



Campus Artistic Atmosphere and Student Learning Performance: Evidence from Guangxi Universities

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Abstract

This study examines the relationship between campus artistic atmosphere and student learning performance in universities in Guangxi, China. Using a quantitative cross-sectional survey design, data were collected from 420 undergraduate students through stratified random sampling across academic disciplines and year levels. The study measured campus artistic atmosphere through three dimensions: artistic environment, participation in artistic activities, and artistic perception and resonance. Learning performance was evaluated based on learning motivation, behavior, cognitive ability, and learning outcomes. Data were analyzed using descriptive statistics and stratified linear regression analysis. The findings reveal that campus artistic atmosphere significantly predicts student learning performance ($\beta=.779, p<0.001$), explaining 60.7% of the variance in learning outcomes. Although students generally reported positive perceptions of campus artistic atmosphere, actual participation in artistic activities and intrinsic learning motivation remained relatively limited. The study argues that an artistic atmosphere becomes educationally meaningful not merely through aesthetic exposure but through emotional engagement and participatory interaction. The findings highlight the importance of culturally responsive and emotionally supportive educational environments in strengthening student engagement and holistic learning development, particularly in multicultural and resource-constrained higher education contexts.



A. Introduction

Despite continuing efforts by universities to improve learning environments, student support systems, and educational experiences, concerns regarding declining student engagement and weak learning motivation remain evident across higher education settings (Law et al., 2019; Blasco-Arcas et al., 2013). At the same time, many students report a limited sense of belonging and emotional connection to their academic environments, suggesting that improvements in educational provision do not automatically generate meaningful learning experiences (Thomson & Hall, 2021; Ariani & Mirdad, 2016). This condition reveals an important paradox in contemporary higher education: while universities increasingly seek to enhance educational quality, students' academic engagement and learning experiences continue to be shaped by factors that extend beyond curriculum and instructional practices alone (Higgins et al., 2005; Fauzi et al., 2025; Norazman et al., 2018).

The persistence of this paradox indicates that educational quality cannot be understood solely through the lens of teaching effectiveness, curriculum design, or academic resources. Rather, a growing body of literature suggests that students' learning experiences are also influenced by the broader environments in which academic activities occur, including the physical, social, cultural, and emotional conditions of campus life (Higgins et al., 2005; Thomson & Hall, 2021; Ariani & Mirdad, 2016; Norazman et al., 2018). These environmental conditions can shape students' participation, creativity, well-being, and academic development by creating contexts that either facilitate or constrain meaningful engagement with learning processes (Tabrani ZA et al., 2024; Fatchiatuzahro et al., 2024; Law et al., 2019; Blasco-Arcas et al., 2013). Consequently, growing scholarly attention has been directed toward identifying specific dimensions of the campus environment that may contribute to learning quality and support the broader goal of creating inclusive and meaningful educational experiences as envisioned in Sustainable Development Goal 4 (SDG 4).

Among the various environmental dimensions discussed in recent educational studies, campus artistic atmosphere has emerged as an increasingly relevant yet insufficiently explored area of inquiry (Pranajaya, 2024; Yanshu, 2020; Wei Yingqun, 2022; Winner, 2022). Artistic atmosphere refers not only to the presence of visual artistic elements or campus beautification, but also to the broader integration of artistic values into students' daily academic and social experiences. It encompasses material landscapes,

artistic participation, cultural interaction, symbolic expression, and collective emotional resonance within the university environment (Ulfah et al., 2026; Yang Ping, 2018; Sun Guang, 2012; Jiang Zhefeng, 2013). In culturally diverse regions, an artistic atmosphere may also function as a medium for preserving local identity, strengthening students' sense of belonging, and fostering emotional attachment to the campus community (Yu Yanni, 2017; Tabrani ZA et al., 2024). Nevertheless, despite its potential educational significance, a campus artistic atmosphere is still frequently treated as a decorative or supplementary aspect of university management rather than as an important educational component that may shape student learning quality.

