

Understanding learning motivation in online doodle art education: The role of teaching materials and webinar facilities

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Abstract:

The rapid shift toward webinar-based education has transformed how practice-based art learning is delivered, raising questions about which factors most effectively sustain learner motivation in online environments. This study aims to examine the influence of teaching materials and learning facilities on participants' motivation to further explore doodle art following an online webinar. A quantitative survey-based approach was employed, involving 58 participants who attended a synchronous doodle art webinar featuring live drawing demonstrations and simultaneous practice. Data were collected using a five-point Likert-scale questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that the quality of teaching materials has a significant positive influence on participants' motivation ($t = 2.527$, $p = 0.006$), while learning facilities do not show a statistically significant effect. These findings suggest that, in practice-based online illustration learning, pedagogical factors such as clarity of explanation, visual demonstrations, and structured content play a more decisive role in motivating learners than technical facilities, provided that basic technological requirements are met. The study contributes to online art and design education by providing empirical evidence that prioritizing instructional quality is critical for sustaining learner motivation in creative webinar-based learning contexts. Practically, the findings offer guidance for educators and institutions in designing more effective online illustration learning experiences that encourage continued creative engagement beyond formal instructional sessions.

Introduction

Learning arts education has traditionally relied heavily on face-to-face or onsite interaction, where students observe drawing processes directly and engage in repeated practice under the guidance of instructors or teachers (Li et al., 2021). In illustration learning in particular, the instructional process is strongly practice-based and depends on visual observation, demonstration, reflection, and dialogue within a community of practice (Fauchon & Gannon, 2022). However, recent developments in education indicate a significant shift toward online learning formats, especially following the COVID-19 pandemic (Inzani et al., 2021; Li et al., 2021; Prehanto et al., 2021). This transition has accelerated the adoption of synchronous online webinars that combine visual demonstrations with real-time practice, offering alternative modes of instruction for art and design education.

Within this evolving learning landscape, doodle art remains a relevant form of illustration practice, particularly among contemporary users. Doodle art emphasizes spontaneous, freehand

drawing and encourages imagination and personal exploration without rigid drawing structures (Basri, 2025). Doodles are often understood as informal visual markings produced spontaneously or absent-mindedly, frequently when individuals are mentally engaged with other activities (Watson, 2008). Although this perception contributes to the assumption that doodle art is simple or informal in nature, doodle art still involves visual thinking, creative decision-making, and technical drawing skills. Its continued relevance is reflected in the presence of active doodle art communities and informal creative groups that sustain their practices through workshops, collaborative activities, and online platforms (Doodle Addicts, 2025; Doodle Art Indonesia, 2025; Doodle Art Jakarta, 2025).

Despite its relevance, teaching doodle art in online environments presents notable challenges, particularly in demonstrating live drawing processes and guiding participants effectively through digital platforms. As a result, doodle art is still rarely facilitated through structured online learning formats, limiting access for learners in remote or underserved regions (Afiah et al., 2025; Lellola et al., 2023). At the same time, the growth of online art and illustration education demonstrates that digital platforms can reconfigure how creative practices are taught and accessed, increasing inclusivity and reducing geographical barriers (Alsuwaida, 2022; Daryanti et al., 2022; Dwiyantri, 2021; Fauchon & Gannon, 2022; Inzani et al., 2021; Li et al., 2021; Prehanto et al., 2021). Online illustration events during the pandemic enabled broader participation and new forms of engagement, suggesting that doodle art may also be taught effectively in online settings when learning materials and teaching facilities are carefully designed to support process-based learning (Alsuwaida, 2022).

The effectiveness of online doodle art learning is closely related to learners' motivation. Motivation is widely recognized as a critical indicator of learning effectiveness, as it reflects learners' self-determination, interest, and intention to achieve learning goals beyond formal instructional sessions (Urhahne & Wijnia, 2023). In educational psychology, motivation is commonly defined as a central element of successful educational processes and sustainable learning behavior (Sánchez-Santamaría et al., 2021). Numerous studies have demonstrated that motivated learners tend to show higher engagement, stronger persistence, and better learning outcomes across learning contexts (Urhahne & Wijnia, 2023).

