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Improving the Quality of Ceramic Teaching through a Student-Centered Learning Approach

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This research examines how innovative, student-centered teaching methods can promote creativity, motivation, and engagement in ceramics education. By incorporating a variety of teaching approaches that extend beyond the traditional curriculum, this research aims to foster independent artistic thought and a deeper appreciation of art, life, and society. The study involved 793 university students majoring in ceramics across several Chinese universities. A descriptive-correlational research design was employed to explore the relationships among key educational variables and evaluate the effectiveness of the proposed teaching model. The data were analyzed using SPSS and AMOS, employing confirmatory factor analysis, reliability tests, and regression modeling to test the hypotheses. The results indicate that teaching methods that emphasize creativity, self-directed learning, and collaborative work in the classroom have a significant impact on increasing students' motivation and creativity. The study also demonstrates that interdisciplinary and collaborative teaching models, which involve faculty from various fields and guest artists, are effective. These results demonstrate the importance of employing a comprehensive teaching framework when instructing on Chinese ceramics. The insights obtained provide valuable suggestions for educators, curriculum designers, and policymakers seeking to foster creativity and innovation in art education.

Keywords: Chinese ceramic art, innovative teaching methods, student-centered approach, creativity, art education

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INTRODUCTION

In the field of basic ceramics skill development, there is a noticeable lack of the traditional "master-to-apprentice" approach—a time-honored educational model where students learn by observing and mimicking a master craftsman, commonly used in ceramic and other visual arts training (Singleton, 1999). The absence of this method may weaken the transmission of craftsmanship skills. Regarding creative ceramic projects, there is also a shortage of innovative concepts and spiritual depth, leading to superficial creations (Li, 2023). To address challenges in ceramics education, it is crucial to thoroughly examine different teaching aspects to inspire and develop students' creativity. An important factor is whether teachers' philosophies and methods effectively support and nurture students' innovative abilities. In today's environment, where "innovation" and "craftsmanship" are highly valued, adopting creative teaching techniques that stimulate students' creative potential is essential. Tang (2002) suggested that establishing Chinese-style ceramic art education involves integrating China's rich ceramic heritage with perspectives from contemporary ceramic art and design education worldwide. The goal is not just to imitate traditional practices or external models but to develop new strategies that meet current needs. Creativity plays a vital role in education and many other fields. Fındıkoğlu & İlhan (2016) highlighted several reasons underscoring the importance of creativity within an educational context. These reasons help explain why creativity has been chosen as the central theme of this research.

Numerous studies have examined the impact of teachers on art education and the enhancement of students' creativity (Shiri & Baigutov, 2024a). Exploring the concept of creativity enables teachers to recognize and nurture the distinctive creative talents inherent in each student. This understanding proves beneficial in designing lessons and providing tailored instruction. A clear understanding of creativity helps educators deliver more effective and meaningful teaching practices (Craft, 2005). Subsequently, teachers can approach each student individually, assisting them in realizing their full potential—a practice known as 'teaching students by their aptitude,' as advocated by Confucius during the Spring and Autumn period in China. Secondly, an exploration of creativity can enhance students' problem-solving skills (Sawyer, 2011).

Literature Review

Traditional ceramics education in Chinese universities predominantly follows a teacher-centered model, where students mimic showcased techniques rather than cultivating their creative styles (Novotná, 2020). This inflexible framework restricts independent artistic exploration, resulting in creations that lack personal expression and critical interaction with materials and methods (Thoilliez, 2019). There are two parts to creative teaching: teaching in a creative way, where teachers use innovative methods to engage students, and teaching that encourages creativity, which aims to help students think outside the box (Woods, 2019). To break the cycle of passive learning and promote originality, it is important to combine both aspects within a student-centered framework (Wibowo & Saptono, 2018). Many ceramics programs at Chinese universities follow the same syllabi, which focus on structured demonstrations rather than learning through exploration and experimentation. This method prevents students from exploring new ideas and thinking critically, as they often adhere to established rules rather than conducting in-depth artistic research (Roberts, 2019; Onan & Ozturk, 2022; Zhazira et al., 2024). Additionally, encouraging students to explore various methods, such as open-ended projects, collaborating with individuals from diverse fields, and utilizing experimental materials, can help them connect more deeply with their work (Hall & Pais, 2018; Guan et al., 2023). Students can create their own artistic stories and use ceramics as a means to express themselves and reflect on society when they go beyond the syllabus limits (Sa'dijah et al., 2019). Motivation is a key factor in the learning journey, affecting students' involvement and their readiness to explore. Instructional strategies that focus on creativity have been found to boost motivation and promote a positive attitude towards learning (Tsai et al., 2020; Richardson & Mishra, 2018).