This issue becomes particularly significant in regions characterized by cultural diversity and limited educational resources, such as Guangxi Zhuang Autonomous Region in China. Guangxi possesses rich ethnic traditions and diverse intangible cultural heritage, yet universities in the region continue to face challenges related to student motivation, educational competitiveness, and unequal access to high-quality learning resources. Preliminary findings from this study indicate a paradoxical condition in which students generally acknowledge the presence of campus artistic environments, while at the same time demonstrating relatively low levels of active artistic participation and intrinsic learning motivation. Nearly 44% of students expressed negative attitudes toward campus artistic displays, while approximately 49.28% reported weak learning initiative.

These findings suggest that the existence of artistic facilities alone may not automatically generate meaningful educational engagement. Instead, the effectiveness of artistic atmosphere may depend on how artistic experiences are integrated into students' emotional, participatory, and academic lives. This contradiction raises an important academic question regarding whether campus artistic atmosphere can function as a contextual educational scaffold capable of strengthening learning performance within resource-constrained and multicultural settings.

Existing studies on campus environments and learning performance have generally developed along two major but relatively fragmented paths. *First*, research concerning campus aesthetics has predominantly focused on isolated artistic elements such as classroom decoration, sculpture placement, architectural appearance, or temporary artistic events (Mahzumi et al., 2025; Yanshu, 2020; Liu Xuegang, 2020; Sun Guang, 2012; Wei Yingqun, 2022; Yang Ping, 2018). Although these studies demonstrate that aesthetic environments may influence students' emotions and perceptions, they tend to conceptualize the artistic atmosphere narrowly and fail to examine how various artistic

dimensions collectively interact as an integrated educational ecosystem. As a result, the synergistic relationship between material artistic environments, participatory artistic culture, and students' educational experiences remains underexplored.

Second, studies on learning performance have primarily emphasized internal and instructional factors, including learning motivation, cognitive engagement, teaching quality, and academic behavior (Nurjannah et al., 2025; Law et al., 2019; Afacan, 2016; Blasco-Arcas et al., 2013; Hsu & Hsieh, 2014; Yin & Yuan, 2021). While these studies contribute significantly to the understanding of student achievement, they often overlook the broader environmental and cultural dimensions that may indirectly shape learning outcomes. In particular, limited attention has been paid to how a campus artistic atmosphere may influence students' emotional engagement, social participation, and intrinsic motivation as part of the learning process. Moreover, empirical studies examining this relationship within multicultural and resource-limited regions remain scarce (Mohamad Rasit, 2026; Shih, 2019; Wang, 2022; Yang, 2024). Consequently, a significant research gap persists regarding how artistic atmosphere functions as a holistic environmental factor connecting cultural identity, educational inclusivity, and learning quality.

Another limitation in previous literature lies in the absence of an integrated conceptual framework capable of explaining how campus artistic atmosphere influences student learning performance. Most existing studies discuss aesthetic environments descriptively and focus on isolated artistic attributes without examining the interrelationships among artistic exposure, participatory culture, emotional resonance, and academic engagement. Consequently, the educational function of artistic atmosphere remains theoretically fragmented and insufficiently connected to broader discussions of learning environments, educational inclusivity, and sustainable higher education development. This lack of conceptual and empirical integration highlights an important gap in current scholarship.

To address these limitations, this study conceptualizes campus artistic atmosphere as a multidimensional educational construct encompassing physical artistic landscapes, artistic participation, and perceptual-cultural resonance. Rather than treating artistic atmosphere as a decorative attribute of campus space, this study positions it as an active environmental factor that may shape students' motivation, engagement, and learning performance. The novelty of this study lies in two principal aspects. First, it advances a holistic conceptualization of campus artistic atmosphere as an integrated educational ecosystem rather than a collection of isolated aesthetic elements. Second, it develops an analytical perspective that connects artistic atmosphere with learning performance

through emotional and participatory dimensions, thereby offering a more comprehensive explanation of how environmental experiences may contribute to student learning.

