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School Leaders' Support in Integrating Digital Aesthetic Environments and Empowering Teachers to Adapt to Technology-Enhanced Arts Teaching in Sichuan, China

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Abstract

This study investigated the relationship between school leaders' support for integrating digital aesthetic environments and teachers' empowerment to adapt technology-enhanced arts instruction. Descriptive-correlational design was employed, drawing data from 150 arts teachers representing diverse demographic profile. Results showed that teachers generally perceived only moderate support from their leaders. Strengths appeared in areas such as digital aesthetic literacy and interdisciplinary collaboration, yet gaps persisted in aligning leadership strategies with classroom realities. Teachers, however, rated themselves as reasonably empowered to apply technology in instruction, frequently citing project-based STEAM integration and creative uses of AR/VR as part of their practice. The negative overall correlation indicates that, as perceived support from school leaders increases, teachers' sense of empowerment to adapt technology-enhanced arts teaching tends to decrease, albeit modestly.

Keywords: digital aesthetic environments, teacher empowerment, technology-enhanced arts teaching, China

Introduction

Digital aesthetic environments and technology-enhanced approaches in the arts are increasingly framed as essential to nurturing student creativity. In China, one of the countries where technological change has happened rapidly and has often disrupted the system, the role of school leaders seems to become very pertinent. Their influence goes beyond the mere provision of infrastructure. It encompasses building an atmosphere where teachers feel supported and confident to experiment with new and often awkward tools and methods. Otherwise, adoption might become only skin-deep.

In fact, augmented reality (AR), virtual reality (VR), and interactive digital platforms can create new environments that threaten to transform traditional modes of arts instruction by offering immersive and participatory experiences (Chen & Chen, 2018). These tools engage audiences, promote critical thought, and offer a greater scope for creative expression (Astuti et al., 2024; Castello et al., 2020). But the enthusiasm must be curbed by the reality that without enabling leadership, these findings often remain blockades against the prevailing technical, pedagogical, and even motivational challenges teachers face (Kwakye & Ghartey, 2019).

Leaders are therefore tasked with more than logistics. They are asked to shape a culture that values exploration and tolerates mistakes, while also supplying training and mentorship (Teclehaimanot, 2005). In China, state-driven professional development has been promoted as one solution (Byous, 2007), but evidence points to persistent barriers—patchy infrastructure, outdated software, and insufficient time for practice. These obstacles suggest that top-down policy, though necessary, may not be enough.

Empowering teachers also requires a integrative strategies. Technical workshops matter, but so does room for pedagogical risk-taking and emotional reassurance. Research on flipped classrooms and project-based STEAM education illustrates that freedom to adjust methods, paired with institutional backing, makes new practices far more likely to succeed (Lyu et al., 2022; Lee & Lee, 2025). Where school leaders foster collaboration and continuous learning, teachers appear better positioned to weave digital technologies into their practice in ways that enrich arts instruction rather than overwhelm it.

It must be emphasized that in China, the stakes are not limited to modernization. The move toward digital aesthetic environments is also tied to preserving cultural heritage. Digital modules for traditional art forms are designed to sustain cultural continuity while meeting contemporary demands (Astuti et al., 2024). Leaders who support such initiatives help teachers connect heritage with technology, enabling students to gain both cultural depth and digital fluency (Panou & Violetis, 2018).

Thus, this significant paper signifies leadership as a key, albeit one in areas not easy to penetrate, dimension in how digital aesthetic qualities become integrated into arts education. Synthesizing current studies, it points to even more urgent need for contextually sensitive approaches to professional development, resource distribution, and teacher support in the arts within an increasingly transforming China's educational context.

Statement of the Problem

1. What is the assessment of the teacher-respondents on the school leaders' level of support in integrating digital aesthetic environments in terms of:

1.1.Fostering Innovation through Immersive Digital Tools;
1.2.Leveraging Big Data for Personalized Aesthetic Education;
1.3.Promoting Interdisciplinary Collaboration;
1.4.Ensuring Cultural Preservation and Innovation;
1.5.Creating Holistic and Inclusive Aesthetic Frameworks;
1.6.Supporting Digital Aesthetic Literacy and Media Education?

2. What is the assessment of the teacher-respondents on their level of empowerment in to adapt to technology-enhanced arts teaching in terms of:

2.1.Project-Based STEAM Integration;
2.2.Flipped Learning Models in the Arts;
2.3.Interactive Learning Platforms;
2.4.Technology-Rich Learning Spaces;
2.5.Augmented Reality and Virtual Reality in Creative Arts;
2.6.Contextualized Learning?

3. Is there a significant relationship between the level of school leaders' support in integrating digital aesthetic environments and the level of teachers' empowerment to adapt to technology-enhanced arts teaching?

