

Managing the Undergraduate Research Process Through a Structured Online Supervision Platform: A Conceptual Framework

*Anwar Fikri Abdullah¹, Mohd Khairulnizam Ramlie², Hanafi Mohd Tahir³

^{1,2,3} Faculty of Art & Design, Universiti Teknologi MARA Perak Branch, Seri Iskandar Campus,
32610 Seri Iskandar, Perak, Malaysia

*anwar575@uitm.edu.my¹, nizamramlie@uitm.edu.my², hanaf185@uitm.edu.my³

*Corresponding author

Received: 16 July 2026; Accepted: 20 July 2026; Published: 1 September 2026

ABSTRACT

Undergraduate research and design studio courses require students to progress through a sequence of exploratory, developmental, and reflective stages under the continuous guidance of a supervisor. In practice, this process is frequently managed through fragmented tools such as printed logbooks, e-mail correspondence, and verbal consultations, resulting in inconsistent documentation, delayed feedback, and difficulty in tracking a student's developmental trajectory across a semester. This paper aims to identify the essential process stages required to manage an undergraduate research or design studio project from initiation to completion, to develop a conceptual framework that structures these stages into a coherent, cyclical model suitable for translation into an online platform, and to propose a framework underpin the design of the GDC550 Logbook App prototype, as an instrument to collect empirical data on the research supervision process. The framework is derived from a synthesis of literature on technology acceptance, structured and gamified learning environments, cross-disciplinary creativity models, and collaborative supervision practices, and is organised into four interrelated phases: Registration and Supervisory Structuring, Structured Weekly Logbook Documentation, Milestone Review and Completion Verification, and Multi-Assessor Rubric Evaluation and Analytics. These phases are conceptualised as a cyclical rather than linear process, in which weekly risk-status indicators and rubric outcomes continuously inform subsequent supervision. The framework underpins the design of a working prototype, the GDC550 Logbook, an online supervision application developed for the Communication Design Studio 1 course, which operationalises the framework through a 14-week structured logbook with evidence and risk checklists, dual student-supervisor signatures, milestone review stages, a signature-gated completion summary, and a Course Learning Outcome/Programme Learning Outcome (CLO/PLO)-mapped, multi-assessor weighted rubric with automatic grade computation. The prototype will subsequently be used to collect empirical data on its usability and effectiveness. This paper contributes a theoretically grounded structure for designing digital research-supervision tools and offers implications for institutions seeking to standardise and digitalise undergraduate research management.

Keywords: Learning Analytics, Digital Supervision, Rubric Assessment, Educational Technology, Design Education.



ISSN: 2550-214X © 2026. Published for Idealogy Journal by UiTM Press. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

1 INTRODUCTION

The undergraduate research process, whether expressed as a final year project, a design studio project, or a capstone research paper, is one of the most demanding components of higher education curricula. It requires students to move through a structured sequence of activities that typically include

problem identification, literature review, methodology planning, data or design development, critique, and reporting, all of which must be documented and supervised over an extended period (Roberts & Seaman, 2018). Unlike coursework assessment, which is largely episodic, the research process is longitudinal and cumulative in nature: each stage builds upon feedback received in the previous stage, and the quality of the final output is strongly dependent on the consistency and timeliness of supervisory guidance (Lee & Murray, 2015).

In many undergraduate programmes, particularly within art and design disciplines, the research or studio process continues to be managed manually. Students record their progress in a physical logbook that is periodically presented to a supervisor during consultation sessions, while feedback, corrections, and approvals are communicated verbally or through informal messaging channels. This arrangement creates several structural weaknesses. First, documentation becomes inconsistent because students differ in the frequency and depth of their logbook entries. Second, supervisors have limited visibility of a student's progress between consultation sessions, which delays the detection of students who are falling behind. Third, institutions accumulate little to no structured data on the research process itself, which limits opportunities for programme-level evaluation and continuous improvement. Similar concerns regarding the effectiveness of conventional, one-directional guidance methods have also been raised in studies of collaborative and technology-supported teaching practices (Wan Nurhasyimah & Mohd Daud, 2020; Tagie et al., 2023).

