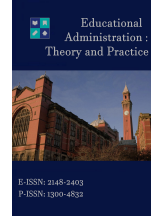




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Impact of Aesthetic Education on Student Learning Outcome: Evidence from Inner Mongolia

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<p>Article History</p> <p>Article Submission 10 October 2022</p> <p>Revised Submission 30 December 2022</p> <p>Article Accepted 31 January 2023</p>	<p style="text-align: center;">Abstract</p> <p>One of the best avenues for personal development is education. According to this viewpoint, one of the most important educational pillars in civilized civilizations is the arts. The importance of art education to the human experience. The purpose of this study is to ascertain how aesthetic education affects the learning results of students. The mediating effects of student involvement and creative self-efficacy were further investigated in the study. (310) students from the inner Mongolian fine arts department participated in the data collection. Data were gathered using a questionnaire that was modified from other investigations. Using a straightforward random sample procedure, data were gathered. Each variable's components were evaluated on a 5-point Likert scale. Software such as SPSS and Smart-PLS were used to examine the data. Data analysis revealed that aesthetic education significantly affects students' learning outcomes. Furthermore, the association between aesthetic education and student learning outcomes is partially mediated by student involvement and creative self-efficacy. Student engagement and creative self-efficacy are serial mediators between aesthetic education and learning outcomes for students. Students and educational institutions will benefit from the study's findings by improving student learning outcomes. Other factors may be used in future research to improve the learning results for students studying fine art.</p> <p>Keywords: Aesthetic Education; Student Learning Outcome; Student Engagement; Creative Self-efficacy; Inner Mongolia</p>
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Introduction

Participating in educational programs is one of the most useful paths to personal growth. Within this discussion, the study of art constitutes one of the most vital components of education in modern cultures (Li & Xue, 2020). A well-rounded education that includes training in the arts is necessary for the human experience. Because art is a vital component of science and technology, it is the sole approach that can be used to cultivate people who can see clearly, perceive reality clearly, analyze logically, question, break away from tight traditions, invent fresh patterns, and significantly contribute to the growth of society (Jin & Snook, 2022). The total performance of an educational institution is greatly influenced by the student's motivation levels, academic contentment, and general happiness at their institution. To one wants to enhance educational standards, it is crucial to keep the quality of instruction at a high level and assess how satisfied students are with their educational experiences (Jin & Ye, 2022). Despite the fact that China places a lot of emphasis on the aesthetic education component of knowledge, the general public still places little value on the subject of visual arts. Although it has always been challenging to properly describe the arts, many traits are acknowledged across cultures as being essential to the practice of art (Liu et al., 2021). These include the art object's (whether it be sensory or physical) value in its own right rather than only as a function, the ability to inspire both the creator and the audience with imaginative experiences, and the ability to either contain or elicit an emotional response from the recipient. Additionally, the need for originality, inventiveness, or uniqueness, the need for particular talents, and the need to adhere to the rules of form, composition, or expression can distinguish art creation from other creative efforts (Jin & Ye, 2022). Today's schools strive to develop professional knowledge and skills based on intellectual actions. Thus, one of the most important tasks for children's education is to develop the ability to enjoy art and beauty. Aesthetic education helps develop children's aesthetic sense of the beautiful and a sense of proportion towards nature and the beautiful in interpersonal relationships (Khudoinazarovich, 2021). Art educators and their organizations are facing several challenges in promoting aesthetic education. The main challenge is to develop a shared model of aesthetic education that can be considered a common ground among them. Another important challenge is to elaborate strategies to achieve benefits from aesthetic education in young learners, especially in the early stages (Ulvik, 2020).

Aesthetic education is an educational program that emphasizes the study of the visual arts in schools. The program encourages students to explore and converse about the arts. It teaches students how to appreciate and make physical, aesthetic and functional objects from various materials (Yen & Hsu, 2017). Aesthetics also covers topics such as color, unity and design; light, texture and surface marks; geometrical shapes; line quality; spatial relationships of objects on paper in relation to each other; use of p artists and art teachers have applied this approach in various ways over time to shape their teaching practices. Aesthetic education aims to improve the way an individual sees the world. It is a comprehensive study of how our senses perceive and interpret objects in the environment. The information obtained in aesthetic education helps one develop a sense of appreciation for what one sees, hears and feels (Haifeng & Xinzheng, 2022).

The students' learning outcomes in inner Mongolia are unsatisfactory (He et al., 2021). It is important to identify those factors which affect the performance of students. Therefore, the current study aims to investigate aesthetic education's impact on student learning outcomes. The study further explored this relationship by utilizing student engagement and creative self-efficacy as mediating variables. In the past, many studies identified the teacher's perspective of inner Mongolia (Che et al., 2021; Fang, Wu, & He, 2021; He et al., 2021; L. Wang, 2021), but there is a lack of research on students' perspective. Therefore, this study filled tried to fill this gap. This study significantly adds to the body of knowledge already available on aesthetic education, academic outcomes, student engagement, and creative self-efficacy. This study is unique in that it applied serial mediation to examine the relationship between creative self-efficacy and learning outcomes in the context of student involvement and aesthetic education.