Teachers who want to be creative must work collaboratively, encourage students to learn independently, and provide them with structured opportunities to explore (Kaplan, 2019; Matuk et al., 2021). Teachers who encourage students to take intellectual risks and value experimentation help them build confidence and resilience, both of which are essential for long-term artistic growth (Philo & Senior, 2023). Modern ceramics education should align with contemporary art practices, integrating knowledge from diverse fields with traditional craftsmanship. To deepen students' understanding of ceramics as an art form, they need to be exposed to a wide range of subjects, including literature, history, physics, and painting (Winner et al., 2020). Students can enhance their problem-solving skills and broaden their creative perspectives by employing collaborative teaching methods, such as incorporating faculty from diverse fields, inviting guest artists, and fostering peer discussions (Douglas & Jaquith, 2018). This method fosters active participation and critical thinking, thereby creating a comprehensive and creative learning environment (Jin et al., 2022).

Problem statement

Although art education continues to evolve, many teaching methods remain inflexible, restricting opportunities for transformative learning experiences that foster critical thinking, collaboration, and innovation. Art education is constantly evolving, but many teaching methods remain unchanged, which limits the chances for transformative learning experiences that encourage critical thinking, teamwork, and innovative ideas. Additionally, ceramic education has not explored the effectiveness of various teaching methods, such as student-centered and interdisciplinary approaches. Traditional, teacher-centered methods that focus on skill acquisition still comprise a significant portion of ceramics instruction in China. There is a lack of focus on creativity and interactive teaching (Ding, 2022; Fan & Sirivesma, 2022). It is essential to examine how these teaching methods impact students' motivation, grades, and creativity in the arts. This study aims to fill these gaps by examining the impact of different and collaborative approaches to teaching ceramics on students. The results can help with curriculum development and make learning more enjoyable in the visual arts.

Objectives

The primary objective of this study is to develop a novel ceramics teaching model for Chinese university students, aiming to enhance their learning and artistic creativity. The goal of this study is to investigate how creative teaching methods can enhance students' learning experiences, encourage them to think critically, and inspire them to generate new ideas in their art. This study is based on the idea that "creativity is not a mysterious or innate quality, but rather a skill that can be cultivated in everyone through structured guidance and practice." (Spencer, Lucas, & Claxton, 2012; Intasao & Hao, 2018; Fischer, 2020; Lee, 2018). The research aims to achieve the following goals in line with this:

- Explore how innovative teaching methods help students develop their ability to think independently, solve problems, and generate new ideas when creating ceramics.

- Examine the issues with traditional teaching methods in Chinese ceramics education and how they influence students' creativity.

- Explore how effectively a student-centered approach functions in ceramics education, particularly in fostering environments where students can collaborate, interact, and boost their creativity.

- Discover key methods to boost creativity in university ceramics programs through interdisciplinary learning.

This study aims to provide teachers with practical guidance on how to unlock students' creative potential and enhance the effectiveness of ceramics education in China by incorporating innovative teaching methods.

Hypotheses Development

The conventional teaching approach in Chinese ceramics education has often prioritized technical skills rather than creative exploration. Consequently, students often engage in passive learning, resulting in a lack of originality in their creations, rather than promoting authentic artistic expression (Roberts, 2019; Stambekova et al., 2023; Ryen, 2020). Studies indicate that transitioning to student-centered and creativity-focused teaching strategies can significantly boost artistic originality and enthusiasm (Paek & Sumners, 2019; Wibowo & Saptono, 2018). This section formulates key hypotheses by analyzing pertinent pedagogical theories and issues in ceramics education.

- Hypothesis 1: Using a student-centered and creatively-driven approach to teaching ceramics makes students' work more unique and deeper, moving away from copying and sameness. Sawyer (2011) supports this idea by stating that environments that encourage creativity lead to original and divergent thinking, resulting in artistic outcomes created by students in school.