Digital platforms have been proposed as a solution to these structural weaknesses across many fields of education. However, the successful adoption of any digital tool depends on whether its design correctly reflects the underlying process it is meant to support (Mohd Nasiruddin et al., 2021). A platform that merely digitises a paper logbook without embedding a clear, theoretically informed process risks being underused or misused, in the same way that interactive technologies fail to gain traction when their design does not correspond to users' actual needs and behaviours (Davis, 1989; Venkatesh & Davis, 2000). It is therefore necessary to first establish a conceptual framework that defines what a structured undergraduate research process should look like, before such a process is translated into a working online platform.

This paper responds to that need. It presents a conceptual framework for managing the undergraduate research process, developed prior to and in support of a working prototype, the GDC550 Logbook Apps, an online supervision application built for the Communication Design Studio 1 course at the Faculty of Art & Design, Universiti Teknologi MARA (UiTM), Perak Branch. The framework is intended to (a) articulate the logical stages through which a supervised undergraduate research or studio project should progress, (b) define the corresponding functions that an online platform must provide to support each stage, and (c) serve as the theoretical basis upon which empirical data on the platform's usage and effectiveness will later be collected.

1.1 Problem Statement

Despite the growing availability of learning management systems and e-portfolio tools, few of these systems are purpose-built to manage the specific, sequential, and feedback-dependent nature of the undergraduate research or design studio process. Generic tools tend to treat student submissions as isolated assignments rather than as a continuous, developmental record that must be revisited, annotated, and tracked by both student and supervisor over time. Consequently, many faculties continue to rely on manual logbooks, which are difficult to monitor, easily lost, and produce no usable data for programme evaluation (Roberts & Seaman, 2018). There is, therefore, a gap between the availability of digital technology and the existence of a research-process-specific conceptual model that can guide the meaningful design of such technology for undergraduate supervision.

1.2 Research Objectives

This paper aims to:

- (1) Identify the essential process stages required to manage an undergraduate research or design studio project from initiation to completion.
- (2) Develop a conceptual framework that structures these stages into a coherent, cyclical model suitable for translation into an online platform.
- (3) Proposed a prototype on framework design of GDC550 Logbook Apps prototype, as an instrument to collect empirical data on the research supervision process.

1.3 Research Questions

- (1) What are the core process stages that must be structured and supported in managing an undergraduate research process?
- (2) How can these stages be organised into a conceptual framework that is both theoretically grounded and practically implementable as an online platform?
- (3) Explain how the proposed framework underpins the design of the GDC550 Logbook Apps prototype, which will subsequently be used as an instrument to collect empirical data on the research-supervision process.

2. LITERATURE REVIEW

2.1 The Undergraduate Research Process and Supervision Challenges

Supervision of undergraduate research has been described as a relationship in which a novice researcher is progressively inducted into disciplinary ways of thinking through repeated cycles of drafting, feedback, and revision (Lee & Murray, 2015). Roberts and Seaman (2018) found that students' experiences of dissertation supervision were strongly shaped by the frequency, clarity, and consistency of feedback they received, and that irregular or poorly documented supervision contributed to student anxiety and lower quality outputs. Bearman et al. (2021) similarly observed that across disciplines, the design of assessment and supervision processes is often left implicit rather than deliberately structured, which produces wide variation in how individual supervisors manage the same nominal process. These findings collectively suggest that the research process benefits from an explicit, structured model rather than being left to the discretion of individual supervisor-student pairings.

Within the Idealogy Journal literature, related concerns about structuring student-centred creative and research activity are evident. Wan Nurhasyimah and Mohd Daud (2020) examined collaborative teaching among lecturers in the Faculty of Art & Design, UiTM, and found that shared preparation, consistent use of visual teaching materials, and structured rubric-based assessment improved the consistency of feedback given to students, while unclear communication between co-teaching lecturers created confusion for students. This reinforces the argument that even collaborative or team-based supervision requires an explicit, shared process structure to function effectively.