Literature Review

Aesthetic Education

Students learn about works of art through hands-on exploration, questioning, writing, and art creation. The opinion of philosophers (Zhu, 2022) urges students to challenge their 'natural attitude,' or accepted way of thinking, and examine through a variety of lenses to impose different orders on experience. Although the term "aesthetic" refers to a wide variety of natural and social concepts and aspects, visual representations, movements, sounds, verbal expressions, etc., remain the most important means of aesthetic instruction. Art continues to be the most important means of aesthetic instruction (Li & Xue, 2020). It is important to distinguish the role that art plays in developing a child's personality from the role that education in the artistic fields plays, which is primarily of a professional nature and is solely focused on the growth of artistic abilities. Art contributes to the growth of a child's sensitivity and the growth of the child's personality as a whole. The purpose of aesthetic education is to familiarize students with a wide variety of art forms because this is the only method by which art may become ingrained in an individual culture. According to Haifeng & Xinzheng (2022), people are able to find a way out of mental and physical isolation with the support of the humanities and literature. She claims that this is something that anyone can accomplish. Through exposure to various forms of artistic expression, an individual is allowed to be directed toward achieving the humanistic goal of personal perfection (Jin & Ye, 2022).

Aesthetic education plays a crucial role in the construction of cultural identity. Aesthetic education enables individuals to overcome feelings of inferiority and become more self-confident while reaffirming their cultural heritage, positively affecting self-esteem and personal growth (Sajnani, Mayor, & Tillberg-Webb, 2020). UNESCO's goals for educational progress are to help people understand the importance of art and culture and to help them develop art appreciation. They believe that education is a key part of this process because it allows students to explore the world around them and learn about other cultures (UNESCO). The two main schools of thought largely represent the current position of aesthetic education within the school curriculum, one being a more traditional, traditionalist approach and the other being an anti-puritanical approach. The former draws its principles directly from ancient Greece, while modernism influences the latter more (Denac, 2014). Art Education is the study of art and its influence on people. Aesthetic education is the study of beauty and what makes things beautiful. The two are related, but they are not the same thing. Schools can institutionalize aesthetic education in several ways. They can use art to teach students about various subjects, or they can use it as an aesthetic experience for students to explore on their own time. Schools can also use art to help promote school pride and unity among their students, or they can use it to explore different cultures outside of their own (Thompson & Deer, 2006).

Student Learning Outcome

Learning outcomes are often referred to as the actions that pupils are able to carry out as a result of the education they have received. Higher education institutions can begin aligning their courses by establishing the skills their students are expected to acquire. In actual reality, this can be a challenging endeavor. According to research on learning outcomes, students believe painting, drawing, and arts are the most important (Baber, 2020). In contrast, aesthetic institutes place a higher value on creative thinking, neatness, and novelty in drawings (Cheng et al., 2019). When making decisions on learning outcomes, numerous perspectives, including those of students, practicing marketers, educators, and other stakeholders, should be considered (for example parents and society as a whole) (Baber, 2020). Multiple points of view are necessary due to the diversity of the audiences that education serves higher education institutions, after determining the required learning outcomes, next construct learning goals, which are typically presented as course aims and objectives, to achieve the intended outcomes. Throughout education, many points serve as launching points for the establishment of learning objectives. Typically, instructors will have specific learning goals in mind for their students at the course level or topic level. Students are likely to lack the motivation to put in the effort if they are not provided with specific goals and assignments (Vogt et al., 2018). However, establishing explicit expectations allows for

alignment between the goals the teacher has in mind and the desired inputs and outputs for the student (Wang et al., 2013). Visual cultural studies take a perspective of aesthetics, understanding and investigation of visual culture. The role of visual cultural studies in education is to understand visual images and their historical context, to understand how these images work as signifiers, as symbols, and how they function as a resource for educating young people about their own identities in relation to broader systems of inequality (Turkcan & Yasar, 2011). Learning music results in enhanced outcomes in mathematics, reading and behavior. Music provides our brains with the sensory input of sound and movement. Research suggests that auditory experiences can improve speech and language development, academic achievement and other cognitive skills (Holmes & Hallam, 2017).

Student Engagement

The definition of student engagement is "students' willingness, need, drive, and urge to contribute to the learning process and achieve success" (Dixson, 2015). Online course delivery requires pedagogical strategies that maximize opportunities for involvement and learning. Engagement focuses on people's dispositions or attitudes toward classroom experiences and lifetime education in addition to cognitive skills that have been learned or mastered (Dixson, 2015). Another definition of student involvement includes their level of interest, how they connect with other students, and how eager they are to learn more about the subjects. Various factors, such as mentality, temperament, ambition, commitment, and self-confidence, impact student engagement. (Dommett et al., 2022)

Student involvement is typically regarded as one of the most accurate predictors of student learning and development. Students tend to learn more about a subject the more they study or practice it. This may seem obvious. Similarly, students should become more competent at writing, analyzing, and problem-solving the more they practice and receive feedback on these skills (Zepke, 2015). The foundation of abilities and attitudes required for a successful and meaningful life beyond college is contributed to by engagement itself. In other words, college students who participate in educationally beneficial activities establish psychological and emotional habits that improve their capacity for lifelong learning and personal growth (Dogan, 2017).

