

# E-BOOK OF EXTENDED ABSTRACT

## THE 14<sup>TH</sup> INTERNATIONAL INVENTION, INNOVATION & DESIGN COMPETITION 2025



14<sup>TH</sup> **INDES** 2025

ENVIRONMENTAL • SOCIAL • GOVERNANCE



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THE 14th INTERNATIONAL  
INVENTION, INNOVATION &  
DESIGN COMPETITION 2025

**Organized by:**

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# DRAWLYZER: AI-BASED DRAWING ASSESSMENT FOR ART ADMISSIONS

Mohd Nasiruddin Abdul Aziz<sup>1</sup>, Anwar Fikri Abdullah<sup>2</sup>, Sharifah Raudzah S Mahadi<sup>3</sup>,  
Mohamad Zaidi Sulaiman<sup>4</sup>, Mohamed Izzat Mohamed Khalil<sup>5</sup>

<sup>1,2,3,4</sup> Faculty of Art and Design, UiTM Perak Branch, Seri Iskandar Campus,  
32610 Seri Iskandar, Perak, Malaysia

<sup>5</sup> Faculty of Art and Design, UiTM Selangor Branch, Puncak Alam Campus,  
42300 Puncak Alam, Selangor, Malaysia

[Mohdn571@uitm.edu.my](mailto: Mohdn571@uitm.edu.my)

## ABSTRACT

The Drawlyzer App is an innovative mobile application developed to streamline and standardize the drawing assessment process for prospective students applying to enroll in the Faculty of Art and Design (FSSR) at Universiti Teknologi MARA (UiTM). Traditional manual evaluations often suffer from subjectivity and inconsistency, making talent selection less reliable. Drawlyzer addresses this issue by integrating artificial intelligence to analyze and score hand-drawn artworks based on direct comparison with a reference image. Built using the Expo mobile development framework and powered by a large language model from Anthropic's Claude 3.7 Sonnet, the app evaluates submitted drawings using visual criteria such as proportion, detail, and technique. Instead of letter grades, the app generates a percentage score along with individual scores for each criterion and provides automated feedback on elements like composition, balance, and line quality. All data is securely stored in the cloud via Supabase for centralized access and reporting. The app prototype has shown promising accuracy in aligning with expert judgment, enhancing fairness and consistency in the admission process. Drawlyzer holds strong commercialization potential across art institutions, digital portfolio reviews, and online art competitions. It supports a transparent, scalable, and efficient approach to talent evaluation while aligning with Sustainable Development Goals related to quality education and innovation.

**Keyword:** Drawing Assessment, Artificial Intelligence, Mobile Application, Art Education

## 1. INTRODUCTION

In the evolving landscape of art and design education, the fair and effective evaluation of drawing skills remains a key concern—particularly when assessment is based solely on human judgment. In the Faculty of Art and Design (FSSR), Universiti Teknologi MARA (UiTM), student selection during admissions often relies on panel-based manual evaluations. This method, while traditionally accepted, is prone to inconsistency, subjectivity, and time constraints, which may hinder the identification of true talent. According to Hu (2024), the absence of standardized tools in art assessment can result in significant variation in scoring and feedback, affecting both student outcomes and institutional credibility. In response to these challenges, the Drawlyzer App was conceptualized to offer a more objective, efficient, and data-driven alternative to conventional methods.

The Drawlyzer App introduces a novel mobile-based platform that uses artificial intelligence (AI) to assess applicants' drawing skills based on visual criteria such as proportion, accuracy, and line quality. Built with a user-centered design approach and cross-platform compatibility, the app ensures accessibility for both evaluators and candidates. The core of the system is an AI model trained on datasets of expert-evaluated drawings, enabling consistent automated grading. As highlighted by ElSaid (2023), the integration of mobile AI applications in creative education not only supports faster evaluations but also promotes equity and transparency in talent screening. Drawlyzer also provides

instant reporting features, creating digital records for both administrative and candidate reference, while reducing the workload of academic staff.