2.2 Technology Acceptance and Structured Digital Tools

The Technology Acceptance Model (TAM) proposes that a user's intention to adopt a technology is determined primarily by its perceived usefulness and perceived ease of use (Davis, 1989; Venkatesh & Davis, 2000). Mohd Nasiruddin et al. (2021), in a study published in *Ideology Journal*, extended TAM to explain visitors' intention to use interactive kiosk technology in a museum setting, proposing that both belief factors (perceived usefulness and ease of use) and design factors (system support, user interface design, navigation, accessibility, and comfortability) jointly determine usage intention. This conceptual framework is instructive for the present study because it demonstrates that a technology intended to support a specific process, in that case, museum learning, must be designed around the structural requirements of that process rather than around generic software features. The present framework adopts a comparable logic: the functions of the proposed online supervision platform are derived directly from the stages of the undergraduate research process rather than from a generic list of e-learning features.

2.3 Structured and Gamified Learning Platforms

Structured digital platforms have also been shown to improve engagement and self-regulation among students when the platform embeds a clear task sequence and immediate feedback. Tagie et al. (2023), writing in *Ideology Journal*, demonstrated that an online game-based interactive learning platform (Quiz Whizzer) combined with QR-code-based tasks improved students' intellectual engagement and produced measurable, positive emotional responses towards learning art history content. Their study is relevant here because it illustrates how a digital tool that operationalises a structured sequence of tasks, rather than an unstructured repository, can generate both behavioural engagement and usable data for the researcher, in their case, quiz scores and emotion cards; in the present study, structured logbook entries and supervisor feedback logs. Similarly, Liu Chang et al. (2023) demonstrated, through a quasi-experimental comparison of intelligent piano teaching against conventional piano instruction in a Chinese conservatory, that a purpose-built intelligent platform equipped with structured feedback functions (automatic error correction, playback and recording, and progress scoring) produced measurably higher post-test performance than an unstructured, conventional teaching tool. This finding supports the premise that a purpose-built, structured digital instrument, rather than a generic tool, can materially improve process outcomes when its functions are aligned with the pedagogical process it supports.

2.4 Cross-Disciplinary and Creativity-Based Process Models

Because the prototype underlying this framework is situated within a design studio course, models of creative and cross-disciplinary process are also relevant. Rushana Sulaiman et al. (2025) proposed a three-phase conceptual framework for cross-disciplinary art teaching, consisting of Knowledge (literature review and mind-mapping), Creative Thinking (data collection, categorisation, sketching, and final artwork), and Motivation (subjective assessment of innovation, technique, and expression), adapted from Sternberg's (2003) and Amabile's (1996) theories of creativity. Their model demonstrates that a creative research process can be represented as a small number of sequential yet interacting phases, each with defined inputs and outputs, and that documenting each phase (through visual and written records) is essential to producing an evaluable creative outcome. Aznan Omar's (2019) documentation of the 'Publikart' public sculpture project further shows, in practice, how a creative research process moves through preparatory research, thematic argumentation, sketch development, colour and material studies, technical drawing, and fabrication, each stage producing a distinct documentary artefact (sketches, mood boards, technical drawings, and site photographs). This progression is analogous to the stage-based documentation that an undergraduate design research logbook must capture and supports the structuring of the proposed framework's Phase 2 (logbook documentation) around discrete, artefact-producing milestones rather than free-form text entries.