One of the most influential frameworks in motivation research is Self-Determination Theory, which distinguishes between intrinsic and extrinsic motivation (Deci et al., 2017). Intrinsic motivation refers to engagement driven by personal interest and enjoyment, while extrinsic motivation is influenced by external rewards or outcomes. Learning environments that support learners' autonomy, competence, and relatedness are more likely to foster intrinsic motivation, which is associated with deeper engagement and sustained learning (Deci et al., 2017). In online learning environments, motivation becomes particularly important due to increased demands for self-regulated and independent learning (Alsuwaida, 2022). Consequently, motivation is frequently used as an outcome variable to evaluate the effectiveness of online learning experiences (Urhahne & Wijnia, 2023).

In creative and practice-based disciplines such as art and design, learning motivation is especially crucial because it influences learners' willingness to continue practicing and developing their skills beyond structured learning sessions (Hananto, 2023). Research has shown that higher learning motivation is associated with enhanced creativity and increased satisfaction in learning through interactive multimedia environments (Sumarsono et al., 2024). Furthermore, motivation plays an important role in improving students' learning outcomes, particularly when learners perceive learning activities as meaningful and well-supported (Susanti et al., 2022). Therefore, understanding motivation provides a theoretically grounded and empirically supported approach to evaluating online doodle art learning effectiveness.

Teaching materials are a key component of instructional design and play an important role in shaping learners' motivation. In online learning contexts, teaching materials encompass not only content but also how that content is structured, visually demonstrated, and explained (Prehanto et al., 2021). Previous studies indicate that participants' interest in online learning is influenced by instructors' academic competence, clarity of explanation, and ability to present materials interactively

and respond to questions effectively (Prehanto et al., 2021). In art and design education, instructional materials that provide clear examples, demonstrate creative processes, and offer step-by-step guidance support learners' confidence and encourage continued practice (Aryuni, 2015; Hananto, 2023). The quality of teaching materials—including teaching goals, teaching methods, and instructors' mastery of content—has been shown to significantly increase learners' motivation (Aryuni, 2015; Daryanti et al., 2022).

In addition to teaching materials, learning facilities function as essential enabling conditions in online environments. Learning facilities include instructional tools, media, and technical support systems that facilitate effective learning processes (Aryuni, 2015). In online settings, these facilities may involve digital platforms, audio-visual quality, internet stability, and supplementary learning supports such as instructional guides or drawing templates (Inzani et al., 2021; Prehanto et al., 2021). Studies in arts and culture education indicate that adequate learning facilities contribute to positive experiences by supporting engagement and enhancing learners' motivation (Afiah et al., 2025; Daryanti et al., 2022; Inzani et al., 2021). Although learning facilities may not directly generate motivation, they enable learners to focus on learning processes and participate actively, indirectly influencing motivation and sustained engagement (Dwiyanti, 2021; Sumarsono et al., 2024).

Despite the growing body of research on online education technologies and digital learning environments, most existing studies focus primarily on technological adoption, platform usability, or general learner engagement. Comparatively limited attention has been given to examining how specific pedagogical factors—such as the quality of teaching materials—and structural factors—such as learning facilities—directly influence learning motivation in creative, process-oriented disciplines. In particular, empirical evidence remains scarce regarding online illustration learning contexts, where skill development depends heavily on guided visual demonstration and sustained independent practice. This gap is especially evident in niche yet relevant creative practices such as doodle art, which have rarely been examined within structured online instructional settings. Based on these findings, two hypotheses are proposed:

H1: The quality of teaching materials significantly influences webinar participants' motivation to further explore doodle art.

H2: Learning facilities in an online webinar setting significantly influence webinar participants' motivation to further explore doodle art.

Therefore, the objective of this study is to investigate the relative influence of teaching materials and learning facilities on participants' motivation in online doodle art webinars. By empirically comparing these two factors, this research seeks to clarify which aspects of online instructional design more strongly contribute to sustaining learner motivation in practice-based art education. The findings contribute to the field of online art and design education by providing evidence-based insights into the pedagogical and technical determinants of motivation, thereby offering practical guidance for educators in designing more effective and engaging webinar-based illustration learning experiences.

Methods

This study adopts a quantitative research approach using a survey design. Survey research is used in order to provide a numeric description of a population's trends, attitudes, or opinions (Creswell & Creswell, 2023). This approach was selected to empirically examine the influence of learning-related factors on participants' motivation within the context of online illustration art learning.

