

# Assessing Student Stress Across Admissions Models: Mixed-Methods Evidence Comparing Portfolio and Standardized Testing Systems in Malaysia and China

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## ABSTRACT

This study investigates differences in exam-related stress among art undergraduates in China and Malaysia, representing two distinct admissions systems: standardized testing and portfolio-based review. Using a mixed-methods approach, quantitative data from 412 students (China:  $n = 207$ ; Malaysia:  $n = 205$ ) were triangulated with qualitative insights from semi-structured teacher interviews. Results revealed that Chinese students reported significantly higher stress levels ( $M = 3.45$ ,  $SD = 0.55$ ) compared to Malaysian students ( $M = 3.14$ ,  $SD = 0.40$ ), with an independent-samples t-test confirming this difference ( $t(410) = 6.51$ ,  $p < .001$ ). Psychometric indicators demonstrated strong internal consistency (Cronbach's  $\alpha \geq .70$ ) and sampling adequacy ( $KMO = .940$ , Bartlett's  $\chi^2 = 3704.466$ ,  $p < .001$ ), supporting the reliability of the measures. Thematic analysis of interview data further contextualized the findings: Chinese educators highlighted exam-oriented pressures and ambiguous grading standards as primary stressors, whereas Malaysian educators emphasized that portfolio assessments, while demanding, promote autonomy and self-expression. Collectively, the results suggest that assessment design—not merely difficulty—modulates the intensity and nature of academic stress. Integrating process-oriented elements, such as formative feedback or reflective documentation, within standardized frameworks could reduce exam anxiety without compromising academic rigor. The findings provide practical implications for admissions reform and psychological well-being in higher art education across diverse cultural contexts.

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## 1. Introduction

High-stakes assessment systems in art education significantly shape not only students' academic outcomes but also their emotional and psychological experiences during preparation and evaluation (Morgan, 2025). Globally, admission practices in higher education vary widely from standardized national examinations to individualized, portfolio-based reviews and each reflecting distinct cultural, pedagogical, and evaluative philosophies (Pandey,

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2025). These differences are especially salient in art education, where assessment must balance objective technical proficiency with subjective creativity and personal expression (Lukaka, 2023).

In China, the National Arts Entrance Examination remains the dominant gateway for students aspiring to enter higher art institutions (Wang et al., 2025). This system emphasizes technical mastery in areas such as drawing, sketching, and color theory, providing a sense of fairness, transparency, and comparability across regions (Jiang and Yu, 2019). However, scholars have argued that this examination-oriented model can lead to excessive standardization, stifling creativity and encouraging conformity over exploration (Huang, 2025). Students often endure prolonged exam-focused training, which intensifies stress and fosters risk-averse “safe strategies” rather than artistic innovation (Amabile, 2018; Yan, 2025). Educators in China have observed that such environments may suppress intrinsic motivation and diminish long-term engagement with the arts (Wang, 2024).

By contrast, Malaysia adopts a more diversified admissions framework, integrating written tests, interviews, and portfolio assessments to evaluate artistic potential and creative process (MOHE, 2019; Subramaniam et al., 2022). The portfolio-based approach allows students to showcase individuality, reflective growth, and creative experimentation, aligning with constructivist and process-oriented pedagogies (Abdurahim-Salain, 2024). Although Malaysian students also experience pressure during portfolio preparation, prior studies suggest that this form of assessment supports greater autonomy and transforms stress into constructive motivation (Bin Ponijan et al., 2019). Nevertheless, challenges persist, including subjectivity in scoring and disparities in resource access across socioeconomic backgrounds (Sharim et al., 2025).

Exam-related stress, a recognized academic stressor, has profound implications for students’ well-being, learning motivation, and creative performance (Putwain, 2008; Perez-Jorge, 2025). The intensity of stress is often influenced by assessment characteristics such as perceived fairness, controllability, and the stakes involved (Gulcicegi and Alisah, 2024). However, limited empirical research has examined how different art admissions models such as standardized testing versus portfolio review shape students’ psychological experiences in cross-cultural contexts (Li, 2024). Addressing this gap, the present study compares Chinese and Malaysian art undergraduates to determine whether standardized testing systems produce higher exam-related stress than portfolio-based systems.