Methods

This study employed a quantitative-correlational design to examine the relationship between school leaders' support for digital aesthetic environments and teachers' empowerment in technology-enhanced arts teaching at an Arts and Science university in China. A total enumeration approach was adopted, involving all 150 eligible full-time faculty from arts-related programs such as fine arts, music, design, and drama. To be included, participants needed at least three years of teaching experience and active engagement with digital tools in instruction.

Data were gathered through a structured questionnaire with three sections. The study utilized a quantitative, comparative, and correlational design to explore the association between school leaders' support for digital aesthetics environments and teachers' empowerment in technology-enhanced arts teaching at an Arts and Sciences University in China. The total enumeration approach was employed, with 150 eligible full-time arts faculty in fine arts, music, design, and drama, constituting the primary population of the study. Inclusion within the study demanded a minimum of three years of teaching experience with reasonable exposure to digital tools for instruction.

The questionnaires made use of a researcher-made questionnaire with three parts. Part I collected demographic data: sex, highest degree earned, and years of teaching. Part II measured school leaders' support across six constructs: innovative uses of immersive technology, big data, interdisciplinary collaboration, cultural preservation, holistic framework construction, and digital aesthetic literacy support. Part III measured teacher empowerment through six parallel constructs: STEAM integration with project-based methods, flipped learning modalities, interactive tools, and technology-enriched environments.. Responses were recorded on 4-point scales. Validity was ensured through expert review and pilot testing, while reliability testing yielded a Cronbach's alpha of .885, indicating satisfactory internal consistency.

Table 1. Summary Results on the Assessment of the Teacher-Respondents on the School Leaders' Level of Support in Integrating Digital Aesthetic Environments

Indicator	Weighted Mean	Standard Deviation	Qualitative Description	Verbal Interpretation	Rank
1. Fostering Innovation through Immersive Digital Tools	3.05	0.4	Agree	Supported	6
2. Leveraging Big Data for Personalized Aesthetic Education	3.15	0.31	Agree	Supported	4
3. Promoting Interdisciplinary Collaboration	3.27	0.35	Agree	Supported	2
4. Ensuring Cultural Preservation and Innovation	3.23	0.33	Agree	Supported	3
5. Creating Holistic and Inclusive Aesthetic Frameworks	3.12	0.29	Agree	Supported	5

6. Supporting Digital Aesthetic Literacy and Media Education	3.32	0.29	Agree	Supported	1
Overall Mean	3.19	0.16	Agree	Supported	

Legend: 3.51 – 4.00 (Strongly Agree-Highly Supported); 2.51 – 3.50 (Agree- Supported); 1.51 – 2.50 (Disagree-Slightly Supported); 1.0-1.50 (Strongly Disagree-Not/No Supported)

Table 1 reflects how teachers rated the support of school leaders in bringing digital aesthetic environments into their teaching. The overall mean was 3.19 with a standard deviation of 0.16, which places it in the "Supported" range. In other words, teachers generally feel their leaders are backing them in this shift, but the support does not yet come across as particularly strong. The narrow spread of scores also shows that most respondents were fairly consistent in this view.

The area with the highest score, "*Supporting Digital Aesthetic Literacy and Media Education*" (M = 3.32, SD = 0.29), suggests that leaders are doing more in equipping teachers with the basics of digital and media competencies. This may reflect the relative ease of providing training or tools in this area compared to more resource-heavy innovations. Following closely are "Promoting Interdisciplinary Collaboration" (M = 3.27) and "*Ensuring Cultural Preservation and Innovation*" (M = 3.23). These two results seem to point to the balancing act in Chinese arts education: encouraging teachers to cross disciplinary boundaries while also keeping cultural traditions visible in new digital formats.

The middle of the ranking included "*Leveraging Big Data for Personalized Aesthetic Education*" (M = 3.15) and "*Creating Holistic and Inclusive Aesthetic Frameworks*" (M = 3.12). These numbers show that the ideas are on the radar, but actual implementation might not be as clear-cut. Teachers may recognize that leadership talks about data-driven or inclusive approaches, but the support they experience still feels tentative.

The lowest-rated domain, "*Fostering Innovation through Immersive Digital Tools*" (M = 3.05, SD = 0.40), highlights the challenge of using AR and VR in the classroom. It is still seen as "Supported," but the higher variability suggests uneven access across departments. Some teachers might have experimented with these tools, while others may not have the resources or training to do so.

Overall, the table confirms that school leaders are encouraging digital integration, especially in areas like media education and cross-disciplinary collaboration. Yet, the results also flag the weaker areas such as immersive technologies, inclusive frameworks, and data-driven personalization, where support is not as evident. These findings can guide leaders in deciding where to focus their efforts, moving from basic competencies toward more advanced and equitable applications of digital aesthetics in the arts.