Creative Self-Efficacy

Olivier et al. (2019) defined creative self-efficacy as "the idea [that] one has the power to produce creative outcomes." Creative self-efficacy is a personal creative quality that the authors presented. This individual quality can also be explained in a nutshell by referring to it as "self-judgment of creative potential" (Kahu & Nelson, 2018). The idea of creative self-efficacy was first introduced by Bandura (1977) and it is now widely acknowledged as an essential component of an individual's capacity for creative performance in the workplace (Lin & Wang, 2021). Research on the creative self-efficacy of instructors and studies on the creative self-efficacy of students demonstrate how this creative disposition has attracted academic interest in the context of education (Teng et al., 2019).

Lin & Wang (2021) regard The ability to execute creatively in a specific activity as a student's creative self-efficacy. According to the results of a study, this personal trait can be further conceptualized in connection to three aspects by Ozkal (2019) to validate an expression of self-scale for students in Taiwan. These three characteristics are resistance to social influence, creative thinking ability, and creative performance. In contrast to junior and senior high school pupils, university students also showed lower levels of creative self-efficacy across all three domains. Despite this, conflicting findings have come from research on whether students' creative self-efficacy increases or decreases as they advance through higher educational/grade levels (Haase et al., 2018).

Aesthetic Education and Learning Outcome

The Relationship Between Art Education and learning outcomes in Fundamental Subjects Five studies revealed that students who received art training in elementary school through high school performed somewhat higher than their peers on literacy exams, with more substantial results for students from low socioeconomic homes (Mahoney, Durlak, & Weissberg, 2018; C. H. Wang et al., 2013). When compared to their peers, the literacy test results of pupils who received

arts education were shown to be statistically indistinguishable from those of students who did not receive such instruction in four further investigations including students of the same age group (Abid Alvi et al., 2014). Panigrahi et al. (2018) conducted research with elementary English language learners and came to contradictory conclusions. Wang et al. (2013) discovered that art education increased literacy test scores. A study revealed that students who received art instruction from elementary school through high school performed marginally higher on math tests than their peers, with the results being significantly more significant for students from families with lower socioeconomic status (Mahoney et al., 2018). The results of three more studies involving students of the same age and demographic revealed the opposite: students who got an art education had lower scores than their classmates on math examinations. According to research findings, kids who received art instruction from elementary school through high school performed marginally higher on scientific examinations than their peers, with the results being significantly more significant for students from low socioeconomic homes (Baber, 2021). To develop the specific skills of each student's unique intelligence, a school's curriculum must create both learning experiences and activities that match each learner's abilities, interests and temperament (Bovt, 2018). This can be achieved by incorporating multiple intelligences theory into aesthetic education. The use of the interdisciplinary unit in the curriculum is on the rise around Europe. The reasons behind this are a desire to organize curriculum around shared concepts, thus making it easier for students to fit into standard teaching methods, and an attempt to address greater challenges in today's modern world (Lenoir, Hasni, Lenoir, & Hasni, 2016).

H1: There is a significant relationship between Aesthetic Education and learning outcome
Student Engagement and Learning Outcome

Previous studies have shown that various student engagement factors, such as time spent on tasks, active and collaborative learning, and teacher-student interaction, are connected to the accomplishment of particular learning objectives (Olivier et al., 2019). On the other hand, a review of the pertinent published literature has shown that these studies had serious flaws in two important areas. To start, it is important to note that different studies have employed operationally distinct definitions for the indicators of student engagement, according to a review of the pertinent research. For instance, Dommett et al. (2022) deconstructed student engagement into academic and social domains and examined how these domains related to desired learning outcomes. Jian (2022) broke down student participation broadly into the academic and social domains and investigated how these domains related to the desired learning results. In other instances, student involvement could be limited to interactions between students and instructors and cooperative student behavior (Lei, Cui, & Zhou, 2018). Marginalization is defined as the situation in which a certain group of people are marginalized. In relation to aesthetic education, many social factors lead to marginalization. For this reason, arts education should empower those already marginalized so they do not feel like outsiders or lost souls.

H2: There is a significant relationship between student engagement and learning outcomes

H5: Student engagement mediates the relationship between aesthetic education and learning outcome

Creative Self-Efficacy and Learning Outcomes

It has been shown that self-efficacy is a greater predictor of intellectual achievement than skills alone and that cognition directly influences on academic performance. Perseverance is also influenced in a roundabout way by self-efficacy (Bresó, Schaufeli, & Salanova, 2011). Even while a student's history of accomplishments positively affects on their sense of self-efficacy, it is more likely that their interpretation of their successes and failures in the past is the reason for their later achievements. A higher level of perceived self-efficacy is a stronger indicator of future achievement than one's actual performance in the past. Beliefs in one's own self-efficacy are also a factor in performance because of their influence on mental processes, motivation, and action (Chen, 2017). Changes in one's perception of their competence level may help shed light on observed shifts in performance. For instance, if two people with comparable skills or the same person in two distinct contexts carry out the same activity, but one has different views about how well they can do the task, the outcome may be different (Dogan, 2017).

"Those who perceive themselves as ineffective avoid challenging jobs, reduce their efforts and give up easily in the face of challenges, focus on their personal shortcomings, lower their objectives, and suffer from a great deal of anxiety and stress. Such self-misgivings hinder performance" (Sides & Cuevas, 2020). On the other hand, those with a high level of self-efficacy are more likely to persevere in the face of difficult tasks or challenging odds, and they are more likely to be successful as a result because perseverance typically culminates in a successful outcome (Dogan, 2017). For instance, self-efficacy was found to have a favorable relationship with cognitive engagement and academic performance in seventh-grade English and Science classrooms (Pillai & Williams, 2004).