In fact, China and Malaysia were selected since they represent two sharply contrasting yet educationally comparable art admissions systems in Asia: China’s highly centralized, high-stakes standardized examination model and Malaysia’s diversified, portfolio-based evaluation framework. Both countries share similar cultural, policy-driven, and socioeconomic pressures in higher education, which helps control for broad contextual influences. This contrast allows differences in student stress to be more directly attributed to assessment design rather than cultural variation alone.

Ultimately, this study contributes to literature in three ways. First, it provides cross-national empirical evidence on the psychological implications of contrasting admissions models. Second, it integrates quantitative and qualitative perspectives through a mixed-methods approach, offering both statistical and interpretive insights. Third, it advances policy discussions on how assessment design can maintain rigor while safeguarding student well-being. By clarifying the relationship between evaluation structure and exam stress, this study informs ongoing debates on equitable and human-centered assessment reform in art education.

## **2.0 Methodology**

### ***2.1 Research Design***

This study adopted a convergent mixed-methods design, integrating quantitative and qualitative approaches to provide a comprehensive understanding (Katz-Buonincontro, 2024) of exam-related stress among art students in China and Malaysia. A convergent mixed-methods design was chosen since the study sought to collect and analyze quantitative and qualitative data simultaneously and with equal priority, enabling direct comparison and triangulation of findings within a single phase of inquiry (Creswell and Plano Clark, 2018; Tashakkori & Teddlie, 2021).

This design is particularly appropriate when the research aims to integrate measurement-based outcomes with contextualized experiential insights to strengthen validity through convergence. In contrast, sequential designs are more suited to exploration or explanatory purposes where one strand informs the development of the other, whereas the present study aimed for parallel integration and reciprocal validation of both datasets.

## **2.2 Respondents/Participants**

A total of 412 undergraduate art students participated in the study, comprising 207 from China and 205 from Malaysia. Participants were selected using stratified random sampling from public universities offering fine arts and design programs. This approach ensured representativeness across gender, specialization, and academic year. The sample size was determined using Cochran's (1977) formula for large populations, ensuring adequate statistical power. Additionally, 10 experienced art teachers (five from each country, Malaysia and China) were purposively selected for qualitative interviews. These teachers possessed at least five years of experience in higher art education and direct involvement in student admissions or assessment processes, thus providing credible contextual perspectives (Patton, 2015).

## **2.3 Quantitative Instrument**

The Exam-Related Stress Scale (ERSS) was adapted from Cassady and Johnson's (2002) Cognitive Test Anxiety Scale (CTAS) and modified to reflect the artistic admission context. The instrument included 20 items on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items covered domains such as emotional tension, performance pressure, and fear of evaluation. A pilot test with 30 students undertaken to confirm the instrument's reliability and validity as well as cultural relevance.

**Table 1:** Psychometric Testing of the Exam-Related Stress Scale

Country	Cronbach's $\alpha$	KMO	Bartlett's Test of Sphericity ( $\chi^2$ )	$p$	Interpretation
China	.87	.940	3704.466	< .001	Excellent reliability and sampling adequacy
Malaysia	.84				Good reliability

As a result, psychometric testing in Table 1 demonstrated strong internal reliability with Cronbach's  $\alpha = .87$  (China) and  $\alpha = .84$  (Malaysia). Sampling adequacy was confirmed through Kaiser–Meyer–Olkin (KMO) = .940 and Bartlett's Test of Sphericity ( $\chi^2 = 3704.466$ ,  $p < .001$ ), supporting the scale's construct validity (Hair et al., 2019).

## **2.4 Qualitative Instrument**

A semi-structured interview protocol was developed to explore educators' perceptions of student stress and assessment design. Questions focused on (a) stress-inducing factors in current admission models, (b) perceived fairness and flexibility, and (c) the impact of assessment on student creativity and motivation. Interviews were conducted face-to-face and online, each lasting approximately 45–60 minutes and were audio-recorded with participants' consent. The qualitative sample of five teachers from each country was determined based on principles of information-rich case selection and data saturation rather than statistical representativeness (Patton, 2015; Creswell and Poth, 2018). In focused comparative qualitative studies, a sample range of 5–10 participants per bounded context is widely accepted as sufficient to capture depth, pattern repetition, and thematic stability, especially when participants possess direct experiential knowledge of the phenomenon under investigation. All participating teachers had a minimum of five years of experience and direct involvement in admissions or assessment processes, ensuring that each interview yielded high-density, analytically meaningful data, with thematic saturation reached by the tenth interview.