2.5 Conceptual Framework Design as a Methodological Precedent

Finally, this study follows the methodological precedent of conceptual-framework papers published in Ideology Journal that translate a synthesised body of literature into a practical, visualised instrument prior to empirical testing. Amer Fawwaz et al. (2026) developed the Wheel for Integrated Scaffolded Evaluation through CEFR and Bloom Linked Reference (WISE-CB), a conceptual reference tool that systematically mapped Bloom's Taxonomy verbs to CEFR proficiency levels and Cognitive Load Theory through a five-phase development process, culminating in a validated, wheel-shaped reference kit for examination design. Their approach, moving from literature synthesis, to phase-based verb classification, to expert validation, to the creation of a practical visual tool, provides a direct structural precedent for the present paper: a conceptual framework is first established from theory, and is only subsequently operationalised as a digital instrument (in their case, a reference wheel; in the present case, an online supervision platform) that can be used to collect further data. This precedent justifies the sequencing of the present paper, in which the conceptual framework is presented and justified before the prototype's data-collection function is discussed.

2.6 Synthesis

Taken together, the reviewed literature indicates that: (a) undergraduate research supervision suffers from inconsistent documentation and delayed feedback when left unstructured (Roberts & Seaman, 2018; Lee & Murray, 2015); (b) technology adoption for a specific educational process is more successful when platform design is derived from belief and design factors specific to that process, rather than generic features (Davis, 1989; Mohd Nasiruddin et al., 2021); (c) structured, milestone-based digital tools with built-in feedback mechanisms improve engagement and measurable performance compared to unstructured or conventional tools (Tagie et al., 2023; Liu Chang et al., 2023); (d) creative and design-based research processes can be meaningfully represented as a small number of sequential, artefact-producing phases (Sulaiman et al., 2025; Aznan Omar, 2019); and (e) a conceptual framework should be developed and validated prior to its translation into a digital instrument used for data collection (Amer Fawwaz et al., 2026). These five points form the theoretical basis of the conceptual framework proposed in the following section.

3 PROPOSED CONCEPTUAL FRAMEWORK

Based on the synthesis above, this paper proposes a four-phase conceptual framework for managing the undergraduate research process: (1) Registration and Supervisory Structuring, (2) Structured Weekly Logbook Documentation, (3) Milestone Review and Completion Verification, and (4) Multi-Assessor Rubric Evaluation and Analytics. Unlike a purely linear model, the four phases are conceptualised as cyclical and mutually reinforcing: risk-status flags and supervisor feedback recorded weekly in Phase 2 carry forward into the milestone reviews of Phase 3, while the rubric outcomes and cohort analytics generated in Phase 4 inform how subsequent supervision and registration are conducted in later semesters, echoing the iterative reflection-planning-action-observation cycle described in action research (Kemmis & McTaggart, 1988) and applied to art education research by Rushana Sulaiman et al. (2025). Figure 1 illustrates the framework.

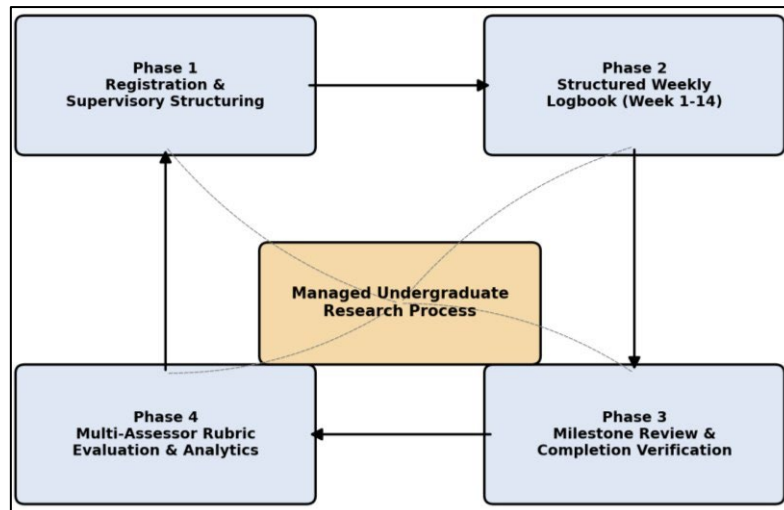


Figure 1 Conceptual Framework for Managing the Undergraduate Research Process
(Source: Authors, 2026)