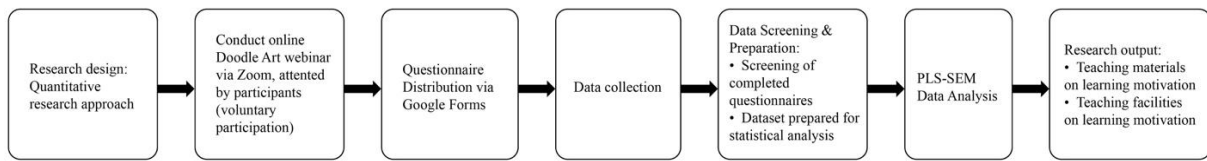


Figure 1. Research Process Flow of the Online Doodle Art Webinar Study

The study was conducted during a doodle art webinar that employed a synchronous learning approach. The webinar features live drawing demonstrations conducted by the instructor, and simultaneous drawing practice performed by participants. The participants of the study were webinar attendees who voluntarily completed a questionnaire after the learning session had ended. The online questionnaire was distributed via Google Forms using a five-point Likert scale. Each construct was measured using multiple indicators developed based on previous studies in online learning and art education.

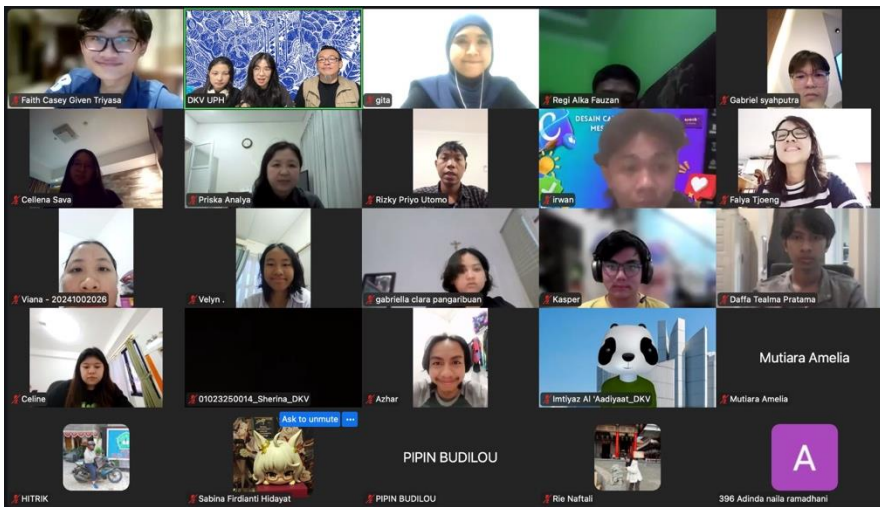


Figure 2. Screenshot showing several participants attending the webinar via the Zoom application
Source: personal documentation

Data analysis was used using Partial Least Squares Structural Equation Modeling (PLS-SEM). This analysis method was used, as PLS-SEM is suitable for relatively small sample sizes (Becker et al., 2023). PLS-SEM enables the simultaneous assessment of the measurement model and the structural model, allowing the study to evaluate both the reliability and validity of the constructs as well as the hypothesized relationships among variables. The analysis for this research uses SmartPLS® software.

Result and Discussion

Result

Respondents Profile

For this research, all the attendees of the webinar are asked to participate as respondents. The total number of respondents for this research is 58. Details of the respondents' profiles can be seen in Table 1.

Table 1. Respondents Profile

Description	Category	Number (n)	Percentage (%)
Gender	Female	32	55.2
	Male	26	44.8



Status	Students	6	10.3
	Bachelor Students	41	70.7
	Postgraduate Students	2	3.4
	Professionals	9	15.5

Source: Researchers' Data (2025)

From Table 1, we can see that the gender distribution of the respondents is quite balanced. 55.2% of the respondents were female, while 44.8% of the respondents were male. In terms of education & professional status, most of the respondents were bachelor students (70.7%). 15.5% of the respondents were professionals in art & design, and 10.3% of the respondents were students. Only 3.4% of the respondents were postgraduate students.

Measurement Model

The measurement model is used to check the relationship between the construct and its indicators (Hair et al., 2022). This analysis is done by checking four criteria: (1) indicator reliability; (2) internal consistency reliability; (3) convergent validity; and (4) discriminant validity. Indicator reliability is done by observing the outer loading of each indicator. If the indicator has an outer loading value above 0.708, then the indicator is reliable in representing the construct it is measuring. Internal consistency reliability measures the degree of consistency between each indicator in a construct that measures the same concept. The value that is often used to determine internal consistency reliability is Cronbach's alpha and composite reliability, which should have a value above 0.60. Convergent validity is evaluated using the Average Variance Extracted (AVE). When the AVE value is 0.50 or higher, it means that the construct explains more than half of the variance of its indicators, which indicates that the indicators truly represent the same underlying concept. The indicator reliability, internal consistency reliability, and convergent validity can be seen in Table 2.

