



The Influence of Ethical Leadership, Affective Commitment, Knowledge Sharing, Innovation Climate, and Technology Acceptance on Innovative Behavior of Secondary ART Teachers in SPK Schools in Jakarta

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Keywords:	Abstract
Art Teachers' Innovative Behavior; Technology Acceptance; Knowledge Sharing; Organizational Innovation Climate; Ethical Leadership; International-Curriculum Secondary Schools.	This research investigates the structural determinants of Art Teachers' Innovative Behavior (ATIB) in Indonesian SPK (international-curriculum) secondary schools using Partial Least Squares Structural Equation Modeling (PLS-SEM). Grounded in ethical leadership, affective commitment, knowledge sharing, organizational innovation climate, and technology acceptance frameworks, the study examines how leadership- and technology-related factors influence innovative behavior. Data were collected from 97 secondary art teachers implementing Cambridge IGCSE, Pearson Edexcel GCSE, and IB MYP Visual Arts curricula. The results indicate that Technology Acceptance is the strongest predictor of ATIB ($\beta = 0.496$, $p < 0.001$), followed by Knowledge Sharing ($\beta = 0.243$, $p = 0.020$) and Organizational Innovation Climate ($\beta = 0.208$, $p = 0.019$). Ethical Leadership and Affective Commitment do not significantly predict innovative behavior, and Knowledge Sharing does not mediate these relationships. The structural model explains 61.1% of the variance in ATIB. These findings suggest that within standardized and digitally integrated international-school environments, innovation is driven more by technological readiness and collaborative systems than by leadership ethics alone, highlighting the critical role of digital integration in contemporary art education contexts.

INTRODUCTION

Innovation has become a central concern in contemporary education, particularly as schools respond to technological change, global benchmarking, and evolving student needs (Aithal & Maiya, 2023; Knight, 2024; Nchaga, 2025; Sahlberg, 2023; Samala et al., 2024). Teachers' innovative behavior has been shown to improve instructional quality, student engagement, and learning outcomes (Hosseini & Haghighi Shirazi 2021; Liu et al. 2024). Consequently, leadership is frequently positioned as a primary catalyst for innovation, with ethical leadership emphasized for its role in fostering trust, psychological safety, and openness to change (Brown et al. 2005; Ng & Feldman 2015).

In art education, innovation is not merely desirable but foundational. Art teachers are expected to facilitate experimentation, iterative problem-solving, and creative risk-taking (Gao 2024; Møller-Skau & Lindstøl 2022). Empirical studies indicate that innovative art pedagogies and digital integration positively influence students' creativity and motivation (Samaniego et al. 2024; Ursu et al. 2024). However, within international-curriculum contexts, the extent to

which such innovation translates into high-level performance outcomes remains a relevant concern (Liang, 2024; Sithole & Khohliso, 2025; Wulandari, 2025). Analysis of performance trends in Cambridge IGCSE Art and Design, Pearson Edexcel GCSE Art and Design, and IB MYP Visual Arts examinations (2021–2025) indicates that the percentage of students achieving the top grade bands remains modest and varies annually.

In the Indonesian context, SPK schools represent a distinct educational setting. These institutions implement international curricula such as Cambridge IGCSE, Pearson Edexcel GCSE, and the IB Middle Years Programme, all of which embed innovation directly into assessment criteria and require digital portfolio submission (International Baccalaureate 2022; Pearson 2025). In such environments, innovation may be driven less by leadership behavior and more by curriculum structure and technological demands.

Although prior research links ethical leadership to innovative work behavior (Lei et al. 2019; Mohi Ud Din & Zhang 2023), few studies examine whether this relationship holds in highly standardized, creative-subject contexts. This study addresses that gap by empirically examining why leadership may not predict innovation among SPK art teachers.

This study offers a critical novelty by shifting the dominant analytical lens from leadership-centric models to a technology-structural perspective. Unlike previous research that primarily investigates the direct effect of ethical leadership on innovation in generic organizational settings, this study empirically tests and challenges that orthodoxy within a unique, underexplored population: art teachers in international-curriculum schools. The novelty lies in its integrated structural model that simultaneously pits ethical leadership and affective commitment against technology acceptance, knowledge sharing, and organizational innovation climate as competing predictors of innovative behavior. By doing so, the research uncovers a contextual paradox in which the very structures designed to standardize excellence (international curricula and digital assessment) may inherently diminish the predictive power of traditional leadership ethics, thereby redefining our understanding of innovation drivers in high-stakes, creative educational environments.

