

TECH-INTEGRATED WRITING INSTRUCTION THROUGH MICRO-CREDENTIALS FOR 21ST CENTURY LEARNERS

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(Received 19th November 2025; revised 12th February 2026; accepted 20th February 2026)

Abstract. This study presents a technology-integrated writing innovation developed as a micro-credential course to support Malaysian University English Test (MUET) preparation among post-secondary learners. Titled English Proficiency Course: Writing Skills Mastery, the course is hosted on Universiti Teknologi MARA's uFuture platform and structures writing instruction into scaffolded, competency-based modules. The modules incorporate animated lessons, interactive quizzes, guided writing tasks, and self-reflection activities designed to strengthen sentence construction, paragraph development, and extended essay writing. Grounded in principles of learner autonomy, multimodal engagement, and formative digital feedback, the course aims to address persistent challenges in academic writing, particularly in mixed-ability classrooms. Using a qualitative descriptive design, data were collected from 78 undergraduate participants through surveys and follow-up interviews to examine learner perceptions of engagement and improvement. Findings indicate enhanced confidence in organizing ideas, greater clarity in understanding MUET task requirements, and increased motivation to revise written work independently. The study discusses the pedagogical design, implementation process, and learner-reported outcomes, highlighting the potential of micro-credential models to provide flexible, targeted, and scalable solutions for digital writing instruction in higher education.

Keywords: *educational technology, digital learning, gamification, learner autonomy, micro-credentials, MUET*

Introduction

Writing remains a core language skill required for academic success and lifelong communication (George, 2023). In Malaysia, MUET writing proficiency is a gatekeeper for university entrance and professional qualification. However, many students demonstrate limited ability to construct coherent, organized, and contextually relevant written responses (Hashim and Abdullah, 2021). Traditional writing pedagogy, often delivered in a one-size-fits-all format, struggles to accommodate the diverse proficiency levels and learning preferences of today's students. In response, this study introduces an innovation that integrates technology into writing instruction through a micro-credential format. Micro-credentials, as short, modular, skill-focused learning units, have been embraced globally to address competency-based learning needs in flexible environments (Brown et al., 2021). This paper outlines the development and evaluation of a digital writing course titled "English Proficiency Course: Writing Skills Mastery" offered on Universiti Teknologi MARA (UiTM)'s uFuture platform. Beyond assessment requirements, writing proficiency in the Malaysian higher education context is closely linked to academic performance across disciplines (Abdullah et al, 2025). Students are expected to produce argumentative essays, reports, reflections, and

research-based assignments that demonstrate clarity of thought, logical organization, and appropriate academic tone. However, Lambert (2022) stated that persistent weaknesses in idea development, cohesion, grammar control, and task fulfillment continue to be reported among pre-university and undergraduate learners. These challenges suggest that writing instruction requires not only linguistic support but also structured scaffolding that guides students through the writing process in manageable and targeted stages. The increasing digitalization of education further necessitates pedagogical innovation in writing instruction. Contemporary learners are accustomed to multimodal content, on-demand access, and interactive learning environments (Rana, 2024). Shoufan (2025) believed that traditional lecture-based approaches may not sufficiently engage students who benefit from self-paced practice, immediate feedback, and iterative revision opportunities. Technology-enhanced writing instruction offers potential solutions through multimedia explanations, automated quizzes, guided templates, and structured practice tasks that promote independent learning while maintaining instructional clarity.