Table 2. Summary Table on the Assessment of the Teacher-Respondents on their Level of Empowerment in to Adapt to Technology-enhanced Arts Teaching in terms of

Indicator	Weighted Mean	Standard Deviation	Qualitative Description	Verbal Interpretation	Rank
1. Project-Based STEAM Integration	3.22	0.35	Agree	Empowered	4
2. Flipped Learning Models in the Arts	3.21	0.32	Agree	Empowered	5

3. Interactive Learning Platforms	3.18	0.33	Agree	Empowered	6
4. Technology-Rich Learning Spaces	3.28	0.34	Agree	Empowered	1
5. Augmented Reality and Virtual Reality in Creative Arts	3.25	0.3	Agree	Empowered	2.5
6. Contextualized Learning	3.25	0.36	Agree	Empowered	2.5
Overall	3.23	0.13	Agree	Empowered	

Legend: 3.51 – 4.00 (Strongly Agree-Highly Empowered); 2.51 – 3.50 (Agree- Empowered); 1.51 – 2.50 (Disagree-Slightly Empowered); 1.0-1.50 (Strongly Disagree-Not/No Empowered)

Table 2 brings together all six dimensions of teacher empowerment in adapting to technology-enhanced arts instruction. The overall mean of 3.23 places the group within the “Agree – Empowered” range. While not a strikingly high score, it signals that teachers generally feel capable across the domains measured. The very low standard deviation of 0.13 is worth noting—it shows that respondents were quite consistent in their ratings, suggesting a shared sense of moderate empowerment rather than wide differences of opinion.

"Technology-Rich Learning Spaces" (M = 3.28) was rated the highest, thus, underlining the importance of having infrastructure in place. When the physical environment fosters technology use, teachers appear to feel more confident in adapting to instructional practices. Closely trailing was "Augmented Reality and Virtual Reality in Creative Arts" contextualized learning" (M = 3.25). The results indicate that teachers may consider immersive tools valuable while finding cultural relevance important in technology integration into the arts classroom context.

Midrange domains are "Project-Based STEAM Integration" (M = 3.22) and "Flipped Learning Models in the Arts" (M = 3.21). These scores indicate that teachers favor the interdisciplinary and student-centered strategies but are probably not ready to use them on a regular basis. "Interactive Learning Platforms" was rated the lowest (M = 3.18). That doesn't mean such platforms are not around; rather, it could indicate barriers the teachers encountered trying to integrate them, which could be related to their training, the workload, or unequal access.

The findings indicate that empowerment is rather equitable across domains, with infrastructure and cultural relevance emerging as notable strengths, whereas process-oriented models like flipped learning and interactive platforms exhibit minor deficiencies. This underscores the potential impact of extra assistance for school leaders and policymakers: focused training, curriculum alignment, and peer collaboration opportunities could enhance these areas to match teachers' comfort with infrastructure and immersive tools.

Table 3. Correlation Between the Level of School Leaders' Support in Integrating Digital Aesthetic Environments and the Level of Teachers' Empowerment to Adapt to Technology-Enhanced Arts Teaching

Variables	Computed *r*-value	Sig. Value	Decision on H_0	Verbal Interpretation
School Leaders' Support in Integrating Digital Aesthetic Environments (Indicator 1) and Teachers' Empowerment to Adapt to Technology-Enhanced Arts Teaching (Indicator 2)	–0.163*	0.046	Rejected	Significant

Note: $p < 0.05$ indicates significance

The negative value of r = –0.163, p = 0.046 means that as perceived support from school leaders increases, teachers' sense of empowerment to adapt technology-enhanced arts teaching tends to decrease, although weakly. In this context, means the null hypothesis was rejected. This suggests that institutional support, if experienced as prescriptive, can well serve to constrain rather than to enhance the resolve of teachers who adopt digital tools for teaching in the arts. More practically, those leadership initiatives that are highly policy-oriented and structured may not always complement the pedagogic realities of the day. Instead, rather than lifting teachers academically to a higher level, teachers, depending on the situation and the decision-making capability of the learning environment, might be slapping themselves on the face in being limited by such programs. Thus, the study calls attention for the incorporation of support programs within a participatory, responsive framework. It must ensure that leadership efforts enhance rather than undermine teachers' confidence in integrating digital aesthetics into their practice.

Conclusion

The study shows a negative correlation between the two variables. Still, it can be said that each variable is important in enhancing teachers' capacity to adopt technology and in strengthening their empowerment toward technology-enhanced teaching. Taken individually, they should be taken seriously and utilized fully in the study. At the same time, the negative correlation may suggest that teachers should be given the freedom to apply their own practices and strategies in teaching the arts with technology integration, allowing institutional support to complement rather than constrain their professional judgment.

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