This study contributes to the literature on higher education environments by extending existing understandings of learning performance beyond predominantly instructional and individual-centered explanations. It highlights the importance of artistic and cultural dimensions as educational resources that may foster student engagement, strengthen emotional attachment to learning environments, and support academic development. Furthermore, by providing empirical evidence from Guangxi, a multicultural and relatively resource-constrained region that remains underrepresented in international educational research, this study broadens the geographical and contextual scope of scholarship on campus environments and student learning.

Based on these considerations, this study aims to: (1) assess students' perceptions of the campus artistic atmosphere in Guangxi universities; (2) examine students' multidimensional learning performance, including motivation, behavior, learning capacity, and outcomes; and (3) analyze the predictive relationship between campus artistic atmosphere and student learning performance. Through these objectives, this study seeks to advance theoretical discussions on educational environments while offering practical insights for developing inclusive, culturally responsive, and environmentally supportive higher education systems in diverse global contexts.

B. Method

This study employed a quantitative cross-sectional survey design to examine the relationship between the campus artistic atmosphere and student learning performance at a single point in time. The research was conducted from April to May 2024 at public universities in Guangxi Zhuang Autonomous Region, China, a multicultural and relatively resource-constrained region characterized by strong ethnic cultural diversity. The study focused specifically on undergraduate students, as they experience the campus artistic environment and academic learning process simultaneously.

To ensure representativeness across major academic characteristics, stratified random sampling was applied based on academic discipline and year level. Students were grouped into four disciplinary categories (humanities, sciences, engineering, and arts) and four academic levels (freshmen, sophomores, juniors, and seniors). Through this process, 420 valid responses were obtained and analyzed. The demographic distribution of respondents is presented in Table 1.

Table 1. Respondents' Demographic Characteristics

Variable	Category	Frequency	Percentage
Gender	Male	97	23.1
	Female	323	76.9
Discipline	Humanities	118	28.1
	Sciences	103	24.5
	Engineering	110	26.2
	Arts	89	21.2
Academic Year	Freshman	153	36.43
	Sophomore	95	22.62
	Junior	130	30.95
	Senior	42	10

Data were collected using a structured questionnaire consisting of two main constructs: campus artistic atmosphere and learning performance. The campus artistic atmosphere variable was operationalized as a multidimensional construct integrating physical artistic landscapes, participation in artistic activities, and students' perceptual resonance toward campus culture. Meanwhile, learning performance encompassed learning motivation, learning behavior, learning ability, and learning outcomes. All questionnaire items were measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The instrument items were adapted from previous studies related to learning environments and student academic engagement (Law et al., 2019; Afacan, 2016; Yanshu, 2020; Liu Xuegang, 2020).

Prior to the main survey, a pilot test involving 30 students was conducted to examine instrument validity and reliability. The validity test showed that all items met the acceptable threshold, while the reliability test produced Cronbach's Alpha values above 0.70, indicating satisfactory internal consistency. During the main data collection process, questionnaires were distributed both directly and electronically to respondents after obtaining their informed consent.

The data were analyzed using descriptive and inferential statistics with SPSS software. Descriptive analysis was used to identify the level of students' perceptions regarding campus artistic atmosphere and learning performance. Meanwhile, stratified linear regression analysis was employed to examine the predictive relationship between the campus artistic atmosphere and learning performance after controlling for demographic variables such as gender, discipline, and academic year.

This study received ethical approval from the Guangxi Arts University Research Ethics Committee. Informed consent was obtained from all participants, including



parental or guardian consent for respondents under 18 years old. Participation was voluntary, and respondents retained the right to withdraw at any stage of the study. All responses were collected anonymously, and the data were securely stored and used solely for academic and research purposes.