H3: There is a significant relationship between creative self-efficacy and student learning outcome

H6: Creative self-efficacy mediates the relationship between aesthetic education and learning outcome

Student Engagement and Creative Self-Efficacy

According to previous studies, student involvement and self-efficacy are interrelated (Bresó et al., 2011). Together, they fulfill an important function regarding the level of academic achievement students attain (Olivier et al., 2019). Evidence suggests that goal-setting and self-evaluation of achievements are two ways in which self-beliefs affect motivation and engagement (Jian, 2022). According to studies, students with higher self-efficacy beliefs are more engaged (Gutiérrez, 2019). Additionally, There is proof to indicate that one's self-beliefs affect one's motivation and engagement levels through goal setting (Chong et al., 2018). Although the vast majority of studies have focused on the effect of students' self-beliefs on the degree of engagement they show, it would appear that there is a positive gain spiral among these two factors. This is the case despite the fact that these two factors are interrelated. While some studies have demonstrated that student behavior engagement can predict self-efficacy and self-esteem, none have specifically studied the relationship among student involvement and creative confidence views between university students (Heo, Bonk, & Doo, 2022).

H4: There is a significant relationship between student engagement and creative self-efficacy

H7: Student engagement and creative self-efficacy serially mediate the relationship between aesthetic education and learning outcome

Based upon the above discussion and hypothesis, the study proposed the conceptual framework shown in Figure 1.

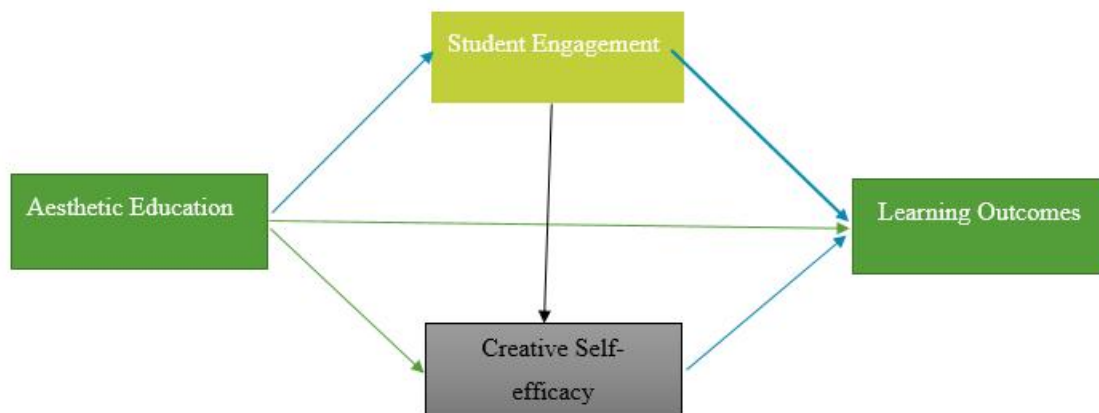


Figure 1. Study Framework

Methodology

To achieve the purpose of the study, data was gathered from students enrolled in higher education institutions in China. The study participants were only college students who had already declared a specialization in fine arts. For this reason, a questionnaire that respondents could self-administer was used. A sample method based on convenience was used to obtain information from 400 students. 310 of the 400 questionnaires were taken into account for the statistical analysis. This is because the remaining questionnaires were not filled out entirely. SPSS was utilized to analyze the demographic data; however, Smart-PLS was utilized in order to assess the reliability, validity, and association between the variables.

Measures

To collect data for the current study, a self-administrated questionnaire was adapted. The questionnaire was closed-ended. Respondents have to select the given option which describes their response best. The instrument for collecting data was split into two parts; the first part was developed to collect demographic information about individuals (e.g., gender, age, year of education, and type of university). Evaluation of the constructs that were utilized in the research was the focus of the second section. The questionnaire had (31) items. Each respondent was given a Likert scale with five points and the following answer categories: 1 represents complete disagreement, and 5 indicates entire agreement. The respondents were supposed to identify their level of agreement or disagreement with each question using the scale.

Aesthetic Education

Utilizing a 5-item scale developed by X. Jin & Ye (2022), aesthetic education is measured. The value of alpha is 0.926.

Creative Self-efficacy

A scale consisting of 10 questions, adapted from Lin & Wang (2021b), was used to evaluate the creative self-efficacy construct. The value of the alpha coefficient is 0.924.

Student Learning Outcome

A scale consisting of questions, adapted from Yusuf (2021) was used to evaluate the student learning outcome. The value of the alpha coefficient is 0.928.

Student Engagement

A scale consisting of 9 questions, adapted from Dixson (2015), was used to evaluate student engagement. The value of the alpha coefficient is 0.927.

Demographic Information

The demographic data pertaining to the survey respondents are shown in Table 1. A total of (310) respondents, including (220) women and (110) males, participated in the poll. Of the respondents, (58) were between the ages of 19 and 21; (48) were between the ages of 22 and 24; (95) were between the ages of 25 and 27; and the remaining (109) were older than 27. (72) kids were enrolled in their first year of school. The second year of education was for 59 students, the third year of education for (96) students, and the fourth year of education for (83) students. (165) of the respondents were from Public sector universities, while the remaining (145) were from private sector universities. The findings of the demographic investigation are presented in Table 1.