3.1 Phase 1: Registration and Supervisory Structuring

The first phase establishes the formal starting point of the research process by capturing the administrative and relational structure of the supervision arrangement before any documentation activity begins. This requires each student to be registered with a project title, semester code, primary supervisor, and, where the assessment structure requires it, a second assessor, so that both the student and the supervisory team share a single, unambiguous reference point for the remainder of the process. This phase functions analogously to the 'Knowledge' phase described by Rushana Sulaiman et al. (2025), in which the subject of study and the parties involved are identified before creative or investigative work begins. At the platform level, this phase must provide a consolidated supervisee-management interface that allows a supervisor to invite or add supervisees, create the associated project record, and view, at a glance, each supervisee's project title, contact details, entry count, and most recently completed week, so that supervisory oversight can scale to a full cohort rather than a single student.

3.2 Phase 2: Structured Weekly Logbook Documentation

The second phase digitises the logbook itself, but, critically, structures each entry around a fixed weekly template rather than an open-ended free-text diary. Drawing on the artefact-based documentation observed in the 'Publikart' project (idea sketches, mood boards, technical drawings, and process photographs; Aznan Omar, 2019), this phase requires each of the fourteen weekly entries in a semester to capture, in a consistent format: the meeting mode (online or offline); a checklist of evidence or materials presented, spanning categories such as problem statement, project scope, research instrument, data collection evidence, insight analysis, concept direction, prototype or mock-up, deliverable list, and validation or testing; a corresponding checklist of risk or issue indicators (for example, scope too broad, weak research evidence, unrealistic deliverables, or concept not aligned with insights); a narrative field for the student's progress details; a narrative field for the supervisor's key feedback and corrections; a stated action plan for the following week; and an overall progress-status flag of On Track, Minor Risk, or Major Issue. Each entry additionally requires a dual digital signature, recorded separately with a timestamp for the student and the supervisor, together with the option to attach external evidence links (for example, to cloud storage or design files). Structuring entries in this way, rather than as unstructured text, allows both parties to see, at a glance, which categories of evidence have been produced, which risks have been flagged, and whether an entry has been mutually verified through signature.

3.3 Phase 3: Milestone Review and Completion Verification

The third phase formalises two forms of periodic checkpoint that sit above the weekly cadence: milestone reviews and a semester-end completion verification. Consistent with findings that irregular or undocumented feedback undermines student confidence and output quality (Roberts & Seaman, 2018), the platform structures Review 1, Review 2, and a Final stage as discrete sections, each requiring the student to attach evidence links, presentation details, and, where applicable, a presentation video link, with a corresponding supervisor feedback field for key comments and corrections. This addresses the type of inconsistency identified by Wan Nurhasyimah and Mohd Daud (2020) in collaborative teaching contexts, where undocumented or differing feedback from multiple educators created confusion for students, by anchoring every review comment to a specific, dated milestone. The phase concludes with a Mark as Complete and Summary stage, in which the supervisor records consolidated notes across nine process areas (from Proposal or Problem Statement through to Validation or Testing) and may only sign off the semester once every one of the fourteen weekly entries has been co-signed by the student, a structural safeguard that prevents a project from being marked complete while documentation gaps remain.

3.4 Phase 4: Multi-Assessor Rubric Evaluation and Analytics

The fourth phase converts the accumulated logbook, review, and completion data into a formal, weighted assessment, and, at an aggregate level, into a supervision dashboard for the programme. This corresponds to the evaluative logic of the 'Motivation' phase proposed by Rushana Sulaiman et al. (2025) and to the scoring and analytics functions demonstrated to improve outcomes in structured digital learning tools (Tagie et al., 2023; Liu Chang et al., 2023). In the present framework, each project is assessed through three weighted components, Assignment 1, Assignment 2, and the Final Project, each explicitly mapped to a Course Learning Outcome and Programme Learning Outcome, marked against a detailed rubric of weighted criteria, and combined through a fixed formula to auto-generate a weighted total, a provisional grade score, and a provisional letter grade. Each assessment stage can be locked once marks are confirmed, and results can be exported as a rubric report for moderation. At the cohort level, this phase is supported by a supervisor dashboard summarising, for every supervisee, the assessment status of each component (marked or pending), together with cohort-wide analytics and export functions (PDF and spreadsheet) that allow a programme coordinator to monitor the progress and grading status of an entire supervision load.