## **2.5 Data Collection**

Quantitative data were collected through online surveys distributed via institutional learning management systems between March and May 2024. Participants were assured of confidentiality and voluntary participation following ethical guidelines set by both institutions. Qualitative interviews were conducted between June and July 2024. Transcriptions were verified and translated into English for cross-analysis consistency. Ethical clearance was obtained from both participating universities' research ethics committees, in accordance with the Declaration of Helsinki principles (World Medical Association, 2013).

## **2.6 Data Analysis**

Quantitative data were analyzed using SPSS version 27. Descriptive statistics (mean, standard deviation) and independent-samples t-tests were applied to examine differences in exam-related stress between Chinese and Malaysian students. The significance level was set at  $p < .05$ . Reliability analysis (Cronbach's alpha) and validity checks (KMO and Bartlett's tests) confirmed instrument adequacy.

Qualitative data were analyzed thematically following Braun and Clarke's (2021) six-step framework: familiarization, coding, theme generation, theme review, theme definition, and reporting. Manual and NVivo-assisted coding ensured consistency and credibility. Themes were cross-referenced with quantitative results for methodological triangulation, allowing deeper interpretation of cultural and systemic differences in stress experiences (Stake, 2010).

## **2.7 Credibility and Trustworthiness**

Credibility and trustworthiness were achieved through data triangulation, member checking, and peer debriefing (Lincoln and Guba, 1985). Credibility was supported by thick description of context and participants, while trustworthiness was enhanced through transparent coding procedures. Credibility and trustworthiness were ensured through reflective journaling and review footprints maintained throughout the research process.

# **3.0 Results and Discussions**

## **3.1 Quantitative Findings**

Prior to conducting the independent samples t-test, key statistical assumptions were examined. Normality of distribution for exam-related stress scores in both the Chinese and Malaysian samples was assessed using skewness and kurtosis indices as well as visual inspection of histograms and Q–Q plots. All values fell within the acceptable  $\pm 2$  range, indicating no serious departures from normality (George and Mallery, 2019). In addition, the large and approximately equal group sizes (China:  $n = 207$ ; Malaysia:  $n = 205$ ) further supported the robustness of the t-test under the Central Limit Theorem (Sladekova and Field, 2025). Homogeneity of variances was verified using Levene's test, which was non-significant ( $p > .05$ ), confirming that the assumption of equal variances was satisfied. These results established that the data met the necessary assumptions for valid application of the independent samples test.

The independent-samples t-test in Table 2 revealed a statistically significant difference in exam-related stress levels between Chinese and Malaysian art undergraduates. Chinese students reported higher mean stress levels ( $M = 3.45$ ,  $SD = 0.55$ ) compared to Malaysian students ( $M = 3.14$ ,  $SD = 0.40$ ),  $t (410) = 6.51$ ,  $p < .001$ . The effect size (Cohen's  $d = 0.52$ ) indicated a moderate magnitude of difference, suggesting that the type of admission system contributes meaningfully to variations in stress experiences.

**Table 2:** Independent-Samples t-Test Comparing Exam-Related Stress Levels Between Chinese and Malaysian Art Undergraduates

Group	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i> (410)	<i>p</i>	Cohen's <i>d</i>	Interpretation
Chinese Students	207	3.45	0.55	6.51	< .001	0.52	Moderate effect
Malaysian Students	205	3.14	0.40				

The findings indicate that students in standardized examination systems experience greater psychological strain than those in portfolio-based systems. The results align with previous research show that high-stakes, performance-based assessments often heighten anxiety and reduce creative confidence (Putwain, 2008; Zeidner, 1998). Conversely, flexible and reflective assessment methods, such as portfolios, promote autonomy and intrinsic motivation, mitigating stress effects (Huyer et al., 2024; Subramaniam et al., 2022).