Table 1. Demographic Profile of The Respondents

Demographic item		Frequency	%age
Gender	Male	110	35
	Female	200	65
Age	19-21 years	58	18
	22-24 years	48	16
	25-27 years	95	31
	More than 27 years	109	35
Year of education	1 st	72	23

Demographic item		Frequency	%age
	2 nd	59	19
	3 rd	96	31
	4 th	83	27
University	Public	165	53
	Private	145	47

Results

In this study, data were analyzed using Structural Equation Modelling (SEM), and Partial Least Squares Structural Equation Modelling (PLS-SEM) was used instead of covariance-based approaches like AMOS (J. F. Hair, Sarstedt, & Ringle, 2019). The PLS-SEM was selected as the research method because, depending on the objectives of the investigation, it may either be employed for confirmatory or exploratory research (Jr. JF. Hair, Hult, Ringle, & Sarstedt, 2016). Approaches such as Covariance-Based Structural Equation Modelling (CB-SEM) and Partial Least Squares Structural Equation Modelling (PLS-SEM) make up structural equation modelling. (Jr Joe Hair, Sarstedt, Hopkins, & G. Kuppelwieser, 2014). Both methods offer significant advantages, such as the covariance-based method's ability to validate or invalidate ideas. PLS-SEM, on the other hand, offers both theoretical framework extensions and improvements (Jr. JF. Hair et al., 2016). The software Smart PLS 3.3 was applied to do the measurements on the data. The measurement, as well as the structural path were both utilized in the measuring process for the data. The Smart PLS approach is helpful when performing analyses on data that are either exceptionally difficult or extremely restricted in scope.

Both the model's dependability and its validity are components of measurement models. In this investigation, convergent and discriminant forms of validity were utilized to examine the model's credibility. In addition, the Cronbach alpha, composite reliability, and average variance extract were applied to determine how reliable the model was (Jr. JF. Hair et al., 2016). Figure 2 and Table 2 illustrate all of the variables' reliabilities modelled in this study. To meet the requirements of the Cronbach alpha, the value must be greater than 0.70, to begin with (J. F. Hair et al., 2019). Overall, Cronbach's alpha values for model variables in this study are greater than 0.70. The second stage of the analysis involves looking into the Composite Reliability (CR) and Average Variance Extract (AVE) of the model variables. The acceptable values for the variables are larger than 0.7, and the average variance extract and the acceptable values for the variables are greater than 0.5. The composite reliability also has acceptable values that are greater than 0.5.