Micro-credential frameworks are particularly suited to addressing these instructional needs. By breaking down complex writing competencies into focused, outcome-driven modules, such as thesis statement development, paragraph coherence, argument structuring, and language accuracy, micro-credentials allow learners to progressively build mastery. Each module can incorporate formative assessments, reflective checkpoints, and performance-based tasks aligned with MUET descriptors. Ward et al. (2024) emphasised that such modular structure supports differentiated learning, enabling students of varying proficiency levels to revisit specific skill areas without being constrained by a fixed classroom pace. The “English Proficiency Course: Writing Skills Mastery” was therefore conceptualized as a structured yet flexible digital intervention designed to enhance MUET-oriented writing performance. Hosted on UiTM’s uFuture platform, the course integrates instructional videos, guided writing frameworks, model essays, interactive exercises, and competency-based assessments. By combining technology integration with micro-credential design principles, this innovation seeks to promote learner autonomy, targeted skill development, and measurable improvement in academic writing proficiency. Ultimately, the study evaluates how such a model can contribute to more responsive, scalable, and sustainable writing instruction in Malaysian higher education.

Literature review

Writing remains a significant challenge for English as a Second Language (ESL) learners due to its complex interplay of linguistic, cognitive, and organizational skills (Kormos, 2023). Effective writing instruction requires not only the mastery of grammar and vocabulary, but also the ability to structure ideas coherently and convey meaning clearly across different genres. In the Malaysian context, particularly among students preparing for the Malaysian University English Test (MUET), writing is often perceived as the most demanding component. Pasandeh (2024) found that students frequently struggle with paragraph unity, coherence, and appropriate tone, often due to limited exposure to academic writing conventions and insufficient writing practice. Traditional writing instruction in many institutions often relies on didactic classroom methods, focused largely on passive learning and product-based writing outcomes. This results in limited opportunities for students to engage in iterative, scaffolded writing tasks with formative feedback (Hashim and Abdullah, 2021). Additionally, a lack of differentiated

instruction limits the ability to cater to diverse proficiency levels, especially in mixed-ability classrooms. These challenges point to the need for more flexible, engaging, and personalized approaches to writing pedagogy.

Micro-credentials have emerged as a promising innovation in education that responds to learner diversity and changing skill demands. These are short, competency-based courses designed to validate specific skills and knowledge. According to Brown et al. (2021), micro-credentials offer learners autonomy, flexibility, and recognition of mastery in focused areas, making them especially useful in upskilling contexts and lifelong learning ecosystems. In higher education, micro-credentials have been successfully implemented to support digital literacy, research writing, and soft skill development (Cheng et al., 2025; Oliver, 2019). In language education, they provide an opportunity to deliver scaffolded and interactive instruction that caters to the unique learning pace of each student. Technology plays an important role in enhancing writing instruction, especially when integrated with multimedia, automated feedback, and gamified learning environments. Learners engage more effectively with writing tasks when content is delivered through multimodal tools such as videos, simulations, and interactive quizzes. Furthermore, self-paced platforms enable students to revisit challenging content and receive personalized feedback, reinforcing their learning trajectory. As noted, digital platforms support learner autonomy and reduce writing anxiety by providing a safe space for repeated practice. When paired with the micro-credential model, educational technology can significantly enhance writing instruction by making it more accessible, engaging, and outcomes-driven.

Recent scholarship also emphasizes the importance of process-oriented writing instruction in improving ESL learners' performance. Process writing approaches encourage students to move through stages such as planning, drafting, revising, editing, and reflecting, rather than focusing solely on the final product (Chen, 2024). Research indicates that iterative drafting combined with structured feedback significantly enhances coherence, argument development, and linguistic accuracy. However, implementing process-based instruction in large or mixed-ability classrooms remains challenging due to time constraints and limited opportunities for individualized guidance (Little, 2024). This limitation further supports the need for scalable digital solutions that can systematically embed scaffolding within the writing process. Another important dimension in ESL writing is learner autonomy and metacognitive awareness. Effective writers are not only linguistically competent but also capable of monitoring their progress, identifying weaknesses, and applying corrective strategies. Shen and Bai (2024) have proven that studies in self-regulated learning demonstrate that students who engage in goal setting, self-assessment, and reflection tend to show stronger improvements in writing proficiency. Digital micro-credential environments can incorporate reflective checkpoints, progress tracking dashboards, and self-evaluation rubrics, thereby fostering greater metacognitive engagement. Such features are particularly valuable in high-stakes contexts like MUET preparation, where strategic awareness can directly influence performance outcomes.