- Hypothesis 2: Using a variety of teaching methods in addition to traditional curricula leads to a significant change in ceramics education. It encourages authentic creative expression, independent learning, and a deeper understanding of art, life, and society among students. Recent studies have demonstrated that employing a range of teaching methods can substantially enhance students' interest in art, their problem-solving skills, and their willingness to undertake creative tasks (Fan & Sirivesma, 2022).

- Hypothesis 3: Using teaching methods that encourage creativity, independent learning, and a friendly classroom environment will make students much more interested in and positive about their ceramics classes. Amabile's (1996) research on intrinsic motivation and creativity in education backs this up. It shows that environments that support autonomy and collaboration make students more motivated and engaged in creative tasks.

- Hypothesis 4: Adding a collaborative and cross-disciplinary teaching framework to university ceramics programs, with input from teachers from different fields and guest artists, will make students more interested, help them think critically, and encourage them to learn actively. Research, such as that by Burnard and White (2008), has shown that art education that crosses disciplines encourages creative thinking, reflective thinking, and learning centered on the student.

The suggested hypotheses highlight important teaching challenges and opportunities in Chinese ceramics education. Ceramics programs can help students become more independent and creative artists by employing innovative, student-centered teaching methods, expanding beyond traditional curricula, focusing on learning motivated by interest, and encouraging collaboration across disciplines. The next part of this study will test these ideas in real-life settings by using a combination of structured surveys and in-depth interviews with students and teachers.

METHOD

Research design

The goal of this study is to investigate the effect of a collaborative and interdisciplinary teaching model on student participation, critical thinking, and active learning in ceramics classes at Chinese universities. We employed a descriptive-correlational survey design to examine the relationships among key educational variables and evaluate the effectiveness of the proposed teaching model. The study was set up around clear goals and hypotheses. It involved designing the instruments, collecting the data, and performing the statistical analysis. The study employed only quantitative methods; no qualitative data collection methods were used. A structured online questionnaire was the primary tool used. It was given to participants both before and after the teaching intervention was implemented. Figure 1 illustrates the research process, from model creation to evaluation of student performance.

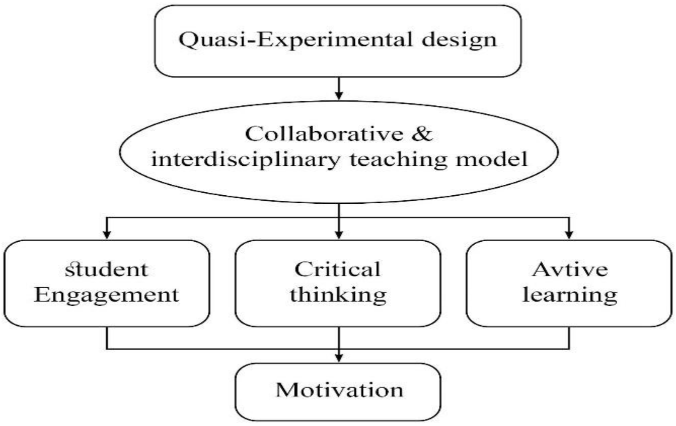

Figure 1
Research Design

Participants and data collection

The participants were undergraduate and graduate students enrolled in ceramics classes at select universities in China. A purposive sampling strategy was employed to ensure that the sample was diverse in terms of background and previous experience with ceramics education. The final sample consisted of 793 students majoring in ceramic arts from various cities and schools. Everyone who took part did so willingly and with full knowledge of the consequences of their actions. They were also promised complete privacy throughout the process. A structured questionnaire with 34 Likert-scale items and a set of objective measures related to student engagement, critical thinking, and learning effectiveness was used to gather data. The questionnaire was sent out over the internet, and the data that came back were entered into Excel spreadsheets and analyzed using SPSS software. The sample size of 793 was determined through purposive sampling, based on course enrollments and voluntary participation, to maximize diversity in learning contexts and institutional backgrounds.

Quantitative Data Collection and Analysis

Quantitative data were collected using an online questionnaire distributed to participants before and after the intervention. The instrument consisted of 34 items on a five-point Likert scale, designed to evaluate changes in student engagement, critical thinking, learning motivation, and creativity. Additionally, several objective questions were included to assess students' understanding of interdisciplinary concepts and collaborative practices in ceramics. To ensure the quality of the survey instrument, content validity was established through expert review by five specialists in art education and educational measurement. A pilot test was conducted with a group of 60 students, and reliability was assessed using Cronbach's alpha, yielding a value of $\alpha = 0.89$, indicating high internal consistency. Prior to conducting the primary statistical analysis, normality of data distribution was tested using the Shapiro-Wilk test, and homogeneity of variances was assessed using Levene's test. Both assumptions were met, allowing for the application of parametric statistical techniques. The gathered data were processed in Excel and analyzed using SPSS.