Based on this rationale, the purpose of this study is twofold: first, to investigate the structural determinants of Art Teachers' Innovative Behavior (ATIB) in SPK secondary schools in Jakarta by examining the direct and mediating effects of ethical leadership, affective commitment, knowledge sharing, organizational innovation climate, and technology acceptance; and second, to determine which of these factors serves as the most powerful predictor of innovative behavior in a context characterized by standardized international assessments and mandated digital integration.

The findings of this research are expected to yield significant theoretical and practical benefits. Theoretically, the study will contribute to the literature on innovation behavior by contextualizing and potentially delimiting the applicability of ethical leadership theory in highly structured, creative-educational settings. It will also enrich the Technology Acceptance Model (TAM) framework by demonstrating its predictive power in art pedagogy. Practically, the results will offer evidence-based guidance for school principals, curriculum coordinators, and policymakers in international schools. By identifying technology acceptance and structured knowledge-sharing systems as the primary drivers of innovation, rather than ethical leadership alone, the study provides a clear directive for resource allocation. This includes prioritizing digital competence development, fostering collaborative platforms, and cultivating an

organizational innovation climate, ultimately supporting art teachers in enhancing student creativity and assessment outcomes within the demanding framework of international curricula.

RESEARCH METHODS

This study examines secondary art teachers from SPK (Satuan Pendidikan Kerjasama) schools in Jakarta, Indonesia. The names of the schools are not disclosed to maintain confidentiality. SPK schools implement international curricula such as Cambridge IGCSE, Pearson Edexcel GCSE, and the International Baccalaureate (IB) MYP. Because there is no centralized database documenting the exact number of secondary art teachers in SPK schools, the population size is treated as unknown.

The sample used in this study consists of secondary-level art teachers who met specific inclusion criteria: (1) currently teaching art in Grades 7–10, (2) employed in an SPK international-curriculum school, and (3) actively involved in curriculum implementation. A purposive sampling technique was applied because the study required respondents with specific professional characteristics relevant to the constructs examined. The final sample size exceeded the minimum requirement determined through statistical power analysis.

Sample size was calculated using G*Power 3.1 with the F-test family (Linear Multiple Regression: Fixed model, R^2 deviation from zero). For the most complex endogenous construct, Art Teachers' Innovative Behavior (ATIB); which is predicted by five variables, the analysis applied a medium effect size ($f^2 = 0.15$), a significance level of 0.05, and statistical power of 0.80. The calculation indicated a minimum required sample of 92 respondents to ensure adequate statistical power and reduce the likelihood of Type II error.

Data were collected using an online questionnaire distributed through professional networks and WhatsApp groups of art teachers. A five-point Likert scale was used, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. All variables were measured using indicators adapted from established theoretical instruments, as the constructs examined; Ethical Leadership (EL), Affective Commitment (AC), Knowledge Sharing (KS), Organizational Innovation Climate (OIC), Technology Acceptance (TA), and Art Teachers' Innovative Behavior (ATIB), are latent in nature and cannot be measured directly.

Quantitative data analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method with SmartPLS software. This approach was considered appropriate because the research model integrates multiple latent constructs and mediation effects, and PLS-SEM does not require strict normality assumptions (Hair et al. 2017, 18). Furthermore, PLS-SEM is suitable for exploratory structural models and research contexts with specialized populations.

Data analysis was divided into two stages: the outer model and the inner model. In the outer model stage, analysis focused on measurement validity and reliability. Convergent validity was assessed through factor loadings and Average Variance Extracted (AVE), while reliability was evaluated using Composite Reliability and Cronbach's Alpha. Discriminant validity was examined using cross-loadings and the Fornell–Larcker criterion.

In the inner model stage, the analysis focused on evaluating structural relationships among constructs. This included examining multicollinearity, the coefficient of determination

(R²), effect size (f²), predictive relevance (Q²), and hypothesis testing using bootstrapping procedures to determine path significance. Through this two-step PLS-SEM approach, the study assessed both the adequacy of the measurement model and the explanatory power of the structural model in predicting art teachers' innovative behavior.