Feedback mechanisms also play a central role in writing development. Traditional teacher-centered feedback, while valuable, is often delayed and limited in scope. Emerging research highlights the complementary role of automated feedback tools, peer review systems, and rubric-based self-assessment in promoting immediate and actionable responses to student writing. When integrated within an online micro-credential framework, these feedback systems can create continuous formative

assessment loops that support gradual skill mastery. This approach aligns with competency-based education principles, where progression is determined by demonstrated performance rather than fixed instructional timelines. Finally, the alignment between micro-credentials and outcome-based education frameworks strengthens their relevance within higher education institutions. Writing competencies can be clearly mapped to measurable learning outcomes, allowing for transparent assessment and certification of skill acquisition. In the Malaysian context, where employability and academic readiness are key institutional priorities, micro-credentialed writing modules offer a structured pathway for bridging proficiency gaps. By combining pedagogical theory, digital innovation, and competency validation, this approach represents a strategic response to persistent challenges in ESL writing instruction and positions writing development within a more flexible and learner-centered educational ecosystem.

Materials and Methods

This study employed a qualitative descriptive approach to evaluate the effectiveness of the micro-credential innovation titled “English Proficiency Course: Writing Skills Mastery.” The research focused on collecting learner feedback, self-perceived improvement, and thematic reflections to assess how technology-integrated instruction supports writing development, particularly in preparation for MUET-style writing tasks. A total of 78 undergraduate students from Universiti Teknologi MARA (UiTM) enrolled in the micro-credential course as part of their remedial English programme. The course, hosted on the uFuture platform, was designed with four modules covering the key components of MUET writing: sentence and paragraph construction, short communicative writing (Task 1), and extended essay writing (Task 2). Each module included animated instructional videos, auto-graded quizzes, writing prompts, and self-reflection tasks. To evaluate learner experience, an online survey was administered upon completion of the course. The survey consisted of Likert-scale items (measuring confidence, clarity, usefulness of tools) and open-ended questions (eliciting feedback on challenges, strengths, and suggestions). In addition, selected students (n=12) participated in semi-structured interviews via Google Meet to further explore their learning experience. Data were analysed thematically, focusing on engagement, writing improvement, and the role of technology in shaping learning behaviours.

Prior to data collection, participants were briefed on the purpose of the study and provided informed consent. Participation in the survey and interviews was voluntary, and confidentiality was assured by anonymizing all responses. Ethical considerations were carefully observed, including secure storage of digital data and the use of pseudonyms in reporting qualitative excerpts. This ensured that students could provide honest reflections on their learning experiences without concern about academic repercussions. The qualitative descriptive design was selected to capture authentic learner perceptions rather than to measure statistical gains in writing scores. The Likert-scale items were used to provide a general overview of trends in learner confidence, perceived clarity of instruction, and satisfaction with digital tools. These quantitative indicators were treated as supportive data to contextualize the richer qualitative insights obtained from open-ended responses and interviews. The semi-structured interview protocol included guiding questions related to perceived writing improvement, usability of the platform, feedback effectiveness, and comparisons with traditional classroom

instruction. Data analysis followed a systematic thematic analysis procedure. All open-ended survey responses and interview transcripts were first transcribed and read multiple times to ensure familiarization. Initial open coding was conducted to identify recurring patterns and meaningful units related to learner engagement, skill development, autonomy, and technological affordances. Codes were then grouped into broader themes, and relationships between themes were examined to ensure coherence. To enhance trustworthiness, peer debriefing was conducted, and selected excerpts were revisited to confirm consistency between interpretation and participant intent.

To further strengthen credibility, data triangulation was employed by comparing survey trends, interview narratives, and engagement analytics from the uFuture platform (e.g., module completion rates and quiz attempts). This multi-source approach allowed for cross-validation of findings and provided a more comprehensive understanding of the micro-credential's impact. By combining learner perceptions with observable engagement indicators, the study offers a nuanced evaluation of how technology-integrated, modular instruction can influence writing confidence, autonomy, and readiness for MUET-style assessment tasks.