Measure

Independent Variable

The collaborative and interdisciplinary teaching model: This is the primary variable being adjusted in the research. It signifies the innovative strategy in ceramics education that merges various disciplines and teamwork in teaching methods.

Dependent Variables

Student engagement: This variable evaluates the degree of involvement, participation, and enthusiasm shown by students in the ceramics classes.

Critical thinking: This refers to students' capacity to analyze, assess, and synthesize information within the framework of ceramics education.

Active learning: This variable measures the extent to which students are actively engaged in the learning process, utilizing knowledge and skills in practical and creative ways.

Control Variables

Background and experiences: The research may consider students' prior experiences and backgrounds in ceramics education as control variables to account for potential differences in baseline knowledge or skills.

Teaching styles: The study might need to consider variations in individual teaching styles, even within the collaborative teaching model, as a control variable.

These variables collectively form the framework for understanding the impact of the collaborative teaching model on student outcomes in the context of ceramics education.

Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was employed to assess the model's fitness.

Table 1 presents the standardized loadings for all items related to their respective constructs. The fit indices, including a Chi-Square (χ^2) of 126 with 63 degrees of freedom (df), a χ^2/df ratio of 2.00, an IFI of .93, a TLI of .90, a CFI of .92, and an RMSEA of .07, indicate that the proposed model fits the data reasonably well (see Table 1).

Table 1
Model fit indices

Model Fit Indices	Model Fit Indices	Model Fit Indices
Chi-Square (χ2)	126.00	
Chi-Square/df (χ2/df)	2.00	< 2
Incremental Fit Index	0.93 (IFI)	> 0.90
Tucker-Lewis Index	0.90 (TLI)	> 0.90
Comparative Fit Index	0.92 (CFI)	> 0.90
Root Mean Square Error	0.07 (RMSEA)	< 0.08
Significance level (p) < 0.01		< 0.05

Table 2 illustrates the reliability, convergent validity, and discriminant validity of the model. Additionally, the scales we developed demonstrated satisfactory levels of reliability (CR > .70 and CR > AVE > .50) and internal consistency (α > .70). Moreover, these scales exhibited acceptable levels of both discriminant and convergent validity, as the square root values of AVEs for all variables exceeded their inter-construct correlations, ASV < MSV, and both ASV and MSV were less than AVE (table2).

Table 2
Reliability, convergent validity, and discriminant validity

Construct	1	2	3	4	5	6	7	8	9	10	11	a	CR	AVE	MSV	ASV
CT	**0.72**											0.87	0.89	0.64	0.17	0.12
AL	0.38	**0.75**										0.80	0.82	0.59	0.20	0.15
TS	-0.28	-0.39	0.77									0.75	0.77	0.51	0.24	0.16
CR	0.24	0.25	-0.34	0.74								0.88	0.89	0.66	0.18	0.13
UA	0.58	0.67	-0.12	0.42	0.73							0.84	0.85	0.72	0.14	0.10
TM	-0.43	-0.51	0.63	-0.29	-0.18	0.89						0.70	0.72	0.55	0.32	0.20
IL	0.25	0.51	0.54	0.43	0.23	0.34	0.88					0.83	0.84	0.51	0.31	0.11
PA	0.34	0.43	0.42	0.21	0.14	0.42	0.16	0.76				0.74	0.73	0.56	0.17	0.13
CT	0.43	0.46	0.49	0.29	0.32	0.23	0.19	0.13	0.71			0.76	0.78	0.53	0.13	0.17
DP	0.54	0.38	0.57	0.34	0.13	0.21	0.25	0.19	0.19	0.82		0.82	0.81	0.61	0.21	0.19
GA	0.23	0.39	0.62	0.48	0.29	0.34	0.51	0.34	0.12	0.38	0.87	0.71	0.82	0.65	0.16	0.16

Analysis

Hypothesis 1: Adopting a student-centered, creatively-focused teaching approach in ceramics education enhances the depth and originality of students' works, steering away from uniformity and imitation (Figure 2).