RESULTS AND DISCUSSION

Respondents' profile

The characteristics of the art teachers who participated in this study vary in terms of gender, age, educational background, teaching experience, employment status, and curriculum taught. The majority of respondents are within the 35–40 age range, followed by teachers aged 25–30 and 41–45. Most respondents hold a bachelor's degree in art, design, or education, while a smaller proportion possess postgraduate qualifications. In terms of professional experience, the largest group has between one and five years of teaching experience, followed by those with six to ten years. The respondents teach across Cambridge IGCSE, Pearson Edexcel GCSE, and IB MYP curricula. These characteristics indicate that the sample represents active secondary-level art teachers working in SPK international schools. The detailed demographic characteristics of respondents are presented in Table 1.

Table 1. Descriptive Data Results

No	Categories	Total	(%)
1.	Gender	Male	42
		Female	55
2.	Age Range	<25 years old	2
		25-34 years old	17
		35-44 years old	46
		45-54 years old	25
		>55 years old	7
3.	Position	Art Teacher	70
		Art Coordinator	27
4.	Employment Status	Full-time	93
		Part-time	5
5.	Highest Education	Diploma	3
		Bachelor's Degree (S1)	65
		Master's Degree (S2)	29
		Doctoral Degree / Ph.D (S3)	0
6.	Field of Highest Education	Arts/Design	76
		Education	15
		Other major	6
7.	Years of Service	<1 year	0
		1-5 years	42
		6-10 years	20
		11-15 years	19
		>15 years	16
8.	Curriculum Taught	Cambridge IGCSE	43
		International Baccalaureate MYP	37
		Cambridge IGCSE + IB MYP	6
		Pearson Edexcel GCSE	3
9.	Grades Taught	Grade 7 - 8 (Lower Secondary)	43
		Grade 9 - 10 (Upper Secondary)	45
		Both (Grade 7 - 10)	9
10.	Art Examination Results (2024)	HIGH (e.g., majority A*–A / 6–7 / 9–8)	15
		GOOD (e.g., majority B–C / 4–5 / 7–6)	58

MODERATE (e.g., majority D–E / 2–3 / 5–4)	13	15%
LOW (e.g., majority F–G / 1 / 3–1)	2	2%
MIXED (inconsistent results)	7	8%

Source: Primary data processed (2025)

Measurement model (outer model)

To assess whether this research instrument is suitable for use, it is necessary to test its validity and reliability. As required in PLS-SEM analysis, validity and reliability tests are conducted through the outer model. The outer model analysis describes how each indicator relates to its respective latent variable. In this study, outer model testing includes convergent validity, discriminant validity, Average Variance Extracted (AVE), and reliability using composite reliability and Cronbach's alpha.

Table 2. Factor loading, reliability, and AVE test results.

Construct	Factor Loading	M	SD	Cronbach's α	AVE	Composite Reliability (CR)
Ethical Leadership						
My immediate leader is willing to assist art teachers when they face difficulties in teaching.	0.803	3.701	1.091	0.940	0.759	0.948
My immediate leader shows genuine care toward art teachers.	0.790	4.134	1.027			
My immediate leader addresses teachers' mistakes with professionalism.	0.901	3.773	1.075			
My immediate leader regularly considers how their actions may affect the integrity of the art department.	0.707	3.608	1.132			
My immediate leader often reflects on ethical aspects when making departmental decisions.	0.739	3.680	1.085			
My immediate leader reviews whether their decisions align with professional ethics.	0.712	3.897	1.075			
My immediate leader sets an example of how to act in a professional manner.	0.798	3.722	0.955			
My immediate leader demonstrates ethical behaviors that serve as a model for art teachers.	0.815	3.505	1.191			
My immediate leader practices ethical conduct consistently.	0.824	3.557	1.136			
My immediate leader provides constructive feedback to art teachers regarding ethical conduct in assessment.	0.763	3.876	1.130			
My immediate leader ensures that clear procedures are available for art teachers to seek guidance about ethical issues in art teaching.	0.824	3.948	1.064			
Affective Commitment						
I am proud to be part of the art teaching profession.	0.829	3.711	1.010	0.960	0.625	0.966
I enjoy being an art teacher.	0.914	3.856	0.968			
I am enthusiastic about teaching art.	0.884	3.938	0.998			
I have invested too much in the art teaching profession to consider changing careers now.	0.816	3.959	1.010			