3.5 From Framework to Prototype: The GDC550 Logbook Apps

The four-phase framework described above directly informs the design of the GDC550 Logbook Apps, an online supervision platform developed for the Communication Design Studio 1 course at the Faculty of Art & Design, UiTM Perak Branch. Within the prototype, Phase 1 is implemented through the Supervisee List interface, which manages student invitation, project registration, and supervisor or second-assessor linkage; Phase 2 through a fourteen-week logbook interface in which each week is a discrete, checklist- and signature-structured entry; Phase 3 through the Review 1, Review 2, Final, and Mark as Complete and Summary sections, the last of which is gated by full weekly-signature completion; and Phase 4 through the Assessment interface, which applies a CLO/PLO-mapped, weighted, multi-assessor rubric with automatic grade computation, supported by a supervisor-level Dashboard and Analytics view.

In line with the precedent set by Amer Fawwaz et al. (2026), in which a conceptual framework (WISE-CB) was first theoretically validated before being expressed as a practical reference tool, the GDC550 Logbook Apps is positioned in this paper strictly as the operational expression of the conceptual framework, rather than as the object of evaluation itself. The framework, not the software, is the primary contribution of this paper; the prototype exists to make the framework testable and to generate the empirical data, weekly completion and signature rates, risk-flag frequency, feedback turnaround time, and rubric outcomes, required for a subsequent evaluative study.

3.6 Supporting Infrastructure: AI-Assisted Drafting and Governance Escalation

Beyond the four core phases, the prototype incorporates two cross-cutting support mechanisms that do not constitute additional process stages but strengthen the reliability of Phases 3 and 1 respectively. First, an Integrations module allows a supervisor to connect a personal application programming interface (API) key for a large language model provider (Google Gemini, OpenAI, or Anthropic) for the specific, bounded purpose of assisting with the drafting of the Mark as Complete and Summary notes in Phase 3, in addition to a system-managed transactional e-mail service used for notification delivery. Because the models are Bring-Your-Own-Key and the function is restricted to draft generation for a supervisor-authored summary, this feature is conceptualised as a drafting aid that reduces the administrative burden of the completion-verification stage, rather than as an autonomous assessment or grading mechanism; the supervisor's own judgement, expressed through the free-text notes and the Sign and Mark as Complete action, remains the final determinant of the record. Second, a Request Moderator function provides a formal escalation channel through which a supervisor can submit structured requests, such as changing a second assessor because of a conflict of interest, to an appointed moderator, with each request classified by type and optionally linked to a specific project. This mechanism supports the integrity of Phase 1 (supervisory structuring) by providing a documented, auditable route for changes to the supervisory arrangement after registration, rather than requiring such changes to be handled through informal channels outside the platform.

4 METHODOLOGIES

This paper adopts a conceptual, literature-synthesis methodology consistent with prior conceptual-framework papers published in *Ideology Journal* (Mohd Nasiruddin et al., 2021; Amer Fawwaz et al., 2026). The process consisted of four stages. First, a targeted review of literature on undergraduate research supervision, technology acceptance, structured and gamified digital learning tools, and cross-disciplinary creativity models was conducted to identify recurring process stages and design considerations relevant to managing student research. Second, these recurring elements were synthesised and organised into a four-phase cyclical framework, following the precedent of translating literature into a phase-based model before software design (Rushana Sulaiman et al., 2025; Amer Fawwaz et al., 2026). Third, the resulting framework was mapped against the functional modules of an existing working prototype, the GDC550 Logbook Apps, through a screen-level review of its supervisor-facing interfaces (Supervisee List, weekly logbook entries, Review 1/Review 2/Final stages, Mark as Complete and Summary, Assessment, and Dashboard/Analytics), to confirm that each conceptual phase corresponds to an implementable and, in this case, already implemented, platform function. Fourth, the phase descriptions in Section 3 were revised so that the terminology used in the framework corresponds directly to the terminology and data fields observed in the prototype (for example, the evidence and risk checklists, dual signatures, and CLO/PLO-mapped rubric), ensuring conceptual-to-operational traceability. This paper does not report empirical usability or effectiveness data; rather, it establishes the theoretical model, verified against the prototype's actual structure, that will subsequently guide the collection of such data through the platform in a follow-up empirical study.