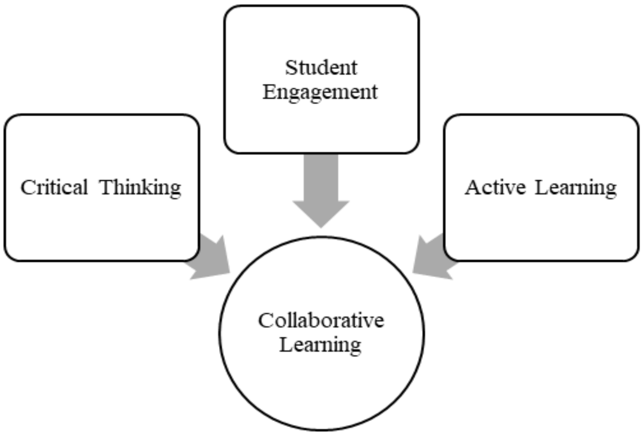

Figure 2
Collaborative learning

Table 3 presents the results of a regression analysis examining the relationship between the dependent variable "Collaborative Learning" and three independent variables: "Student Engagement," "Critical Thinking," and "Active Learning." Here is what the table means: The constant term is 1.274, indicating that when all independent variables are set to zero, the dependent variable (Collaborative Learning) is expected to be 1.274. The value is statistically significant ($p < 0.001$), indicating a meaningful baseline value for Collaborative Learning, even in the absence of predictors. The unstandardized coefficient (B) is 0.762, indicating that a one-unit increase in Student Engagement will result in a corresponding change in the dependent variable, while controlling for the other variables. The standardized coefficient (Beta) is 0.893, indicating the strength and direction of this relationship. The p-value for this coefficient is less than 0.001, indicating that higher levels of Student Engagement are associated with a significant improvement in Collaborative Learning. The unstandardized coefficient (B) is 0.629, indicating the change in the dependent variable when Critical Thinking increases by one unit, while all other variables remain constant. The standardized coefficient (Beta) is 0.530, indicating a moderate positive relationship. This coefficient is statistically significant ($p < 0.001$), indicating that as Critical Thinking increases, Collaborative Learning also increases substantially. The unstandardized coefficient (B) is 0.587. This illustrates how much the dependent variable changes when Active Learning increases by one unit, while controlling for the other variables. The standardized coefficient (Beta) is 0.432, showing a moderate positive correlation. However, the significance level (Sig.) is omitted, leaving the statistical significance of this relationship uncertain.

Collaborative Learning=1.274+0.762Student Engagement+0.629·Critical Thinking+0.587 Active Learning

To summarize, the regression analysis suggests that both Student Engagement and Critical Thinking play significant roles as predictors of Collaborative Learning. The positive coefficients for these factors indicate that enhancements in Student Engagement and critical thinking are correlated with greater Collaborative Learning. Although a relationship with Active Learning is suggested, its statistical significance has not been validated due to the absence of a significance level (Table 3).

Table 3
Reliability, convergent validity, and discriminant validity

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.274	.380		4.573	.000
	Student Engagement	.762	.103	.893	8.862	.000
	Critical Thinking	.629	.120	.530	5.258	.000
	Active Learning	.587	.114	.432	3.342	.000

a. Dependent Variable: Collaborative Learning R-84.3%

Hypothesis 2: Utilizing diverse teaching methods beyond the syllabus encourages a transformative shift in ceramics education, fostering genuine creative expression and a nuanced understanding of art, life, and society among students (Figure 3).

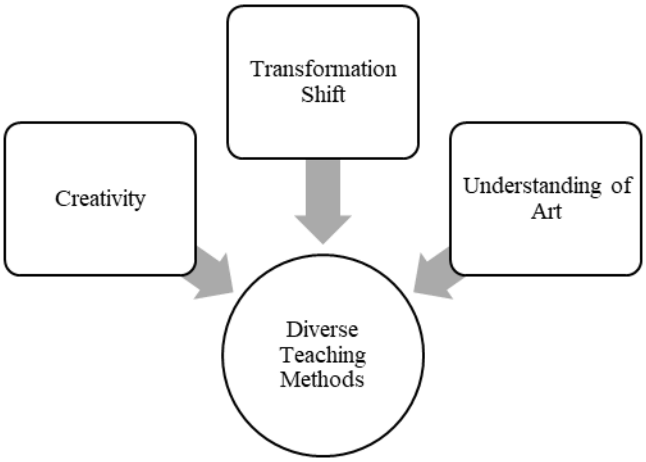

Figure 3
Diverse teaching methods

Table 4 presents the results of a regression analysis examining the relationship between the dependent variable "Diverse Teaching Methods" and three independent variables: "Transformative Shift," "Creativity," and "Understanding of Art." The following is a summary of the table's interpretation:

The constant term is 2.184, reflecting the anticipated value of the dependent variable (Diverse Teaching Methods) when all independent variables are at zero. This value is statistically significant ($p < 0.001$), indicating that there is an important baseline for Diverse Teaching Methods, even in the absence of predictors. The unstandardized coefficient (B) is 0.558, indicating the variation in the dependent variable resulting from a one-unit increase in Transformative Shift, while holding other variables constant. The standardized coefficient (Beta) is 0.764, indicating a strong positive relationship. This coefficient is statistically significant ($p < 0.001$), indicating that a higher Transformative Shift is associated with a substantial increase in the Use of Diverse Teaching Methods. The unstandardized coefficient (B) is 0.723, which means that the dependent variable changes by 0.723 units for every one-unit change in Creativity, while all other variables stay the same. The standardized coefficient, or Beta, is 0.483, indicating a moderate positive relationship. This coefficient is statistically significant ($p < 0.001$), indicating that greater creativity is associated with a substantial increase in the Use of Diverse Teaching Methods. The unstandardized coefficient (B) is 0.619. This means that if you change the dependent variable by one unit while keeping the other variables the same, the dependent variable will change by 0.619. The Beta value, which is the standardized coefficient, is 0.598, indicating a strong positive relationship. There is a statistically significant relationship between a higher Understanding of Art and a significant increase in Diverse Teaching Methods ($p < 0.001$). See Table 4 for more information.

Diverse Teaching Methods=2.184+0.558·Transformative Shift+0.723·Creativity+0.619· Understanding of Art

Table 4
Model-2

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	2.184	.250		2.463	.000
	Transformative Shift	.558	.132	.764	7.272	.000
	Creativity	.723	.156	.483	6.438	.000
	Understanding of Art	.619	.231	.598	4.267	.000

a. Dependent Variable: Diverse Teaching Methods R-81.4%

Hypothesis 3: Implementing teaching methods that prioritize creativity, foster independent learning, and create a cooperative classroom environment will significantly enhance students' motivation and positive attitudes toward learning in ceramics education (Figure 4).

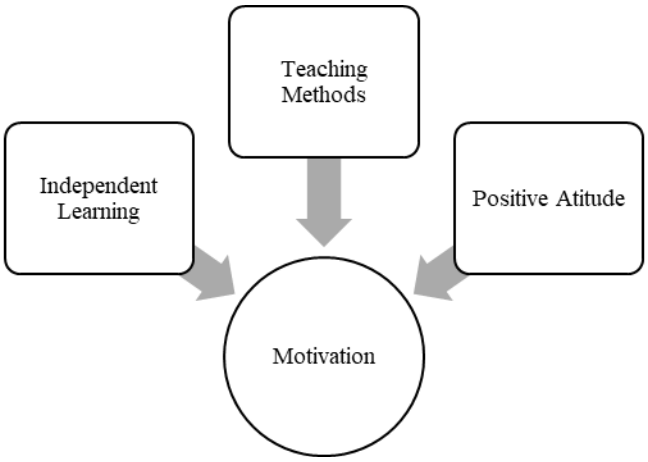

Figure 4
Motivation

Table 5 presents the results of a regression analysis examining the relationship between the dependent variable "Motivation" and three independent variables: "Teaching Methods," "Independent Learning," and "Positive Attitude." The following is an analysis of Table 3. The constant term is 1.285, which represents the expected value of Motivation when all independent variables are set to zero. There is a meaningful baseline value for Motivation, even without the predictors, as shown by the statistically significant p-value of < 0.001. The unstandardized coefficient (B) is 0.346, indicating how much the dependent variable changes when Teaching Methods increases by one unit, while the other variables remain constant. The standardized coefficient (Beta) is 0.873, indicating a strong positive relationship. This coefficient is statistically significant ($p < 0.001$), indicating that adopting new teaching methods has a substantial impact on student motivation. The unstandardized coefficient (B) is also 0.429, indicating how much the dependent variable changes when the independent variable