The observed differences also resonate with Self-Determination Theory (Deci and Ryan, 2000), which emphasizes that learning environments supporting autonomy and competence foster psychological well-being. Chinese students' exposure to rigid, outcome-oriented exams may limit perceived autonomy and increase pressure to conform to evaluative norms (Kirkpatrick and Zang, 2011; Yan, 2025). Malaysian students, assessed through portfolios that reward self-expression, may experience higher intrinsic motivation and lower anxiety (Leow and Razak, 2024).

### **3.2 Qualitative Findings**

Thematic analysis of teacher interviews produced three overarching themes that help contextualize the quantitative results: Assessment Pressure and Perceived Fairness; Creativity versus Conformity; and Autonomy and Student Motivation:

#### **3.2.1 Theme 1: Assessment Pressure and Perceived Fairness**

Chinese teachers emphasized that the Gaokao-style art entrance examinations, while standardized and transparent, foster intense competition and stress. One participant noted, "Students draw the same subject for months because deviation from the model risks losing points." This reflects a system that values consistency over exploration. Although teachers acknowledged the fairness of objective scoring, they also recognized the emotional cost. Prior research similarly links high stakes testing to burnout, perfectionism, and anxiety among art candidates (Lee and Iskandar, 2024; Fu, 2024). Malaysian teachers, however, described the portfolio review process as "stressful but personal." Students experience pressure to showcase their best work, yet they perceive this pressure as controllable because it reflects personal effort and style. The sense of ownership over outcomes contributes to eustress (positive stress) rather than distress (Putwain and Symes, 2018; Arumugham, 2019).

#### **3.2.2 Theme 2: Creativity versus Conformity**

Chinese educators frequently mentioned that students prioritize exam techniques as articulated by participant, "line control, proportion, perspective" at the expense of experimentation. This finding echoes Amabile's (2018) argument that extrinsic evaluation undermines creative risk-taking. In contrast, Malaysian educators reported that portfolio-based admissions encourage creative diversity: students integrate photography, mixed media, and digital art to express conceptual thinking (Khadija, 2024). Such flexibility supports the constructivist learning principle that knowledge emerges through active creation and reflection (Hickman, 2010; Bani Younes, 2024).

#### **3.2.3 Theme 3: Autonomy and Student Motivation**

Teachers from both countries agreed that stress is inevitable, but its source and perception differ. In China, stress stems from fear of failure within a highly competitive, one-chance exam system. In Malaysia, stress arises from self-imposed expectations to produce meaningful art over time. The latter reflects self-regulated learning, in which students channel stress into sustained effort and creative refinement (Yusof et al., 2021). The contrast reinforces

that autonomy-supportive assessment environments enhance resilience and motivation (Deci and Ryan, 2000; Gopez and Guintu, 2025).

### ***3.3 Integration of Quantitative and Qualitative Findings***

Both data strands converge on the conclusion that assessment design significantly shapes exam-related stress among art students. The quantitative results quantified stress disparity, while the qualitative data revealed why and how these experiences differ across contexts. Specifically:

- a. Standardized testing emphasizes fairness and objectivity but induces high evaluative anxiety, narrowing creativity.
- b. Portfolio assessment offers process-oriented evaluation, reducing external pressure while fostering agency and reflective growth.

This complementarity supports Hickman's (2023) assertion that assessment not only measures learning but also defines the learning experience. Systems that value creativity, reflection, and personal meaning-making can transform stress into productive engagement rather than emotional exhaustion.

### ***3.4 Discussion and Implications***

The findings underscore the need for reform in art admission practices to balance objectivity and creativity. For China, gradual incorporation of portfolio elements or formative components within the examination system could reduce anxiety while maintaining standardization (Yu, 2023). For Malaysia, efforts should focus on enhancing reliability and equity in portfolio evaluation through clearer rubrics and assessor training (Hicyilmaz, 2025; Radzali et al., 2025). Theoretically, this study advances understanding of assessment-driven stress within creative disciplines, integrating cognitive, affective, and cultural dimensions. Practically, it suggests that educational policymakers should consider psychological well-being as a legitimate outcome of assessment design. Art educators should embed reflective journaling, peer critique, and process documentation as part of evaluation frameworks to sustain creative motivation (Subramaniam et al., 2022). Overall, the results affirm that exam-related stress is not merely a psychological variable but a systemic reflection of educational philosophy that must evolve toward more humane and creativity-oriented assessment practices.