Table 2. Indicator Reliability, Internal Consistency Reliability, Convergent Validity

Construct	Indicator		Outer Loadings
Teaching Materials	TM1	The materials presented were easy to understand.	0.889
	TM2	The explanation of doodle art accompanied by examples helped my understanding.	0.857
	TM4	The material was delivered using clear voice and wording.	0.908
	CA= 0.861; CR = 0.915; AVE = 0.783		
Learning Facilities	TF1	Learning facilities for doodle art (such as postcard templates, doodle art demonstrations, and guides) were available and could be used during the activity.	0.949
	TF2	These learning facilities (postcard templates, doodle art demonstrations, and guides) were useful and supported my learning process.	0.952
	CA= 0.894; CR = 0.949; AVE = 0.904		
Motivation	MOT1	This webinar made me more attentive to and familiar with doodle art.	0.872
	MOT2	This webinar increased my interest and commitment to creating doodle art.	0.890
	MOT3	This webinar encouraged me to seek further information about doodle art.	0.857
	CA= 0.845; CR = 0.906; AVE = 0.762		

CA: Cronbach's Alpha ; CR: Composite Reliability; AVE: Average Variance Extracted

Source: SmartPLS (2025)

During the analysis for indicator reliability, internal consistency reliability, and convergent validity, eight indicators were retained. All the indicators have outer loading values above 0.708, CA above 0.60, CR above 0.60, and AVE above 0.50. After the three criteria have been analyzed and satisfied, the last criterion for the measurement model is to establish discriminant validity. Discriminant validity is determined by the Heterotrait-Monotrait ratio (HTMT). If all values of HTMT is below 0.90, this indicates that each construct is distinct from other constructs in the model by empirical statistical standards. The HTMT can be seen in Table 3.

Table 3. Heterotrait-Monotrait Ratio

	Motivation	Learning Facilities	Teaching Materials
Motivation			
Learning Facilities	0.604		
Teaching Materials	0.660	0.821	

Source: SmartPLS (2025)

Structural Model

Structural model analysis is used to assess the relationship between constructs. For structural model analysis, four steps are conducted (Hair et al., 2022). The first step is assessing whether there are collinearity issues in the model. The collinearity issue is checked with the value of the Variance Inflation Factor (VIF), which should be below 3. Table 4 shows the result of the VIF values. From Table 4, we can see that no retained indicators has a value of VIF above 3, which means that there are no collinearity issues in the model.

Table 4. Variance Inflation Factor

	VIF
MOT1	1.854
MOT2	2.380
MOT3	2.046
TF1	2.877
TF2	2.877
TM2	1.987
TM4	2.702
TM1	2.235

Source: SmartPLS (2025)

The next step is to assess the significance of the paths in the research model. This step is used to check whether the hypothesis is supported by the data analysis. The hypotheses were evaluated by examining the standardized path coefficients (β) to determine the direction and strength of the relationships. Statistical significance was assessed using t-statistics and p-values obtained from the bootstrapping procedure, where a path was considered significant if the t-value exceeded 1.96 and the p-value was below 0.05. Details for the hypothesis testing can be seen in Table 5.

Table 5. Hypothesis Testing

Hypothesis	Path	Path Coefficient (β)	T Statistics	P Values	Decision
H1	Teaching Materials → Motivation	0.393	2.527	0.006	Accept Hypothesis
H2	Learning Facilities → Motivation	0.245	1.409	0.079	Reject Hypothesis

Source: SmartPLS (2025)



The results of the hypothesis testing indicate mixed findings regarding the factors influencing Motivation. H1, which proposed that Teaching Materials have a positive effect on Motivation, is supported. The standardized path coefficient shows a moderate positive relationship ($\beta = 0.393$), and the effect is statistically significant ($t = 2.527$, $p = 0.006$). This result suggests that the quality and clarity of the teaching materials contribute meaningfully to participants' motivation, although the magnitude of the effect can be considered moderate. In contrast, H2, which hypothesized a positive effect of Learning Facilities on Motivation, is not supported. Although the path coefficient indicates a positive direction ($\beta = 0.245$), the relationship does not reach statistical significance ($t = 1.409$, $p = 0.079$). This finding implies that, within the context of this webinar, the availability and usefulness of teaching facilities alone are insufficient to significantly influence participants' motivation.