C. Results and Discussion

This section presents the findings of the study and discusses their implications in relation to the research objectives, theoretical perspectives, and previous literature. The results are first presented based on the empirical data obtained from the survey, followed by an analytical discussion to interpret the meaning, significance, and broader educational implications of the findings within the context of higher education.

1. Results

This section presents empirical findings based on the statistical analysis of 420 valid questionnaires, focusing on three core themes: the current state of students' perceived campus artistic atmosphere, the current state of students' learning performance, and the relationship between these two constructs.

a. Current status of campus artistic atmosphere

Overall level

Descriptive statistics showed that the overall mean score of students' perception of the campus artistic atmosphere was $M=3.7020$ ($SD=0.72238$). According to the mean range classification (1.00-1.49=Very Low Satisfaction; 1.50-2.49=Low Satisfaction; 2.50-3.49=Moderate Satisfaction; 3.50-4.49=High Satisfaction; 4.50-5.00=Very High Satisfaction), this indicates that students generally hold a positive attitude toward the campus artistic atmosphere (see Table 2).

Table 2. The overall level of campus artistic atmosphere

Variables	Mean	S. D	Level*
Campus artistic atmosphere (Overall)	3.7020	.72238	High Satisfaction

Note: *1.00-1.49 = Very Low Satisfaction; 1.50-2.49 = Low Satisfaction; 2.50-3.49 = Moderate Satisfaction; 3.50-4.49 = High Satisfaction; 4.50-5.00 = Very High Satisfaction

Key item response frequencies indicated that 308 students (73.34%) responded positively to 'I am willing to study on campus'; over 60 percent affirmed, 'The campus artistic atmosphere has helped my study and growth'; and 263 students (62.62%) agreed with 'I enjoy the campus environment with artistic elements.'

Sub-dimensional performance

The three sub-dimensions of the campus artistic atmosphere showed distinct mean scores (Table 3). Students rated Art Activity Participation highest (M=3.95, SD=0.649, Median=4.000), followed closely by Physical Art Landscape (M=3.92, SD=0.712, Median=4.000). The dimension of Artistic Perception and Resonance had the lowest score (M=3.89, SD=0.747, Median=4.000).

Table 3. Sub-dimensional scores of campus artistic atmosphere

Sub-dimension	Mean	S. D	Median
Physical Art Landscape	3.922	0.712	4.000
Art Activity Participation	3.950	0.649	4.000
Artistic Perception and Resonance	3.892	0.747	4.000

Looking at specific items regarding the 'Physical Art Landscape,' 73.34% of students (n=308) agreed with the statement 'I enjoy studying on campus.' However, regarding 'Art Activity Participation,' only 55.72% of students (n=234) agreed or strongly agreed with the statement 'I actively participate in extracurricular arts activities (arts festivals, painting, opera, dance, etc.),' while 44.28% (n=186) held neutral or negative attitudes. Regarding 'Artistic Perception and Resonance, 46.43% of students (n=195) expressed neutral or negative attitudes toward the statement, 'I feel excited by art installations (decorations) on campus'.

Additionally, cognitive differences exist among students from different disciplines. Arts students rated the artistic landscape highest (M=3.92), with significantly higher positive response rates than other disciplines regarding excitement for artistic perception and decoration (89.75%) and willingness to participate in artistic activities (89.66%). Humanities students ranked second overall (M=3.75). Students in science (M=3.58) and engineering (M=3.51) demonstrated significantly weaker perceptions of art and humanities compared to arts students ($p < 0.01$). Engineering students exhibited the lowest participation rate in art activities at only 9.4%. Meanwhile, 23.38% of science and engineering students held neutral or negative attitudes toward campus art decorations.

b. Current Status of Student Learning Performance

Overall level

The self-assessment of students' overall learning performance revealed a mean score of M=3.7371. According to the same classification criteria, this indicates a high level of performance among the respondents (Table 4).