## **4.0 Implications, Recommendations and Conclusion**

### ***4.1 Policy and Pedagogical Implications***

The findings highlight an urgent need for assessment policy reform in both China and Malaysia, particularly in art education where creativity and well-being intersect. In China, the dominance of standardized art entrance examinations offers transparency and national comparability but also generates significant emotional strain. This system reinforces conformity and discourages experimentation as an outcome that contradicts global calls for creative education (OECD, 2022). Policymakers should consider hybrid assessment frameworks that blend standardized elements with portfolio-based evaluation, ensuring fairness while supporting students' creative autonomy.

In Malaysia, while the portfolio-based system effectively encourages creativity and reflective thinking, inconsistencies in scoring and limited assessor calibration pose challenges to reliability. The Ministry of Higher Education could develop national portfolio assessment guidelines to ensure equity and quality assurance across institutions (MOHE, 2019). Cross-national collaboration between China and Malaysia could further enhance best practices in balancing creativity with accountability, contributing to a more human-centered model of higher art education.

From an educational perspective, the results affirm that assessment practices shape not only academic outcomes but also students' psychological well-being and creative identity. Art educators should thus act as mediators between institutional demands and students' emotional needs. Integrating formative assessment techniques such as peer critique, reflective journals, and iterative project reviews can reduce performance anxiety while deepening metacognitive awareness (Black and Wiliam, 2018).

Moreover, the findings support adopting autonomy-supportive pedagogy grounded in Self-Determination Theory (Deci and Ryan, 2000). Teachers should emphasize process-oriented feedback that values exploration over precision, thereby transforming stress from a source of threat into a driver of growth (Putwain and Symes, 2018). Embedding mental health awareness into art curriculum through workshops or counseling partnerships can further strengthen students' resilience and coping strategies during admission preparation.

#### ***4.2 Recommendations for Future Research***

Future studies should expand this investigation longitudinally to examine how stress evolves throughout students' academic trajectories from admission to graduation. Including variables such as gender, socioeconomic background, and digital learning exposure could reveal additional moderating factors influencing exam-related stress. Moreover, integrating physiological measures (e.g., heart rate variability or cortisol levels) could provide more objective insights into the relationship between assessment pressure and emotional regulation (Zeidner, 1998). Comparative research across more countries or within different art disciplines (e.g., music, theatre, design) would also enrich understanding of how cultural contexts mediate stress perception. Finally, the role of AI-based assessment tools and digital portfolios merits exploration, especially as technology increasingly shapes art education and evaluation (Luckin, 2023).

#### ***4.3 Conclusion***

This study demonstrates that the structure of admission assessment plays a decisive role in shaping students' psychological experiences in art education. Chinese students undergoing standardized examinations reported significantly higher exam-related stress than their Malaysian counterparts assessed through portfolio-based systems. While standardization ensures fairness, it also intensifies anxiety and restricts creative freedom. Conversely, portfolio assessments promote autonomy and expressive diversity, though they require careful calibration to maintain reliability. The integration of both quantitative and qualitative findings underscores that assessment is not merely an evaluative tool but a pedagogical environment that either cultivates or constrains creativity. Art education systems that prioritize humanistic, reflective, and process-oriented assessment can sustain creativity while nurturing emotional well-being. Ultimately, this study calls for an educational paradigm that redefines success beyond technical precision as one that values curiosity, expression, and resilience as equally vital outcomes of artistic learning. In doing so, it contributes to the global dialogue on creating equitable, emotionally intelligent, and creativity-centered assessment policies in art education.

#### **Declarations**

##### **Acknowledgements**

None.

##### **Competing Interests**

None.

##### **Ethical Approval**

This study was granted an exemption from requiring ethics approval as it does not involve the collection of sensitive personal data. The research is based on survey and interview methods, utilising primary data

exclusively from the undergraduate art students. As such, it adheres to institutional guidelines that classify this type of study as low-risk and not subject to formal ethics approval.

#### **Author's Contribution**

**Author<sup>1</sup>:** Conceptualization, Investigation, Software, Data curation, Formal analysis, Visualization, Writing – original draft

**Author<sup>2</sup>:** Methodology, Resources, Validation, Supervision – review and editing

#### **Data availability**

None.

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