(Independent Learning) increases by one unit, while keeping other variables constant. The standardized coefficient (Beta) is 0.538, indicating a moderate positive relationship. This coefficient is statistically significant ($p < 0.001$), indicating that encouraging students to learn independently is a significant factor in increasing their motivation. The unstandardized coefficient (B) is 0.537. This means that when Positive Attitude increases by one unit, the dependent variable also increases by this amount, taking into account other variables. The standardized coefficient (Beta) is 0.722, demonstrating a strong positive correlation. This coefficient is statistically significant ($p < 0.001$), indicating that nurturing a positive attitude has a significant impact on students' motivation (Table 5).

Table 5
Model-3

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	1.285	.103		1.343	.000
	Teaching Methods	.346	.124	.873	3.532	.000
	Independent Learning	.429	.187	.538	5.564	.000
	Positive Attitude	.537	.264	.722	3.263	.000

a. Dependent Variable: Motivation R-88.2%

Hypothesis 4: Implementing a collaborative and cross-disciplinary teaching model in university ceramics education, coupled with diverse perspectives from teachers of other disciplines and guest artists, will enhance student engagement, critical thinking, and active learning (Figure 5).

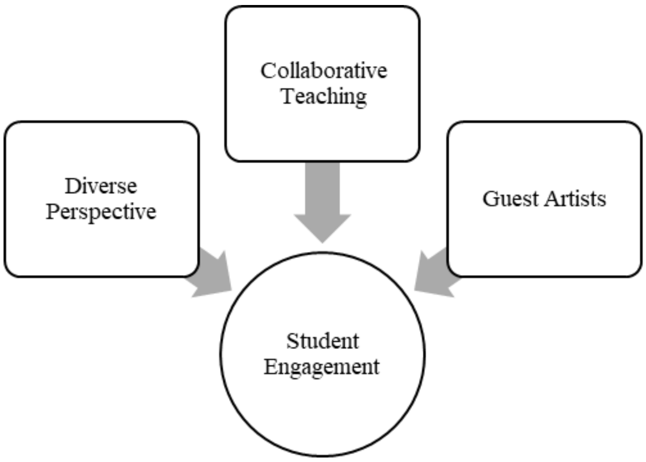

Figure 5
Student engagement

Table 6 presents the findings from a regression analysis that examines the relationship between the dependent variable "Student Engagement" and three independent variables:

"Collaborative Teaching," "Diverse Perspective," and "Guest Artists." Below is a breakdown of the interpretation of the table:

The constant term is 1.876, which represents the anticipated value of the dependent variable (Student Engagement) when all independent variables are held at zero. This result is statistically significant ($p < 0.001$), indicating that, even in the absence of predictors, a notable baseline value for student engagement exists. The unstandardized coefficient (B) for Collaborative Teaching is 0.317, signifying the change in the dependent variable that occurs with a one-unit increase in Collaborative Teaching while other variables are controlled. The standardized coefficient (Beta) stands at 0.932, illustrating a robust positive correlation. This coefficient is statistically significant ($p < 0.001$), suggesting that implementing a collaborative teaching approach substantially enhances student engagement. The unstandardized coefficient (B) for Diverse Perspective is 0.562, indicating the change in the dependent variable associated with a one-unit increase in Diverse Perspective, while all other variables remain constant. The standardized coefficient (Beta) is 0.872, indicating a strong positive relationship. This coefficient is also statistically significant ($p < 0.001$), indicating that incorporating diverse viewpoints from educators in various disciplines significantly enhances student engagement. The unstandardized coefficient (B) is 0.731, representing the change in the dependent variable resulting from a one-unit increase in Guest Artists, while controlling for other variables. The standardized coefficient (Beta) is 0.762, indicating a strong positive correlation. This coefficient is statistically significant ($p < 0.001$), indicating that the involvement of guest artists has a significant impact on student engagement (Table 6).