Table 4. The overall level of students' learning performance

Variables	Mean	S. D	Level*
Learning performance (Overall)	3.7371	.61845	High Satisfaction

Note: *1.00-1.49 = Very Low Satisfaction; 1.50-2.49 = Low Satisfaction; 2.50-3.49 = Moderate Satisfaction; 3.50-4.49 = High Satisfaction; 4.50-5.00 = Very High Satisfaction

Sub-dimensional performance

Table 5 presents the mean scores, standard deviations, and medians for the four sub-dimensions of learning performance. The highest mean score was observed for Learning Capacity and Thinking (M=3.922, SD=0.650, Median=4.000), followed by Learning Behavior and Engagement (M=3.878, SD=0.630, Median=4.000), while the lowest was recorded for Learning Interaction and Outcomes (M=3.760, SD=0.690, Median=3.750).

Table 5. Sub-dimensional Scores of Learning Performance

Sub-dimension	Mean	S. D	Median
Learning Motivation and Planning	3.860	0.717	4.000
Learning Behavior and Engagement	3.878	0.630	4.000
Learning Capacity and Thinking	3.922	0.650	4.000
Learning Interaction and Outcomes	3.760	0.690	3.750

Specific data indicates that students' self-reported academic performance mainly falls within the 81-90 score range (60.48%, n=254). The majority of students (62.38%, n=262) agree that their current studies help build the knowledge and skill foundation needed for future careers, while 69.28% (n=291) express a desire to pursue further education.

However, the data also reveals some contradictions: on one hand, over half of the students held positive attitudes toward capability items such as 'being able to critically understand knowledge' (66.19%, n=278), 'frequently reflecting on one's own learning' (66.19%, n=278), and 'actively overcoming learning difficulties' (69.76%, n=293). On the other hand, regarding learning initiative, the study revealed that 50.71% (n=213) of students demonstrated 'high learning initiative,' only 55.00% (n=231) reported 'actively preparing lessons in advance and reviewing content', and 47.62% (n=200) expressed a 'neutral' attitude or 'dissatisfaction' with their current academic performance.

c. Relationship between campus artistic atmosphere and learning performance

Pearson correlation analysis revealed a strong positive correlation between the total score for campus artistic atmosphere and the total score for student learning performance ($r = 0.779$, $p < .001$). To examine the predictive role of the campus artistic atmosphere on

academic performance, stratified linear regression analysis was conducted after controlling for demographic variables such as gender, discipline, and grade level. The model summary (Table 6) indicates that campus artistic atmosphere independently explains 60.7% of the variance in academic performance (adjusted $R^2=.606$, $F= 641.619$, $p<.001$).

The regression coefficient table (Table 8) shows that the campus artistic atmosphere had a significant positive predictive effect on learning performance, with an unstandardized coefficient of $B=0.667$ ($SE=0.026$, $p<0.001$) and a standardized coefficient $\beta=0.779$, mirroring the results obtained in Table 6. This means that for every 1-unit increase in campus artistic atmosphere scores, learning performance scores increased by 0.667 units.

Table 6. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.779 ^a	.607	.606	.38834

a. Predictors: (Constant), artistic atmosphere

Table 7. ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	96.759	1	96.759	641.619	.000 ^b
	Residual	62.735	416	.151		
	Total	159.493	417			

a. Dependent Variable: Learning Performance

b. Predictors: (Constant), Artistic Atmosphere

Table 8. Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.269	.099		12.776	.000
	Artistic Atmosphere	.667	.026	.779	25.330	.000

a. Dependent Variable: Learning Performance

2. Discussion

The findings demonstrate that campus artistic atmosphere is not merely a supplementary feature of university life but an educational environment that significantly influences student learning performance. The strong predictive relationship identified in this study indicates that learning outcomes are shaped not only by instructional quality and individual academic ability but also by the broader cultural and environmental contexts in which learning takes place. In Guangxi, where universities operate within a multicultural