Beyond its pilot application at UiTM, Drawlyzer demonstrates strong potential for commercialization. Its scalability allows for adoption by other art schools, creative academies, and talent recruitment platforms worldwide. Additionally, it can be adapted for use in online art competitions and certification systems. The commercialization of such AI-driven tools aligns with Sustainable Development Goal (SDG) 4, ensuring inclusive and equitable quality education, and SDG 9, fostering innovation and infrastructure in education systems. As Amini (2025) notes, integrating AI in art education not only improves operational efficiency but also expands access to learning and evaluation tools across diverse educational contexts. By addressing both institutional and societal needs, Drawlyzer positions itself as a forward-thinking solution that advances both educational quality and technological innovation.

## 2. METHODOLOGY

The mobile apps of Drawlyzer was developed using Expo, a robust open-source platform built on React Native that simplifies the creation of cross-platform mobile applications for both Android and iOS. This approach was chosen for its ability to streamline development without the need for native code, allowing for rapid prototyping, testing, and deployment while maintaining high performance and user experience consistency across devices.

The development process was assisted by an AI-powered programming platform, which leverages Anthropic’s Claude 3.7 Sonnet large language model (LLM) to generate and refine application code. This AI-assisted workflow enabled efficient iteration of UI/UX components, drawing input features, and data communication modules, ensuring that the app aligned with both functional and design requirements from educators and end users. The use of Claude 3.7 Sonnet contributed significantly to code accuracy, speed of development, and integration reliability.

All data handling within the app, including scanned image uploads, user authentication, and drawing evaluation records, is connected to a cloud-based infrastructure using Supabase, which manages secure database operations and file storage. By leveraging cloud architecture, the app ensures that all assessments are centrally stored and accessible for analysis, report generation, and long-term data tracking. This mobile-first development approach ensures that Drawlyzer is accessible, scalable, and ready for broader deployment across institutions that require remote and on-site drawing assessments.

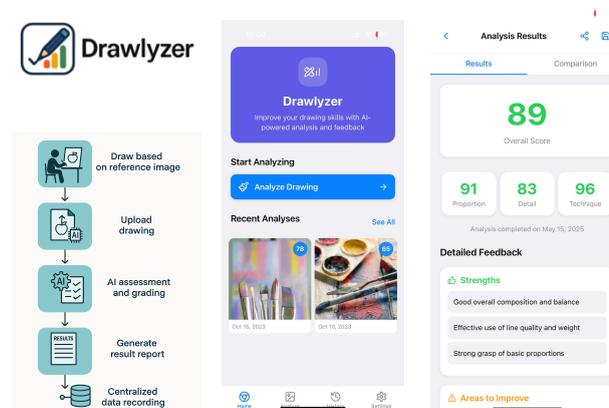


Figure 1 The Drawlyzer App

### 3. FINDINGS

The Drawlyzer App prototype functions as an AI-powered tool that evaluates hand-drawn artwork by comparing it to a reference image uploaded into the system. After candidates reproduce the image and upload their drawing through the mobile app, the AI engine analyzes the submission by examining visual elements such as accuracy, structure, and alignment. Rather than assigning letter grades, the app provides a percentage score along with individual scores for key criteria including proportion, detail, and technique.

In addition to scoring, the app also offers automated feedback on important artistic aspects such as composition, visual balance, and line quality. This helps candidates understand their performance and allows interviewers to make more informed decisions. All drawings, scores, and feedback are stored in a secure cloud database, enabling easy access and reporting. The prototype shows promising results in reducing subjectivity and improving consistency in the evaluation process, with further development planned to enhance the AI model and expand its assessment capabilities.

### 4. CONCLUSION

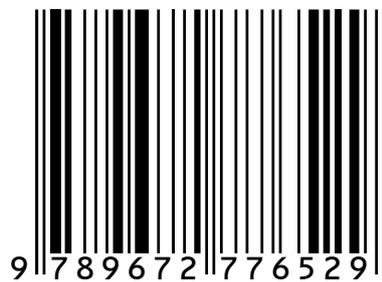
Drawlyzer represents a forward-thinking solution in the field of art and design education by introducing an AI-powered approach to drawing assessment. It addresses the limitations of traditional manual evaluations through a system that is faster, more consistent, and data-driven. By providing percentage scores, detailed criteria-based feedback, and real-time reporting, the app enhances transparency and supports fair decision-making during student admissions. Its potential for commercialization is strong, with opportunities to expand into other institutions, competitions, and digital portfolio evaluations. As it continues to develop, Drawlyzer not only contributes to the modernization of creative education but also supports broader goals such as quality education and innovation in line with global sustainable development initiatives.

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