The third step is to assess the model's explanatory power. This step is conducted by examining the value of the coefficient of determination (R^2) and effect sizes (f^2). The model yields an R^2 value of 0.330, indicating that 33% of the variance in Motivation is explained by Teaching Materials and Learning Facilities. This suggests a moderate level of explanatory power within the context of behavioral and educational research, where learner motivation is influenced by multiple psychological, instructional, and contextual factors. The remaining 67% of the variance may be attributed to other variables not included in the present model, which were beyond the scope of this study. Further examination of the f^2 values shows that Teaching Materials have a small to approaching medium effect on Motivation ($f^2 = 0.116$), whereas Learning Facilities exhibit a small effect size ($f^2 = 0.045$). These findings indicate that Teaching Materials contribute more to explaining Motivation than Learning Facilities within the model.

The last step is to assess the model's predictive power. The model's predictive power was assessed using PLSpredict and the Cross-Validated Predictive Ability Test (CVPAT). The PLSpredict results (Table 6) show that all indicators of Motivation have positive Q^2_{predict} values. This indicates that the model demonstrates out-of-sample predictive relevance. In addition, the prediction errors of the PLS-SEM model as reflected by both RMSE and MAE values. Both are consistently lower than those of the linear model (LM) and the indicator average (IA) benchmark across all indicators, suggesting that the PLS-SEM model provides superior predictive performance compared to naïve benchmarks.

Table 6. PLSpredict

Indicators	Q^2_{predict}	PLS-SEM Model		Linear Model		Indicator Average	
		RMSE	MAE	RMSE	MAE	RMSE	MAE
MOT1	0.284	0.574	0.467	0.611	0.475	0.678	0.610
MOT2	0.187	0.627	0.522	0.678	0.546	0.696	0.598
MOT3	0.179	0.750	0.613	0.814	0.648	0.828	0.697

RMSE: Root Mean Square Error; MAE: Mean Absolute Error

Source: SmartPLS (2025)

The CVPAT results (Table 7) further support these findings. The PLS-SEM model yields a lower prediction loss than the indicator average benchmark (PLS loss = 0.428; IA loss = 0.543), with a negative average loss difference (-0.115). Although the difference does not reach conventional statistical significance ($t = 1.846$, $p = 0.070$), the direction of the results indicates that the PLS-SEM model performs better in terms of predictive accuracy. Taken together, these findings suggest that the model exhibits acceptable predictive power, although the predictive advantage over the benchmark model should be interpreted with caution.

Table 7. Cross-Validated Predictive Ability Test (CVPAT)

	PLS loss	IA loss	Average loss difference	t value	p value
Motivation	0.428	0.543	-0.115	1.846	0.070

Source: SmartPLS (2025)

Discussions

The results indicate that the proposed model demonstrates a moderate explanatory power, with Teaching Materials and Learning Facilities jointly explaining a meaningful proportion of the variance in participants' motivation. The f^2 analysis indicates that Teaching Materials contribute to the explained variance in motivation ($f^2 = 0.116$), whereas the effect of Learning Facilities is comparatively smaller. This finding confirms that H1 is accepted, because the result is consistent with previous research emphasizing the importance of motivation as a key determinant of learning effectiveness, particularly in online learning environments where learners are required to engage more independently (Urhahne & Wijnia, 2023). Motivation has been widely recognized as a central factor that supports sustained engagement, persistence, and positive learning outcomes across educational contexts (Sánchez-Santamaría et al., 2021). This highlights the importance of content clarity and delivery in an online webinar context.

The significant effect of teaching materials on motivation found in this study aligns with *Self-Determination Theory*, which highlights the importance of learning environments that support learners' sense of competence and autonomy (Deci et al., 2017). High-quality teaching materials that are clearly structured, visually demonstrated, and well explained may enhance learners' perceived competence, thereby fostering intrinsic motivation. When learners feel capable of following the learning process and understanding the instructional content, they are more likely to experience enjoyment and personal interest in learning activities (Deci et al., 2017).