5 DISCUSSIONS

The proposed framework addresses the problem identified in Section 1.1 by offering a structured alternative to the fragmented, manually managed research process common in undergraduate design and research supervision. By deriving each phase directly from documented supervision challenges and from precedents of structured digital tools that improved measurable outcomes (Tagie et al., 2023; Liu Chang et al., 2023), the framework avoids the risk, identified in technology acceptance research (Davis, 1989; Mohd Nasiruddin et al., 2021), of designing a platform around generic digital features rather than around the actual belief and process requirements of its users.

The cyclical structure of the framework, in which weekly risk flags and feedback (Phase 2) inform milestone reviews (Phase 3), which in turn feed into the weighted rubric outcomes and cohort analytics of Phase 4, also distinguishes it from a simple digitised logbook. This reflects the iterative logic of action research (Kemmis & McTaggart, 1988) and mirrors the reflection-planning-action-observation cycle successfully applied to art education research by Rushana Sulaiman et al. (2025). In practical terms, this means the GDC550 Logbook Apps is not merely a storage repository but a process-management instrument: the dual-signature requirement on every weekly entry, the signature-gated completion sign-off, and the CLO/PLO-mapped multi-assessor rubric are expected to shorten feedback turnaround time, increase the consistency and frequency of documentation, and provide supervisors and coordinators with early, data-based indicators of student progress (through the On Track/Minor Risk/Major Issue flag), in a manner analogous to the improved measurable performance reported for structured digital tools in music and interactive-learning education (Liu Chang et al., 2023; Tagie et al., 2023).

Nonetheless, the framework is presented here at the conceptual level only, and several limitations should be acknowledged. First, the framework has not yet been empirically validated; the working prototype exists, but this paper does not report usage data, and the framework's practical effectiveness remains to be tested. Second, the framework has been developed primarily with reference to a design studio context and may require adaptation for research processes with different disciplinary conventions, such as laboratory-based science projects or literature-based social science dissertations. Third, as with any digital supervision tool, adoption depends on both student and supervisor willingness to engage consistently with structured documentation, and factors such as digital literacy, workload, and institutional support will influence the framework's real-world effectiveness (Davis, 1989; Venkatesh & Davis, 2000). Fourth, the optional large-language-model-assisted drafting function embedded in Phase 3 introduces a governance consideration that future empirical work should examine directly: because the feature is intended only to assist, not replace, the supervisor's completion notes, subsequent studies should verify that its use does not dilute the reflective, evaluative judgement that the completion-verification stage is designed to capture.

6 CONCLUSIONS

This paper has proposed a four-phase conceptual framework, comprising Registration and Supervisory Structuring, Structured Weekly Logbook Documentation, Milestone Review and Completion Verification, and Multi-Assessor Rubric Evaluation and Analytics, for managing the undergraduate research process through a structured online supervision platform. The framework was synthesised from literature on research supervision challenges, technology acceptance, structured and gamified digital learning tools, and cross-disciplinary creativity models, several of which were drawn from prior studies published in Ideology Journal, and was subsequently verified at the screen level against a working prototype. The framework directly underpins the design of the GDC550 Logbook Apps, developed for the Communication Design Studio 1 course at the Faculty of Art & Design, UiTM Perak Branch, which operationalises each of the four phases through its fourteen-week checklist- and signature-structured logbook, milestone review stages, signature-gated completion summary, and CLO/PLO-mapped weighted rubric with automatic grading, and which will subsequently serve as the instrument through which empirical data on the framework's usability and effectiveness will be collected. Future research should apply this framework empirically, using data generated by the prototype (weekly completion and signature rates, risk-flag frequency, feedback turnaround time, and rubric outcomes), to evaluate its impact on documentation consistency, supervision quality, and overall research output quality, and to examine its transferability to other undergraduate research and studio-based disciplines.