and relatively resource-constrained setting, artistic atmosphere appears to provide an important educational resource that strengthens students' connection to campus life and enriches their learning experiences. This finding reinforces the growing recognition that educational quality is embedded within the wider ecology of student experiences rather than being confined to classrooms and formal teaching activities (Higgins et al., 2005; Thomson & Hall, 2021). Similar arguments have been advanced by Law et al. (2019) and Blasco-Arcas et al. (2013), who emphasize that learning outcomes are influenced by factors extending beyond instructional processes. Recent studies likewise highlight the importance of environmental and cultural contexts in shaping student engagement and development (Tabrani ZA et al., 2024; Fatchiatuzahro et al., 2024; Yin & Yuan, 2021).

A notable aspect of the findings is the coexistence of positive perceptions of campus artistic environments with relatively low levels of artistic participation and weak intrinsic learning motivation. Although students generally appreciated the artistic atmosphere and reported satisfactory learning performance, many remained only marginally involved in artistic activities. This suggests that favorable perceptions of educational environments do not automatically generate active participation or deeper engagement. Similar observations have been reported by Norazman et al. (2018), who found that positive evaluations of educational settings do not necessarily translate into meaningful involvement. Likewise, Ladd and Dinella (2009) noted that environmental satisfaction may coexist with limited participation. The findings therefore reveal a gap between environmental appreciation and educational engagement, indicating that exposure to artistic environments alone is insufficient to generate meaningful learning experiences.

The significance of this finding extends beyond campus aesthetics. It suggests that the educational value of artistic atmosphere lies not in the presence of artistic objects or visually attractive spaces themselves, but in their capacity to facilitate interaction, participation, and personal meaning-making. Students benefit from artistic environments when they engage with them actively rather than passively. Learning environments become educationally influential when students interpret, experience, and integrate environmental resources into their daily academic and social lives (Higgins et al., 2005). Wang (2022) and Yin and Yuan (2021) similarly argue that participation transforms environmental resources into meaningful learning opportunities. In this regard, artistic atmosphere contributes to learning performance by creating conditions that encourage involvement, belonging, and interaction rather than by functioning merely as a physical or aesthetic attribute of campus space.

This interpretation also helps explain why universities frequently fail to maximize the educational potential of campus artistic resources. Brown and Tepper (2012) describe this phenomenon as a “decorative bias,” whereby institutions prioritize artistic visibility and symbolic prestige while paying less attention to student participation. The present findings provide empirical support for this argument. Although students generally valued artistic environments, participation remained comparatively limited, suggesting that artistic resources alone are insufficient to foster engagement. As Norazman et al. (2018) and Ladd and Dinella (2009) observed, appreciation does not necessarily produce involvement. Consequently, the effectiveness of artistic atmosphere depends on the extent to which universities create opportunities for students to interact with, contribute to, and derive meaning from artistic and cultural activities.

From a theoretical perspective, the findings extend existing understandings of learning performance by highlighting the importance of environmental-cultural factors. Traditional studies often emphasize motivation, cognition, and teaching effectiveness as the primary determinants of educational outcomes (Law et al., 2019; Afacan, 2016). While these factors remain important, the present findings indicate that environmental conditions also function as significant explanatory variables. Constructivist learning theory argues that learning emerges through interaction between individuals and their environments rather than through passive reception of information (Tabrani ZA et al., 2024). The present findings support this perspective by showing that artistic atmosphere provides opportunities for interaction, engagement, and meaning construction. This interpretation aligns with Saarsar’s (2018) emphasis on environmental interaction and with Higgins et al.’s (2005) argument concerning the role of learning environments in shaping engagement.

The findings further suggest that artistic atmosphere influences learning through social and emotional pathways rather than through aesthetic exposure alone. Educational environments affect learning when students experience emotional connection, participation, and social involvement within those environments. This interpretation is consistent with arguments advanced by Wang (2022) and Yang (2024), who emphasize the importance of emotional resonance and participation in educational experiences. It also supports Ma Jianguang’s (2002) argument that educational development requires the integration of intellectual, emotional, and cultural dimensions. The findings therefore challenge narrow explanations of learning performance that focus exclusively on cognitive achievement and instructional effectiveness while overlooking the broader environmental conditions that shape student engagement.