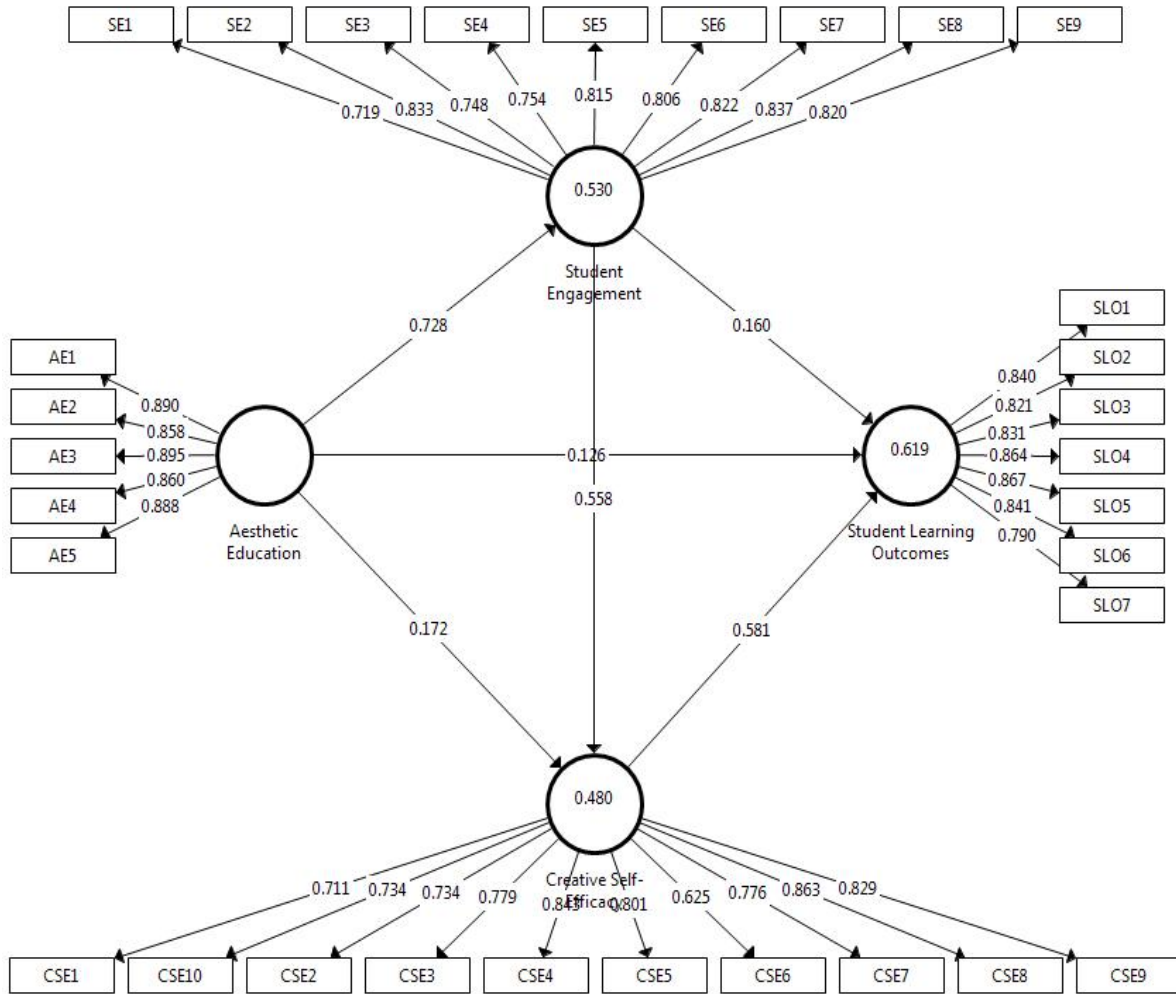


Figure 2. Measurement Model

In addition, each variable’s outer loadings were investigated, and the findings are presented in Table 2 below. When establishing the acceptable outside loadings for various objects, a value that is more than 0.6 is considered appropriate (Figure 2). Every single one of the components that make up the variable has a value of greater than 0.6. Furthermore, the collinearity issue was investigated with using the variance inflation factor for this work. According to the suggestions made by the researchers, VIF values lower than 0.5 are considered to be satisfactory (Jr. JF. Hair et al., 2016). The key elements of the study model have VIF values that, according to Table 2, vary from 1.673 to 4.049. It demonstrates that all of the items' VIF values are within the threshold. As a result, there was no proof that the research model used for this study had a collinearity issue.

Table 2. Construct Reliability and Validity

	Items	Outer Loading	VIF	Cronbach's Alpha	CR	AVE
Aesthetic Education	AE1	0.890	3.201	0.926	0.944	0.772
	AE2	0.858	2.486			
	AE3	0.895	3.412			
	AE4	0.860	2.677			
	AE5	0.888	3.182			
Creative Self-Efficacy	CSE1	0.711	1.925	0.924	0.936	0.597

	Items	Outer Loading	VIF	Cronbach's Alpha	CR	AVE
	CSE2	0.734	2.216			
	CSE3	0.779	2.615			
	CSE4	0.843	3.053			
	CSE5	0.801	2.670			
	CSE6	0.625	1.673			
	CSE7	0.776	3.061			
	CSE8	0.863	3.237			
	CSE9	0.829	3.512			
	CSE10	0.734	1.973			
Student Engagement	SE1	0.719	2.003	0.927	0.939	0.634
	SE2	0.833	3.098			
	SE3	0.748	2.509			
	SE4	0.754	2.707			
	SE5	0.815	3.241			
	SE6	0.806	2.489			
	SE7	0.822	3.156			
	SE8	0.837	4.049			
	SE9	0.820	3.503			
Student Learning Outcomes	SLO1	0.840	2.647	0.928	0.942	0.700
	SLO2	0.821	2.441			
	SLO3	0.831	2.824			
	SLO4	0.864	3.124			
	SLO5	0.867	3.361			
	SLO6	0.841	2.849			
	SLO7	0.790	2.250			

Using the heterotrait-monotrait (HTMT) method and the Fornell-Larcker criterion, the discriminant validity of this research was evaluated (J. J. Hair et al., 2016). The Fornell-Larcker criterion confirms the validity of the discriminant function by computing the square root of the average variance extract values for all model variables (J. J. Hair et al., 2016). To use the Fornell-Larcker standard as a point of reference, Table 3 describes the discriminative validity of each variable. This table demonstrates that the model's discriminant validity has been obtained because all of the variables inside each column's initial values are higher than their eventual values (J. J. Hair et al., 2016).

Table 3. Discriminant Validity (Fornell-Larcker)

	Aesthetic Education	Creative Self-Efficacy	Student Engagement	Student Learning Outcomes
Aesthetic Education	0.878			
Creative Self-Efficacy	0.578	0.773		
Student Engagement	0.728	0.683	0.796	
Student Learning Outcomes	0.578	0.763	0.648	0.837

According to the HTMT ratios criterion, all variable values must be less than 0.85 to be deemed acceptable. However, HTMT scores as high as 0.90 are sometimes deemed acceptable (J. J. Hair et al., 2016). The findings of this study are displayed in Table 4, where it can be seen that all values fall within the permissible range of 0.85 to 0.90. This study's results revealed that the proposed model for the investigation has discriminant validity.

Table 4. Discriminant Validity (HTMT)

	Aesthetic Education	Creative Self-Efficacy	Student Engagement	Student Learning Outcomes
Aesthetic Education				
Creative Self-Efficacy	0.613			
Student Engagement	0.788	0.720		
Student Learning Outcomes	0.619	0.817	0.687	

The model's strength in the initial data is deemed to be strong when the R² score is more than 0.5. According to the findings of this research, the value of R² for student learning outcomes is 0.619. The high R² score indicated a high degree of model robustness (J. J. Hair et al., 2016). In addition, the values of Q² for each of the models' latent constructs are higher than zero in every case. Additionally, it functions as a model for indicators of significance. Table 5 demonstrates the value of R² and Q².