Changing professions now would be difficult for me to do.	0.906	3.835	1.038			
There are factors that make it difficult for me to change professions.	0.884	3.856	1.051			
I believe people who have been trained in a profession have a responsibility to stay in that profession for a reasonable period of time.	0.841	3.938	0.988			
I would feel guilty if I left teaching art.	0.893	3.784	1.023			
I am in art teaching because of a sense of loyalty to it.	0.868	3.742	0.992			
Knowledge Sharing						
I share general overviews of the art curriculum with art teachers in my school.	0.935	4.392	0.848	0.905	0.840	0.940
I share specific requirements for art assessments with art teachers in my school.	0.965	4.371	0.846			
I share the results of art assessments with art teachers in my school.	0.846	4.258	0.916			
Organizational Innovation Climate						
School leaders at my school understand the problems that teachers face.	0.898	4.701	0.766	0.877	0.707	0.924
School leaders show that they have confidence in teachers.	0.909	4.701	0.766			
School leaders can be relied on to give good guidance to the teachers.	0.878	4.711	0.661			
Technology Acceptance						
I believe that technology helps me improve my teaching performance.	0.843	4.485	0.891	0.917	0.801	0.935
Technology helps me complete teaching tasks more efficiently.	0.754	4.515	0.805			
Using technology increases my productivity as an art teacher.	0.817	4.330	0.898			
I like experimenting with new technologies in my teaching.	0.919	4.216	0.938			
I like to explore new educational technologies for my teaching.	0.884	4.165	0.976			
I do not hesitate to try out new information technologies.	0.817	4.299	0.915			
Art Teachers' Innovative Behavior						
I actively look for new ideas in art education to improve my lessons.	0.841	4.577	0.659	0.926	0.662	0.940
I regularly reflect on how to better assess my students' art projects.	0.813	4.577	0.690			
I explore new art teaching techniques to enhance student creativity.	0.881	4.485	0.709			
I develop original ideas for art learning activities.	0.783	4.381	0.847			
I find new approaches to explain the art curriculum assessment criteria.	0.760	4.278	0.863			
I integrate technologies into my art teaching.	0.703	4.340	0.888			
I help put new art curriculum ideas into action.	0.850	4.402	0.759			
I work hard to improve my art teaching materials.	0.864	4.505	0.709			

Source: SmartPLS Output (2025)

Convergent validity of reflective indicators is evaluated through loading factor values for each construct. The rule of thumb states that loading factor values must exceed 0.70 (Hair et al. 2020, 104). The loading factor values in this study range from 0.703 to 0.873, indicating that all indicators meet the recommended threshold of 0.70.

Convergent validity is further assessed using AVE, which represents the average value of the squared loadings of the indicators associated with a construct. The recommended AVE threshold is 0.50 or higher (Hair et al., 2014). The AVE results presented in Table 2 confirm that all constructs exceed the minimum threshold of 0.50, indicating adequate convergent validity.

A reliability test was conducted to determine whether the research instruments demonstrate sufficient internal consistency. Two reliability measures were used: Cronbach's alpha and composite reliability. The acceptable threshold for both measures is 0.70 (Hair et al., 2014). The results, shown in Table 2, indicate that all constructs have reliability values greater than 0.70, confirming that they meet the threshold for both Cronbach's alpha and composite reliability.

Table 3. Discriminant Validity Test Results

Variable	AC	ATIB	EL	KS	OIC	TA
Affective Commitment	0.871					
Art Teacher's Innovative Behavior	0.390	0.814				
Ethical Leadership	0.773	0.425	0.790			
Knowledge Sharing	0.520	0.521	0.432	0.917		
Organizational Innovation Climate	0.333	0.549	0.469	0.401	0.895	
Technology Acceptance	0.278	0.686	0.307	0.328	0.423	0.841

Source: SmartPLS Output (2025)

Discriminant validity ensures that each construct is empirically distinct from other constructs under study. The discriminant validity test was performed using the Fornell–Larcker criterion by comparing the square root of the AVE of each construct with the correlations between latent variables. Specifically, the square root of the AVE for each construct must be higher than its highest correlation with other constructs. Based on the results presented in Table 3, each construct satisfies this requirement, as the square root of the AVE value for each construct exceeds its correlations with other constructs (Hair et al., 2014). Therefore, it can be concluded that Ethical Leadership (EL), Affective Commitment (AC), Knowledge Sharing (KS), Organizational Innovation Climate (OIC), Technology Acceptance (TA), and Art Teachers' Innovative Behavior (ATIB) demonstrate adequate discriminant validity.