The demographic variations identified in this study further reinforce this interpretation. Humanities and arts students reported stronger artistic perception and participation than science and engineering students, indicating that disciplinary culture influences how students engage with artistic environments. Participation also declined among senior students, whose educational experiences increasingly became shaped by employability concerns, academic pressure, and career preparation. This pattern reflects what Li Danping (2023) describes as the rise of instrumental learning cultures, in which educational engagement becomes increasingly directed toward external outcomes rather than personal development. Under such conditions, artistic atmosphere may serve as an important counterbalance by providing opportunities for identity formation, social connection, and emotional expression. Similar conclusions have been drawn by Blasco-Arcas et al. (2013), while Lekue (2015) and Shih (2019) highlight the role of artistic participation in fostering belonging and personal development.

One of the main contributions of this study is its explanation of how artistic atmosphere influences learning performance. Previous studies largely examined campus aesthetics as isolated environmental variables without adequately explaining the mechanisms linking artistic environments and educational outcomes (Yanshu, 2020; Liu Xuegang, 2020). The findings suggest that artistic atmosphere affects learning through emotional resonance, participation, and educational engagement, thereby addressing an important gap in environmental-learning research. By integrating perspectives from environmental psychology, constructivist learning theory, and higher education studies, the study repositions artistic atmosphere as an educational force rather than merely an aesthetic feature. This interpretation is consistent with Li Lili and Zhang Muzi (2018) and Wei Yingqun (2022), who emphasize the educational value of cultural and artistic participation.

Practically, the findings suggest that universities should move beyond viewing artistic atmosphere as a matter of beautification or symbolic representation. Instead, artistic environments should be embedded within students' everyday educational experiences through meaningful participation and cultural engagement. Previous studies emphasize that educational environments become more effective when they encourage active involvement rather than passive observation (Tabrani ZA et al., 2024; Ariani & Mirdad, 2016). Therefore, universities should support collaborative artistic projects, student-curated exhibitions, interdisciplinary creative initiatives, and culturally responsive public spaces that strengthen engagement and belonging (Liu Xuegang, 2020;

Saarsar, 2018). Such approaches may also help address the psychological and emotional challenges increasingly experienced by contemporary students (Li Danping, 2023).

The relevance of these findings extends beyond Guangxi and contributes to broader discussions concerning educational quality and sustainability. For institutions operating in resource-constrained contexts, artistic and cultural ecosystems may provide relatively affordable yet effective strategies for enhancing student engagement and inclusivity. This perspective aligns closely with Sustainable Development Goal 4, which emphasizes inclusive and equitable quality education. Across many higher education systems, universities face increasing challenges related to student disengagement, emotional alienation, academic burnout, and instrumental learning cultures (Tabrani ZA et al., 2024; Sabah, 2019). Similar concerns have been identified by Ariani and Mirdad (2016), Shih (2019), and Siregar and Susilawati (2026), who document declining emotional attachment to learning environments. In this context, artistic atmosphere may serve as an educational resource that strengthens emotional well-being, cultural inclusivity, participatory learning, and intrinsic academic motivation (Wang, 2022; Yin & Yuan, 2021; Syukur et al., 2026).

The Guangxi case also demonstrates how local cultural identity can function as an educational asset rather than merely a symbolic heritage. The incorporation of Zhuang, Yao, and Han cultural elements into campus artistic environments illustrates how local cultural resources can simultaneously strengthen belonging and engagement. This finding contributes to wider discussions concerning culturally responsive pedagogy, educational decolonization, and the preservation of local identity within higher education. Rather than viewing local culture as separate from educational development, the findings suggest that culturally embedded artistic ecosystems can provide globally relevant pathways toward sustainable and inclusive education.

