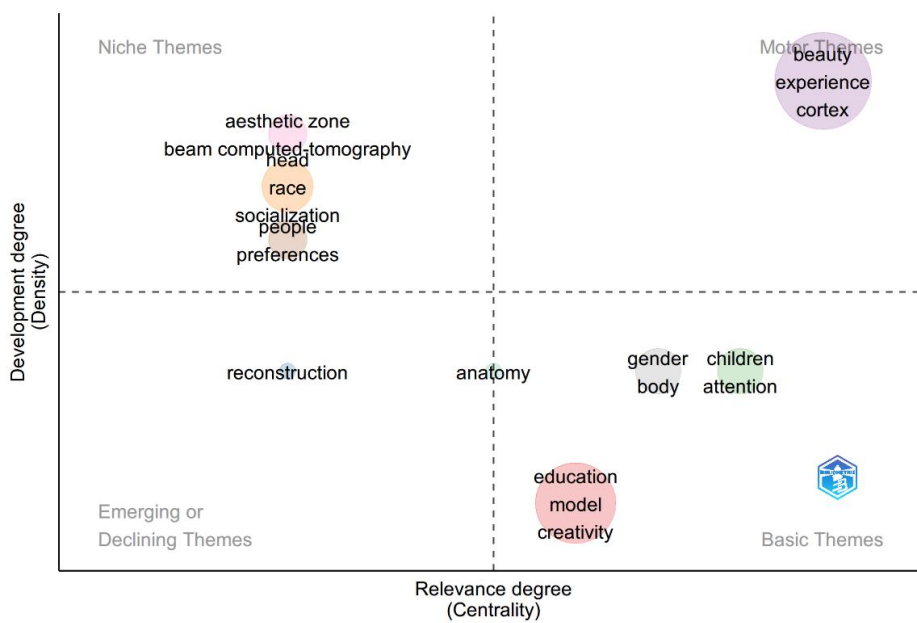


Figure 3 Thematic map of asethetic education for middle school

## 4 Discussion and conclusion

### 4.1 Dominant research frameworks in the field of asethetic education for middle school

Aesthetic Experience and Perception [3]: This framework focuses on understanding how middle school students perceive and experience aesthetics in various art forms, such as visual

arts, music, and literature. Researchers may investigate the factors that influence aesthetic experiences and the cognitive and emotional aspects of perception.

**Interdisciplinary and Cross-Curricular Approaches [4]:** Researchers explore how integrating aesthetic education with other subjects, such as science, mathematics, or history, can enhance students' learning experiences. This framework aims to bridge the gap between aesthetic education and academic achievement.

**Cultural and Diversity Perspectives [4]:** This research framework emphasizes the importance of considering cultural diversity in aesthetic education. Scholars may investigate how different cultures contribute to the understanding of aesthetics and explore ways to make aesthetic education inclusive and culturally relevant.

**Neuroaesthetics and Cognitive Science [5]:** Drawing from neuroscience and cognitive science, this framework delves into the neurological and cognitive processes involved in aesthetic experiences. Researchers may use neuroimaging techniques to study how the brain responds to aesthetic stimuli in middle school students.

**Arts-Based Research [6]:** Some researchers employ arts-based research methodologies, such as using creative arts projects or performances as a means to explore and express students' aesthetic experiences and understandings.

**Assessment and Measurement [7]:** This framework focuses on the development of valid and reliable assessment tools for evaluating middle school students' aesthetic competencies. Researchers aim to create assessment frameworks that can inform instructional practices.

**Teacher Training and Professional Development[8]:** Investigating the training and professional development needs of middle school teachers in aesthetic education is crucial. This framework explores effective methods for preparing teachers to deliver high-quality aesthetic education.

#### **4.2 Research hot spots in the field of aesthetic education for middle school**

**Integration of Technology [9]:** The incorporation of technology, such as virtual reality, augmented reality, and online platforms, into aesthetic education can be a significant area of interest. Researchers are exploring how these tools can enhance students' engagement and understanding of aesthetics in various art forms.

**Interdisciplinary Approaches [10]:** Aesthetic education is increasingly being viewed through an interdisciplinary lens. Researchers are investigating how combining elements of different subjects, such as literature, history, and science, can enrich students' aesthetic experiences and understanding.

**Inclusivity and Diversity [11]:** Aesthetic education is evolving to be more inclusive and diverse. Scholars are exploring ways to make aesthetic education accessible and culturally relevant to students from various backgrounds, considering issues of representation and equity.

**Neuroaesthetics:** This emerging field examines the neural basis of aesthetic experiences. Researchers are using neuroscience techniques to understand how the brain processes and responds to aesthetic stimuli, which can inform teaching practices in middle schools.

**Assessment and Measurement:** The development of reliable assessment methods for evaluating students' aesthetic competencies is an ongoing concern. Researchers are working on creating valid tools and frameworks to assess students' progress in aesthetic education.

**Teacher Training and Professional Development:** Preparing middle school teachers with the necessary skills and knowledge to deliver effective aesthetic education is crucial. Research in this area focuses on the design of teacher training programs and professional development opportunities.

**Global Perspectives:** Comparative studies of aesthetic education across different countries and cultures can offer insights into effective practices and curriculum development. Research in this area may explore the impact of cultural differences on students' aesthetic experiences.

**Social and Emotional Learning (SEL):** Aesthetic education can contribute to students' social and emotional development. Investigating how aesthetic experiences foster skills like empathy, self-awareness, and emotional regulation is of interest to researchers.

**Arts Integration:** Examining the benefits of integrating the arts into other subjects, such as mathematics or science, is a relevant topic. Researchers are studying the impact of arts integration on academic achievement and creativity in middle school students.

**Policy and Advocacy:** Advocacy for the importance of aesthetic education at the policy level remains an ongoing effort. Research may focus on the impact of policy decisions on the availability and quality of aesthetic education programs in middle schools.

In conclusion, the field of aesthetic education for middle school is dynamic and continuously evolving, with several prominent areas of research and numerous avenues for exploration.

Firstly, the research hotspots in the field indicate the direction in which scholars and educators are channeling their efforts. These hotspots encompass a wide range of topics, from the integration of technology and interdisciplinary approaches to inclusivity, diversity, and the burgeoning field of neuroaesthetics. Additionally, there is a strong focus on assessment, teacher training, and the global perspectives on aesthetic education. These areas represent both the challenges and opportunities for enhancing the quality and impact of aesthetic education in middle schools.

Secondly, the popular research frameworks underscore the diverse approaches that researchers employ to investigate aesthetic education in middle school contexts. Whether through the lens of aesthetic experience and perception, cultural diversity, neuroscience, arts-based research, or policy and advocacy, scholars are contributing to a multifaceted understanding of how aesthetics can be effectively integrated into middle school education. Each framework offers unique insights into the cognitive, emotional, and cultural dimensions of aesthetic learning.

While these trends and frameworks provide valuable guidance for researchers and educators, it is essential to acknowledge that the field of aesthetic education continues to evolve. To stay at the forefront of research in this field, scholars must regularly engage with current literature, attend conferences, and adapt their approaches to align with the ever-changing landscape of education and aesthetics.

In summary, the field of aesthetic education for middle school is marked by a rich tapestry of research interests and methodologies. By exploring the identified hotspots and employing

relevant research frameworks, scholars can contribute to the advancement of our understanding of how aesthetic experiences can be harnessed to enrich the educational journey of middle school students and promote their holistic development. As new trends emerge and educational contexts evolve, it is imperative that researchers remain nimble and responsive to continue shaping the future of aesthetic education in middle schools.

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