Table 6
Model-4

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
4	(Constant)	1.876	.132		2.143	.000
	Collaborative Teaching	.317	.172	.932	1.232	.000
	Diverse Perspective	.562	.243	.872	3.324	.000
	Guest Artists	.731	.192	.762	2.228	.000

a. Dependent Variable: Student Engagement R-83.7%

DISCUSSION

According to the results of this study, student involvement, critical thinking, and active learning are all important for making collaborative learning work in ceramics classes. Creative and student-centered teaching methods are more effective when students are more involved, think critically, and actively participate in the learning process. These methods make students' artistic work more realistic and engaging, which highlights the importance of learner-centered education. These findings align with earlier research that has demonstrated the impact of active and reflective learning on collaborative learning environments (Warsah et al., 2021; Qureshi et al., 2023; Shiri & Baigutov, 2024b).

The study also reveals that incorporating a range of teaching methods in ceramics education is closely tied to transformative learning, enhanced creativity, and a deeper understanding of art. These results support the idea that new teaching methods create a lively learning environment and help students grow as artists, which aligns with findings from other researchers (e.g., Gibson & Ewing, 2020; Bentz, 2020; Leal et al., 2018).

The study also highlights the importance of students learning independently and how their attitudes can impact their motivation. Students are more excited about learning ceramics when they have more freedom and are taught in ways that allow them to explore and make changes. This supports the findings of other studies, which suggest that providing students with more autonomy and fostering positive relationships with their teachers can enhance their motivation (e.g., Ferrer et al., 2022; Ghufron & Ermawati, 2018; Vennix et al., 2018).

Additionally, incorporating collaborative instruction, exposing students to diverse artistic perspectives, and collaborating with outside professionals, such as guest artists, have all been shown to increase student engagement significantly. These strategies make the classroom more interactive and engaging, which aligns with findings from other studies on collaborative and interdisciplinary approaches (e.g., Werder & Otis, 2023; Martin & Bolliger, 2018; Kang & Zhang, 2023).

In short, this study demonstrates the importance of employing student-centered, interdisciplinary, and creativity-based teaching methods in ceramics classes. These kinds of models not only engage students more effectively and motivate them, but they also help them understand concepts better, generate new ideas, and collaborate more efficiently. These results provide teachers and curriculum developers seeking to modernize ceramics programs in higher education with valuable information. Further research could investigate how these results apply in various cultural or institutional settings to gain a better understanding of what works best in art education.

CONCLUSION

This research holds significant practical value for teachers, curriculum designers, and administrators involved in ceramics education. Firstly, the results highlight the necessity of implementing student-oriented and creatively driven teaching methods. Instructors should focus on techniques that enhance student involvement, critical thinking, and hands-on learning, thereby creating an atmosphere that fosters collaborative education. Practical implementations could involve hands-on projects, real-world scenarios, and teamwork in ceramics classes to achieve these goals. Moreover, the research emphasizes the importance of varied teaching strategies and interdisciplinary methods in ceramics instruction. Educators are advised to explore innovative approaches, adopt transformative changes, and incorporate insights from other fields and visiting artists. This methodology not only enhances the educational experience but also helps students develop a more well-rounded understanding of art, life, and society. Practical execution may include joint workshops, cross-disciplinary initiatives, and guest presentations from experts in related areas, fostering a comprehensive and engaging learning setting. Additionally, the study suggests that fostering positive attitudes, motivation, and self-directed learning skills in students is crucial for success in ceramics education. Instructors should strive to foster a positive outlook towards learning, emphasizing the relevance and practical importance of the subject matter in students' lives. Strategies such as providing constructive feedback, incorporating motivational elements into lessons, and promoting a supportive classroom environment can contribute to increased student motivation. Moreover, encouraging independent learning through self-directed projects, research initiatives, and hands-on exploration empowers students to take ownership of their education. Overall, the practical implications of this study highlight the potential for transformative changes in teaching practices within ceramics education, ultimately leading to a more engaging, enriching, and practical learning experience for students.

RECOMMENDATIONS

Building on this study's findings, future research can enhance ceramics education by:

- Panel Studies – Examining the long-term impact of student-centered, innovative, and cooperative teaching approaches on educational outcomes and skill acquisition.

- Cross-Cultural Relevance – Investigating how various cultural backgrounds affect the success of these teaching methods, ensuring they address the diverse needs of students.

- Transformative Educational Practices – Analyzing particular teaching methods that facilitate significant changes in creativity and different viewpoints, guiding professional development for teachers.

By addressing these areas, future research can refine pedagogical approaches, enhance the quality of art education, and better prepare students for the evolving visual arts landscape.

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