Despite these contributions, several limitations should be acknowledged. The study employed a cross-sectional design, limiting the ability to establish causal relationships between artistic atmosphere and learning performance. The reliance on self-reported survey data may also introduce subjectivity and social desirability bias. Furthermore, the research was conducted within a single regional context, limiting broader generalizability. Finally, several potentially influential factors, including teaching quality, peer interaction, leadership culture, family background, and prior artistic experiences, were not included in the analysis. Future studies should therefore adopt longitudinal and multi-contextual approaches to further examine the complex relationship between environmental-cultural factors and student learning outcomes.

D. Conclusion

This study demonstrates that the campus artistic atmosphere constitutes an important environmental and cultural factor influencing student learning performance within higher education institutions. The findings reveal that the campus artistic atmosphere significantly predicts students' learning motivation, engagement, cognitive development, and academic outcomes, indicating that learning performance is shaped not only by instructional and cognitive dimensions, but also by broader socio-cultural and emotional learning environments. More specifically, the study shows that an artistic atmosphere becomes educationally meaningful when artistic spaces are transformed into participatory and emotionally resonant environments that encourage students' social interaction, cultural engagement, and sense of belonging within academic life.

The study further reveals an important paradox within contemporary higher education. Although students generally expressed positive perceptions of the campus artistic atmosphere, actual participation in artistic activities remained relatively limited, while intrinsic learning motivation also appeared comparatively weak. This finding suggests that aesthetic exposure alone is insufficient to generate meaningful educational engagement. Instead, the educational influence of artistic atmosphere depends on students' emotional involvement, participatory interaction, and cultural resonance. In this regard, the study contributes theoretically by repositioning the campus artistic atmosphere as an integrated educational ecosystem rather than merely a decorative institutional component. The study also contributes to expanding discussions on learning performance by emphasizing the role of environmental-cultural dimensions within higher education contexts, particularly in multicultural and resource-constrained regions such as Guangxi.

Practically, the findings imply that universities should move beyond symbolic campus beautification toward the development of participatory artistic ecosystems integrated into students' everyday educational experiences. The artistic atmosphere should not be treated merely as visual decoration or institutional branding, but as a strategic educational resource capable of strengthening emotional engagement, intrinsic motivation, social belonging, and holistic student development. In this sense, the study highlights the importance of human-centered and culturally responsive educational environments within contemporary higher education systems.

This study also contributes to broader global discussions concerning sustainable and inclusive education. In the context of increasing academic pressure, emotional

alienation, and instrumental learning culture within universities worldwide, the campus artistic atmosphere can function as an alternative educational approach capable of strengthening students' emotional well-being and educational engagement. The findings therefore reinforce the importance of integrating cultural and emotional dimensions into discussions concerning educational quality and sustainability in higher education.

Despite these contributions, the study remains limited by its cross-sectional design, reliance on self-reported data, and focus on a single regional context. Future research may therefore expand this study through longitudinal approaches, comparative cross-cultural analysis, or the inclusion of additional variables such as teaching quality, peer interaction, emotional well-being, and institutional culture to better understand the complex relationship between the artistic atmosphere and learning performance.

Ultimately, this study confirms that meaningful higher education environments are not constructed solely through infrastructure, curriculum, or technological advancement, but also through emotionally engaging and culturally participatory ecosystems capable of fostering students' motivation, belonging, and holistic learning experiences.

Declaration of Competing Interest

The authors declare that they have no known competing financial or non-financial interests that could have appeared to influence the work reported in this paper.

Declaration of Generative AI

Generative AI tools were used in this study solely to assist with language refinement, grammar improvement, and manuscript editing. The authors independently conducted the research process, including the study design, data collection, data analysis, interpretation of findings, and preparation of the final academic content. All intellectual responsibility for the accuracy, originality, and integrity of the manuscript remains entirely with the authors.

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