Results and Discussion

The survey responses, completed by 65 participants (83% response rate), yielded several key insights. Quantitatively, 85% of students reported improved confidence in structuring essays, while 78% agreed that the course helped clarify previously confusing writing components, especially thesis statements and topic development. A further 72% appreciated the flexibility and pacing of the self-guided modules. From the qualitative data, three main themes emerged: (a) Confidence through Structure and Clarity. Students shared that breaking down writing into smaller units made the process less overwhelming. For example, one participant noted, "I used to write without knowing if my points were strong. Now, I follow a clear pattern, and I feel more in control." (b) Engagement through Interactivity. Many respondents highlighted that the combination of visuals, animations, and quizzes sustained their motivation. One student shared, "I watched the video twice and then practiced in the quiz—it was like playing a game that helped me remember." (c) Autonomy and Ownership. Learners expressed appreciation for the ability to revisit content at their own pace. Several noted that they preferred the micro-credential format to live lectures as it reduced anxiety and allowed for independent learning. A student commented, "I could pause and replay. In class, I sometimes don't ask questions when I don't understand." Some learners reported minor technical challenges, such as loading delays on mobile devices, but these were not significant deterrents to completion.

The findings reinforce the pedagogical value of micro-credentials as a learner-centred and flexible tool for developing writing proficiency. By breaking down complex writing tasks into manageable learning units, the innovation supports cognitive scaffolding, reducing cognitive load and anxiety often associated with high-stakes writing (Pasandeh, 2024). The ability to pause, replay, and reflect is particularly powerful for learners who require repeated exposure and reassurance, aligning with principles of self-regulated learning. The interactive design featuring videos, automated feedback, and gamification, also enhances learner engagement. This echoes findings that students learn better when writing is taught through multimodal digital tools. The results also suggest that the format increases learner autonomy, a trait identified by

Kormos (2023) as essential for 21st-century success. Importantly, the course bridges the gap between instruction and assessment by aligning writing tasks to MUET descriptors. While many traditional classroom settings focus on drills or memorized models, this innovation cultivates functional writing through practice, feedback, and revision. Nevertheless, the study acknowledges certain limitations. While student self-perception provides useful insight, future studies should incorporate pre- and post-writing performance assessments to evaluate skill growth more objectively. In addition, longitudinal studies are needed to measure writing retention over time.

Conclusion

The Tech-Integrated Writing Instruction through Micro-credentials model presents a scalable, inclusive, and learner-centered solution to support writing development among 21st-century learners. As educational landscapes continue to shift toward hybrid and personalized learning, such innovations are not only relevant but they are necessary. This study offers several implications for educators, institutions, and policymakers. For educators, the results suggest that micro-credentials can be adopted as a flipped classroom resource, where learners complete writing modules independently before engaging in collaborative class activities. Instructors can also use micro-credential data to identify struggling students and personalize their support strategies. For institutions, integrating micro-credentials into existing curricula can enhance learner engagement and improve learning outcomes without overburdening teaching staff. Universities may also consider recognizing micro-credential achievements as part of digital badges, co-curricular transcripts, or elective credits, thereby motivating students to pursue skill-based learning independently. Policymakers are encouraged to support the development and standardization of digital micro-credentials across higher education institutions. Creating national frameworks that align micro-credential content with assessment rubrics such as CEFR or MUET band descriptors can ensure consistency, portability, and quality assurance. Finally, future research should explore the longitudinal impact of micro-credential use in writing instruction, particularly in diverse learning contexts such as rural, non-native English speaking, or underprivileged student populations. The potential of micro-credentials to democratize education and bridge skill gaps remains significant and deserves further scholarly attention.

Acknowledgement

This research is self-funded.

Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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