Previous studies have shown that in online learning contexts, teaching materials extend beyond content delivery and include how instructors present, organize, and interactively explain learning materials (Prehanto et al., 2021), demonstrated that learners' interest in online learning is influenced by teachers' academic competence in presenting materials interactively and responding to learners' questions, which helps learners understand the content more easily. These findings support the results of this study, suggesting that interactive and well-prepared teaching materials contribute positively to learners' motivation.

In art and design education, the role of teaching materials becomes even more critical due to the practice-based nature of learning. Instructional materials that provide clear examples, demonstrate creative processes, and offer step-by-step guidance help learners understand the workflow of artistic practice (Aryuni, 2015; Hananto, 2023). Such materials reduce uncertainty during practice, increase learners' confidence, and encourage continued engagement in creative activities. This aligns with the present study's finding that high-quality teaching materials motivate participants to further explore doodle art after the webinar.

As for H2, learning facilities did not play a significant role based on the research findings; therefore, this hypothesis is rejected. This result is aligned with previous research conducted by Hananto (2023), which found that learning facilities implemented in classroom settings did not show a significant difference in students' learning motivation. One possible explanation is that learning facilities function primarily as enabling conditions rather than direct motivational drivers. When basic technical and environmental requirements are sufficiently met, such as stable internet connections, acceptable audio-visual quality, and functional learning platforms, variations in facility quality may no longer strongly influence learners' motivation (Dwiyanti, 2021).

This finding partially contrasts with studies that suggest learning facilities and media contribute positively to learning experiences and motivation in online arts and culture education (Afiah et al., 2025; Daryanti et al., 2022; Inzani et al., 2021). However, these studies also emphasize that facilities mainly support engagement and accessibility rather than directly stimulating motivation. In other words, learning facilities help ensure that learning activities can proceed smoothly, but they do not automatically encourage learners to further explore the subject matter.

In the context of this study, it is likely that most participants experienced relatively similar and adequate webinar facilities, resulting in limited variation in perceived facility quality. As a consequence, learning facilities did not emerge as a distinguishing factor in influencing motivation.



Instead, participants' motivation to further explore doodle art appears to be more strongly shaped by pedagogical factors, particularly the quality of teaching materials and instructional delivery.

This interpretation is also consistent with findings that interactive media and learning facilities may influence motivation indirectly by supporting learners' ability to follow demonstrations and participate actively, rather than acting as primary motivational factors (Sumarsono et al., 2024). In practice-based illustration learning, when the technical barriers are minimized, learners tend to focus more on the content and instructional process than on the facilities themselves. Therefore, the rejection of H2 does not contradict existing literature but instead reinforces the view that teaching facilities serve as foundational support, while pedagogical quality plays a more decisive role in shaping learning motivation.

In terms of predictive performance, the model shows acceptable predictive relevance, as indicated by positive Q^2 predict values and lower prediction errors compared to benchmark models. Although the predictive advantage is limited, these findings suggest that the model is more effective in explaining motivational outcomes than in making strong predictions, thereby positioning it primarily as an explanatory model with supportive predictive capability. In practice, these findings can support the design and evaluation of future webinars by providing guidance on which aspects are most likely to influence participants' motivation.

Conclusion

This study examined the factors influencing participant motivation in online doodle art webinars. The findings show that Teaching Materials have a statistically significant positive effect on motivation, whereas Learning Facilities do not demonstrate a significant influence. These results indicate that pedagogical design contributes more substantially to learner motivation than technical support in practice-based online illustration learning, provided that basic technological standards are met.

Several limitations should be considered when interpreting the findings. This study was conducted within a single webinar session focused specifically on doodle art, which represents a particular form of practice-based illustration learning; therefore, the findings reflect this instructional context rather than all types of art education. The sample size, while adequate for PLS-SEM analysis, was relatively limited. In addition, motivation was measured immediately after the webinar using self-reported responses, capturing participants' perceived motivational states rather than long-term behavioral engagement. Additionally, the model examined two primary instructional factors, allowing focused analysis but not encompassing the full range of pedagogical variables that may influence motivation.

Future research is encouraged to test the model across different types of art education, such as digital illustration, typography, or animation, to examine whether similar patterns emerge in other creative disciplines. Studies may also compare fully online, hybrid, and face-to-face formats to identify how instructional design strategies function across learning modes. In addition, future work could incorporate practical instructional variables—such as feedback mechanisms, live interaction features, or structured practice assignments—to determine which specific pedagogical elements most effectively enhance motivation. Expanding the sample size and involving participants from different educational backgrounds would also further strengthen the generalizability and practical relevance of the findings.

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