Structural model (inner model)

Structural relationships were evaluated using bootstrapping procedures in SmartPLS. Multicollinearity was assessed using the Variance Inflation Factor (VIF), and as shown in Table 4, all values were below the recommended threshold of 5.00, indicating no collinearity concerns.

Table 4. Multicollinearity Test Results

Variable	AC	ATIB	EL	KS	OIC	TA
Affective Commitment		2.842		2.482		
Art Teacher's Innovative Behavior						
Ethical Leadership		2.847		2.482		

Knowledge Sharing	1.523
Organizational Innovation Climate	1.529
Technology Acceptance	1.275

Source: SmartPLS Output (2025)

The coefficient of determination (R^2), presented in Table 5, indicates that the model explains 61.1% of the variance in Art Teachers' Innovative Behavior (ATIB) and 27.3% of the variance in Knowledge Sharing (KS), reflecting moderate to substantial explanatory power.

Table 5. Coefficient Determinant Results

Variable	R^2
Art Teacher's Innovative Behavior	0.611
Knowledge Sharing	0.273

Source: SmartPLS Output (2025)

1. Direct Effects

Technology Acceptance (TA) demonstrates the strongest positive effect on ATIB ($\beta = 0.496$, $t = 5.637$, $p < 0.001$). Knowledge Sharing ($\beta = 0.243$, $t = 2.049$, $p = 0.020$) and Organizational Innovation Climate ($\beta = 0.208$, $t = 2.082$, $p = 0.019$) also significantly predict ATIB.

In contrast, Ethical Leadership does not significantly influence ATIB ($\beta = 0.066$, $p = 0.347$), and Affective Commitment does not directly predict ATIB ($\beta = 0.005$, $p = 0.487$).

Affective Commitment significantly predicts Knowledge Sharing ($\beta = 0.463$, $t = 3.301$, $p < 0.001$), whereas Ethical Leadership does not significantly predict Knowledge Sharing ($\beta = 0.074$, $p = 0.288$).

The detailed path coefficients and hypothesis testing results are summarized in Table 6, while the overall structural relationships among constructs are illustrated in Figure 1.

Table 6. Structural Model and Hypothesis Testing Results

	Hypothesis	β	t-value	p-value	Decision
H ₁	Ethical Leadership has a significant positive effect on Knowledge Sharing.	0.074	0.558	0.288	Not Accepted
H ₂	Ethical Leadership has a significant positive effect on Art Teacher's Innovative Behavior.	0.066	0.393	0.347	Not Accepted
H ₃	Affective Commitment has a significant positive effect on Knowledge Sharing.	0.463	3.301	0.000	Accepted
H ₄	Affective Commitment has a significant positive effect on Art Teacher's Innovative Behavior.	0.005	0.034	0.487	Not Accepted
H ₅	Knowledge Sharing has a significant positive effect on Art Teacher's Innovative Behavior.	0.243	2.049	0.020	Accepted
H ₆	Organizational Innovation Climate has a significant positive effect on Art Teacher's Innovative Behavior.	0.208	2.082	0.019	Accepted
H ₇	Technology Acceptance has a significant positive effect on Art Teacher's Innovative Behavior.	0.496	5.637	0.000	Accepted
H ₈	Knowledge Sharing significantly mediates the relationship between Ethical Leadership and Art Teacher's Innovative Behavior.	0.018	0.515	0.303	Not Accepted
H ₉	Knowledge Sharing significantly mediates the relationship between Affective Commitment and Art Teacher's Innovative Behavior.	0.113	1.494	0.068	Not Accepted

Source: SmartPLS Output (2025)