Table 5. R-Square Values and Q-Square Values for The Variables

	R²	Q²
Creative Self-Efficacy	0.480	0.258
Student Engagement	0.530	0.312
Student Learning Outcomes	0.619	0.401

Direct Relationship

This research utilized a bootstrapping method with a total of 500 different samples to validate the model hypotheses statistically (Hair et al., 2016). The "T" and "p" values were analyzed in this study to assess whether or not the hypotheses should be accepted or rejected (Hair et al., 2016). An explanation of the results of the H1 relationship, which indicated that aesthetic education has a significant effect on student learning outcomes, is provided in Figure 3 and in Table 6. The fact that t equals (1.977) and p equals (0.024) demonstrates that this hypothesis is accepted. As a direct consequence of this, the H1 is accepted. In addition, the beta value of this hypothesis revealed that there would be a change of (0.126) units in student learning outcomes if there was a change of one unit in aesthetic education. Second, Hypothesis 2 proposed that student engagement significantly impacts on student learning outcomes. ;

The study's findings showed that a student's learning outcome is affected by student engagement (t= 1.984, p=0.026), and therefore H2 is accepted. In addition, the beta value of this hypothesis revealed that there would be a change of (0.160) units in student learning outcomes if there was a change of one unit in student engagement. Hypothesis 3 proposed that creative self-efficacy significantly impacts on student learning outcomes.

The research findings reveal that a student's learning outcome is affected by creative self-efficacy (t= 7.842, p=0.000), and therefore H3 is accepted. In addition, the beta value of this hypothesis revealed that there would be a change of (0.581) units in student learning outcomes if there was a change of one unit in creative self-efficacy. Hypothesis 4 proposed that student

engagement significantly impacts on creative self-efficacy.

The research findings reveal that creative self-efficacy is affected by student engagement ($t=9.451$, $p=0.000$), and therefore H4 is accepted. In addition, the beta value of this hypothesis revealed there would be a change of (0.558) units in creative self-efficacy if there was a change of one unit in student engagement. Figure 3 and Table 6 display the findings of all direct hypotheses.

Table 6. Direct Effects

Hypotheses	Relationship	Beta	SD	T value	P Values	Decision
H1	AE -> SLO	0.126	0.064	1.977	0.024	Supported
H2	SE -> SLO	0.160	0.082	1.948	0.026	Supported
H3	CSE -> SLO	0.581	0.074	7.842	0.000	Supported
H4	SE -> CSE	0.558	0.059	9.451	0.000	Supported

Mediation Analysis

Table 7 displays how student engagement and creative self-efficacy mediate the connection between aesthetic education and student learning outcomes. The outcome showed that student partially mediates the association between aesthetic education and student learning outcome - engagement and creative self-efficacy ($p=0.027$) and ($p=0.003$), respectively. And hence H5 and H6 are accepted. Table 7 shows the indirect effect of aesthetic education on student learning outcomes through the sequential effect of student engagement, and creative self-efficacy ($t = 6.218$, $p = 0.000$) was statistically significant. This provides support for the serial mediation model. Therefore, H7 is accepted.

Table 7. Indirect Effects

Hypothesis	Relationship	Original sample	T Values	P Values	VAF	Type of mediation
H5	AE -> SE -> SLO	0.116	1.938	0.027	38%	Partial
H6	AE -> CSE -> SLO	0.100	2.788	0.003	45%	Partial
H7	AE -> SE -> CSE -> SLO	0.236	6.218	0.000	63%	Partial