ACKNOWLEDGEMENT

No acknowledge is due to anyone.

FUNDING

This research is self-funded.

AUTHOR CONTRIBUTIONS

All authors played equal contributions towards the production of this paper.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

- Amabile, T. M. (1996). *Creativity in context*. Westview Press.
- Amer Fawwaz Mohamad Yasid, Nurul Kamalia Yusuf, & Raja Mayang Delima Mohd Beta. (2026). From verbs to validity: Developing the wheel for integrated scaffolded evaluation through CEFR and Bloom linked reference (WISE-CB). *Ideology Journal*, 11(1), 139-149. <https://doi.org/10.24191/idealogy.v11i1.910>
- Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Addison Wesley Longman.
- Aznan Omar. (2019). 'Digital lifestyle': Idea and creation of public statue in the 'Publikart' project in Iskandar Puteri, Johor Baharu, Johor. *Ideology Journal*, 4(1), 1-12. <https://doi.org/10.24191/idealogy.v4i1.146>
- Bearman, M., Dawson, P., Bennett, S. et al. How university teachers design assessments: a cross-disciplinary study. *High Educ* 74, 49–64 (2017). <https://doi.org/10.1007/s10734-016-0027-7>.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
- Kemmis, S., & McTaggart, R. (1988). *The action research planner* (3rd ed.). Deakin University Press.
- Lee, A., & Murray, R. (2015). Supervising Writing: Helping Postgraduate Students Develop as Researchers. *Innovations in Education and Teaching International*, 52, 558-570. <https://doi.org/10.1080/14703297.2013.866329>.
- Liu Chang, Md Jais Ismail, & Wang Hai Ying. (2023). The application of intelligent piano teaching in college education. *Ideology Journal*, 8(2), 257-266. <https://doi.org/10.24191/idealogy.v8i2.432>
- Mohd Nasiruddin Abdul Aziz, Siti Norlizaiha Harun, Sharifah Raudzah S Mahadi, Mohd Hisham Johari, & Muhammad Abdullah. (2021). Conceptual framework: The determinant factors of intention to use interactive kiosk technology in the museum. *Ideology Journal*, 6(2), 115-123. <https://doi.org/10.24191/idealogy.v6i2.304>
- Roberts, L. D., & Seaman, K. (2018). Students' experiences of undergraduate dissertation supervision. *Frontiers in Education*, 3, 1-9. <https://doi.org/10.3389/feduc.2018.00109>
- Rushana Sulaiman, Mat Redhuan Samsudin, Mohd Shahrul Hisham Ahmad, Siti Safura Zahari, Nur Fatiyah Roslan, Suriana Alias, & Noorlida Daud. (2025). New methods in teaching and learning to produce artworks through cross-disciplinary approach using creativity theory. *Ideology Journal*, 10(2), 569-580. <https://doi.org/10.24191/idealogy.v10i2.856>
- Tagie, G., Merman, H., Taharuddin, N. S., & Johari, R. (2023). Correlation of interactive learning and students' intellectual emotion. *Ideology Journal*, 8(1), 160-175. <https://doi.org/10.24191/idealogy.v8i1.419>
- Venkatesh, V. and Davis, F.D. (2000) A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46, 186-204. <https://doi.org/10.1287/mnsc.46.2.186.11926>.
- Wan Nurhasyimah W. Mohd Apandi, & Mohd Daud Abdul Rahim. (2020). Collaborative teaching. *Ideology Journal*, 5(2), 167-170. <https://doi.org/10.24191/idealogy.v5i2.238>