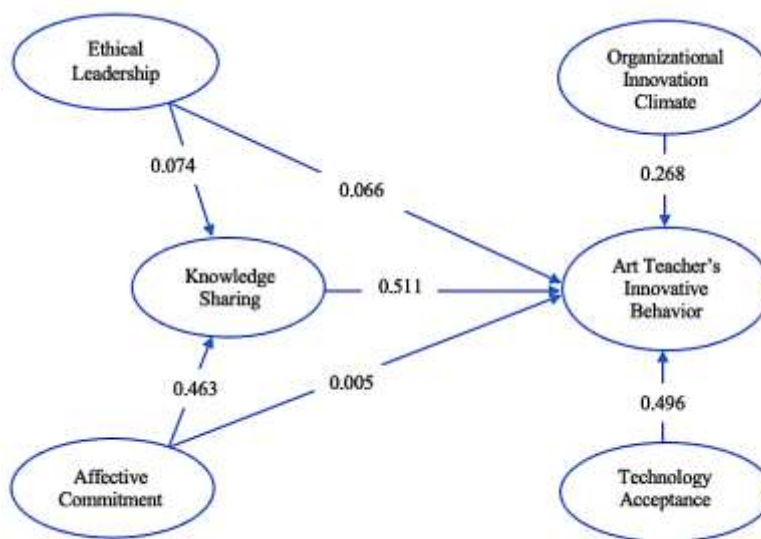


Figure 1. Structural Model Results

Source: SmartPLS Output (2025)

In addition to path significance, effect size (f^2) was examined to assess the practical contribution of each predictor to ATIB. Technology Acceptance demonstrates a large effect size, indicating substantial explanatory contribution. Knowledge Sharing and Organizational Innovation Climate exhibit moderate effect sizes, suggesting meaningful but comparatively smaller contributions. Ethical Leadership and Affective Commitment show negligible effect sizes, consistent with their non-significant path coefficients.

2. Mediation Effects

Bootstrapping analysis indicates that Knowledge Sharing does not significantly mediate the relationship between Ethical Leadership and ATIB ($\beta = 0.018$, $p = 0.303$), nor between Affective Commitment and ATIB ($\beta = 0.113$, $p = 0.068$). Therefore, the proposed mediation hypotheses are not supported.

This study reveals a contextual shift in the drivers of innovative behavior among secondary art teachers in SPK international-curriculum schools. Contrary to dominant leadership theories, ethical leadership does not emerge as a significant predictor of innovative behavior in this setting.

These structural relationships, as summarized in Table 6 and depicted in Figure 1, demonstrate that technology-related factors exert stronger influence than leadership-based factors in this context.

The findings indicate substantial explanatory power of the proposed model. Technology Acceptance (TA) emerges as the strongest predictor of ATIB ($\beta = 0.496$, $p < 0.001$), suggesting that teachers' openness to and experimentation with technology significantly enhance innovative instructional practices. Knowledge Sharing ($\beta = 0.243$, $p = 0.020$) and Organizational Innovation Climate ($\beta = 0.208$, $p = 0.019$) also positively influence innovative behavior, highlighting the importance of collaborative culture and supportive leadership environments.

In contrast, Ethical Leadership does not significantly affect Knowledge Sharing or Innovative Behavior, and Affective Commitment does not directly influence Innovative Behavior. Although Affective Commitment significantly predicts Knowledge Sharing ($\beta = 0.463, p < 0.001$), Knowledge Sharing does not significantly mediate the relationships between Ethical Leadership or Affective Commitment and Innovative Behavior. Overall, the findings suggest that innovation in SPK art education is primarily driven by technological readiness and supportive organizational conditions rather than ethical leadership or emotional attachment alone.

CONCLUSION

This study concludes that Technology Acceptance is the most influential factor in enhancing Art Teachers' Innovative Behavior in SPK secondary schools, followed by Knowledge Sharing and Organizational Innovation Climate. Ethical Leadership and Affective Commitment do not directly predict innovative behavior, and mediation effects through Knowledge Sharing are not supported. The model demonstrates substantial explanatory power, emphasizing the central role of digital engagement and supportive institutional climate in fostering innovation. Schools should prioritize strengthening digital competence and technological integration in art teaching. Leaders should cultivate supportive innovation climates and encourage structured knowledge-sharing practices. Leadership development initiatives may need to focus more on enabling innovation systems rather than solely emphasizing ethical conduct. The study is limited by its cross-sectional design, self-reported data, and sample restricted to SPK schools. Future research may expand the sample, employ longitudinal designs, and explore additional mediating variables such as digital competence or psychological safety to deepen understanding of innovative behavior in art education.

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