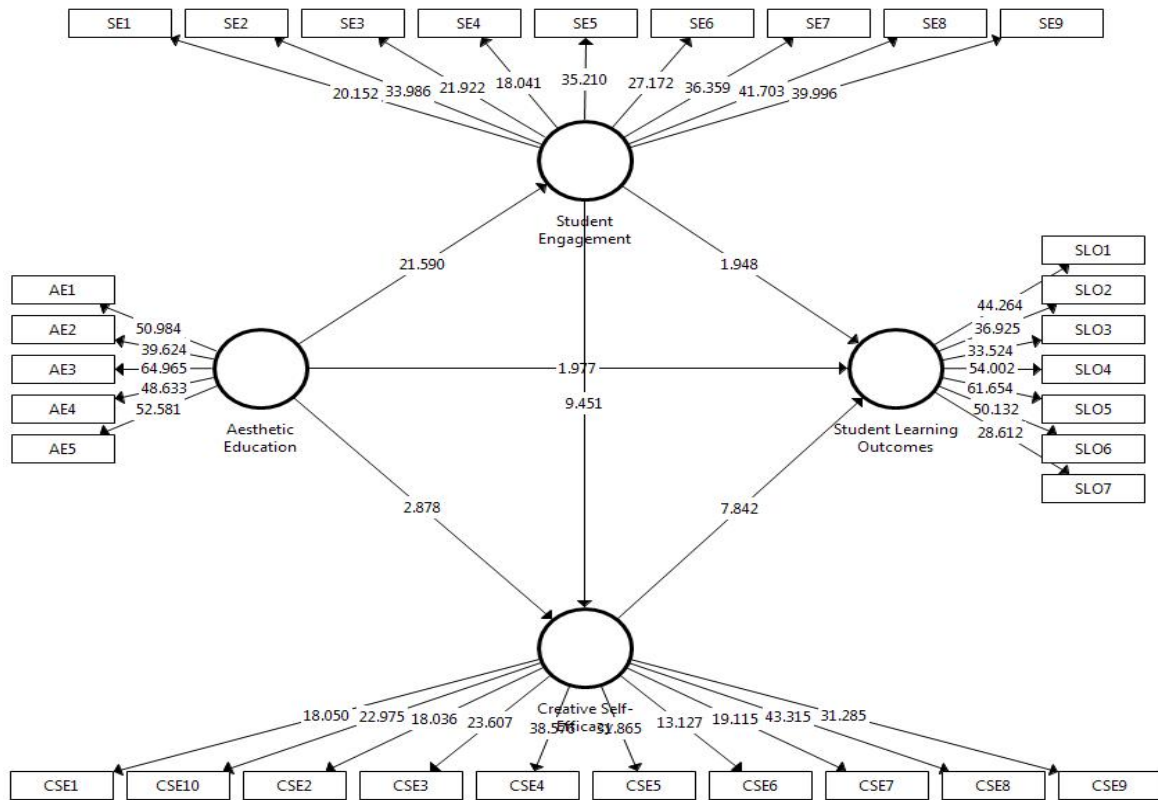


Figure 3. Structural Model

Discussion

This study investigated the relationship between Aesthetic Education and Learning outcomes. The findings of the research showed that there is a significant connection between aesthetic education and learning outcomes. These findings are aligned with the previous study conducted by Jin & Snook (2022) stated that the learning outcome of students increases when they have aesthetic Education. The second objective of the research was to investigate the connection between students' engagement and learning outcomes. The outcomes of the student increase when they are fully engaged in their learning activities. These findings are confirmed by Lee & Fanguy (2022). Thus H2 is also accepted. The third goal of the study was to look into the connection between learning outcomes and creative self-efficacy. The study's conclusions demonstrated that creative self-efficacy significantly affects learning results. The amount of work that pupils produce increases when they have imaginative minds and believe that they can do better (Ozkal, 2019). Thus H3 is also accepted.

The study's fourth goal was to examine how student engagement affected the relationship between aesthetic education and academic results. According to the research findings, the relationship between aesthetic education and learning outcomes is partially mediated by student participation. These results are consistent with the earlier investigation by Ozkal (2019) stated that aesthetic education affects on student engagement and student engagement increases the outcomes. Thus H5 is also accepted. The sixth hypothesis of the study stated that creative self-efficacy mediates the relationship between aesthetic education and learning outcomes. The study's findings supported that the relationship between aesthetic education and learning outcomes is largely mediated by creative self-efficacy. The study conducted by Hayat et al. (2020) stated that aesthetic education enhances creative self-efficacy and creativity leads to better performance. Hence H6 is also accepted. The seventh hypothesis of the study stated that the relationship between aesthetic education and learning outcome is serially mediated by student engagement and learning outcomes. The findings of the study confirmed this relationship. These findings are aligned with previous studies conducted by Lee & Fanguy (2022). Hence H7 is also

accepted.

Conclusion

The study aimed was to examine the relationship between aesthetic education and academic outcomes, with the function of student involvement and creative self-efficacy as mediators among inner Mongolian students of fine art. 310 fine arts students' data were gathered to complete the study's goal. The study concludes that aesthetic education significantly affects students' learning outcomes. According to the findings, the link between aesthetic education and student learning outcomes was mediated by student engagement and creative self-efficacy. The study's conclusions will be useful to the administration, policymakers, and students to improve the learning outcomes for students studying fine art.

The study has some limitations, some of which are listed below. To ensure that the findings can be applicable to a larger group in the future, it will be essential to conduct additional research with a more varied random sampling method. Since participants in the study completed a self-report questionnaire, it was likely that their responses would skew the sample results in a way that would make them appear to be socially acceptable. There was not much preceding research on the contributing factors to the study. In-depth interviews will be used to conduct qualitative research on fine arts students to set up future studies. A cross-cultural study project should be conducted to examine how cultural norms impact students' learning outcomes in the performing arts. To further understand the relationship between these characteristics, researchers need to look into several moderators in addition to fine arts education and learning outcomes.

Some of the effects of this study on daily life are listed below. The value of having an art education should be clarified to students interested in pursuing studies in this field. More opportunities should be given to students in art schools, colleges, and universities to gain real-world experience in the subject matter they are studying. These institutions should give their students access to more theoretical information. Art classes should be added to the curricula of the various stages governed by the Ministry of National Education, and students' awareness of art should be increased. The interaction and interdependence of teaching and learning are given much weight and thought in traditional Chinese education. Outstanding teachers lay the foundation for their students, facilitating their assimilation of new information and understanding of what they have already acquired. Teachers use lessons to impart their knowledge to their students. In addition to giving people instructions, they ought to show them how to follow those instructions correctly. Through their actions, they serve as role models and mentors for others. They will impart knowledge while maintaining a perpetual learning mindset, advancing their skills, and learning even more. For professors to instruct students and conduct research, higher education should encourage and support them. This course aims to help students advance their theoretical, practical, and technical abilities at the nexus of decorative arts practice and fine arts theory.

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