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Integrating International, Interdisciplinary Collaboration, AI Tools, and Virtual Student Exchange into Postgraduate Curricula for Engagement, Learning, and Career Preparedness

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***Abstract*– Artificial intelligence (AI) and virtual collaboration are reshaping professional practice, yet many postgraduate curricula still treat AI literacy, internationalization, and career development as separate strands rather than integrated initiatives. This work-in-progress reports on a study connecting Monash University Malaysia (Advanced Career Counselling unit) and the University of Warwick (Fundamentals of AI Research, Development and Management module), to explore the integration of international collaboration in the curricula and the impact of AI tools on enhancing students' consultancy skills. Approximately 210 master's students were enrolled in the modules. Warwick students were allocated into two conditions: (A) control; (B) AI-supported presentation training (Microsoft Speaker Coach). All students were invited to take part in a virtual international interdisciplinary exchange, of which 12 volunteered.**

A qualitative study is being conducted. Ethical safeguards addressed power imbalances (students of the investigators), explicit consent, data minimization, and cross-border data handling. Early implementation experiences, instrumentation, and planned analyses are presented to inform future interdisciplinary international curricular collaborations and AI-supported assessment.

***Keywords*-- Engineering Education; Assessment; Virtual Exchange; Artificial Intelligence in Education; Intercultural Competence.**

I. Introduction

Artificial intelligence (AI) and virtual collaboration are reshaping professional practice. The widespread adoption of AI in engineering is evident in examples from various fields such as urban planning [1], construction [2], and food processing [3]. Yet interventions tend to treat AI literacy as a technical problem rather than integrating ethical and civic aspects [4], even though evidence suggests that developing AI skills through value-oriented curricula improves students' initiative, critical thinking and social responsibility [5]. Further, virtual exchange initiatives typically prioritize intercultural sensitivity and collaboration rather than aligning with career development or professional skills [6]. Hence, AI literacy, internationalization, and career development are likely to be seen as separate strands rather than integrated initiatives. However, engineering and technology programs worldwide face increased pressure to embed AI competence, global collaboration, and employability into the higher education curricula [7]. The theme of LACCEI 2026 *"Engineering without Borders"* highlights the need to evaluate what we measure (assessment), how we do it (ethics), and who benefits (diversity and inclusion).

Therefore, this work aims to explore the impact of AI tools and international collaboration in enhancing students' consultancy skills. For this purpose, we present our work-in-progress on a curricular model that combines 3 innovations: a structured virtual student exchange across institutions in the UK and Malaysia, AI-supported presentation coaching using Microsoft Speaker Coach embedded in credit-bearing tasks, and interdisciplinary, mentored teamwork design to mirror consultancy practice.

The interdisciplinary collaboration between students undertaking the MSc Applied Artificial Intelligence at WMG, University of Warwick, and students on the Master of Professional Counselling at the School of Psychology at Monash Malaysia extends learning beyond disciplinary boundaries and fosters intercultural competencies. The model aims to improve engagement, learning outcomes, and career preparedness, while foregrounding equity, inclusion, and ethical AI use in authentic assessment settings.

The project addresses the following research question: How does integrating interdisciplinary virtual exchange with AI-supported assessments influence students' engagement, intercultural competence, and career preparedness outcomes?

II. Literature Review

A. Generative Artificial Intelligence in Engineering Education

Technological developments have led to an increased interest in technology enhanced learning. Integrating Generative Artificial Intelligence (GenAI) tools is a common focus for educators and researchers. These tools are seen as able to support learning [8], but also as risking the reduction of students' capacity for critical thinking and the increase of inequality [9, 10]. Further, the discourse over increased risks of academic misconduct may reduce the integration of AI tools into teaching and learning [11]. A recent systematic literature review concluded that many types of GenAI are used in Engineering Education, where these tools are seen as a practical

form of human-computer interaction [12] and used in various applications such as virtual reality, learning analytics and assisted learning [13]. Further, a qualitative study with engineering educators showed that ChatGPT is viewed positively as a useful aid for drafting and editing, but instructors emphasized the need for students to verify its sometimes inaccurate output, avoid over-reliance, and receive guidance on its proper use, noting that more research is needed to understand its effectiveness across different course levels [14].

The use of GenAI tools to improve presentation skills is under researched, although these tools have been integrated to improve oracy in students training to become language teachers. Findings from a quasi-experimental study conducted in Turkey indicate that using Yoodli and ChatGPT may reduce presentation anxiety and improve presentation skills [15]. In the study, Yoodli was used to support skills such as eye contact, body language, and speech quality, while ChatGPT was used to plan and provide feedback on content. It should be noted that Yoodli is a paid for application with a free subscription tier that includes feedback on up to 5 presentations [16]. Microsoft Speaker Coach is a similar tool included in PowerPoint online, offering the advantage of unlimited presentations included as part of the Office 365 package to which many universities subscribe to [17]. A search in Scopus did not retrieve studies utilizing this tool in education, but it is expected that its use will generate similar results. Hence, it is expected that students using Microsoft Speaker Coach during preparation will perceive greater improvement in presentation performance than those who do not.

B. Virtual Student Exchange

Internationalization at home refers to efforts to ensure intercultural competence development in all higher education students, not only those who are able to participate in international exchange programs. Various means have been used to achieve this aim, such as engaging students with local migrant communities or integrating virtual exchanges. In a systematic review of research published between 2018 and 2022, Soulé, Parmaxi and Nicolau identified that 90% of the studies in the field of internationalization at home focus on online exchanges, with only 4 out of 54 studies focusing on experiences of master's students [6]. The evidence from the reviewed studies suggests that intercultural sensitivity is reported as an outcome in 38 of the reviewed studies, while collaboration and digital literacy are also mentioned as positive outcomes. Hence students in virtual, interdisciplinary collaboration are expected to report higher engagement, skill development, and career preparedness than those in traditional settings.

Although the studies reviewed include collaborations in various locations, Soulé, Parmaxi and Nicolau highlight that Global North partners play a more substantial role than Global South partners hence "raising concerns about the insufficient efforts to articulate a decolonized, internationalized, and inclusive curriculum" [6: 38]. Critical Virtual Exchange has emerged as a response to address these issues by integrating alignment with Sustainable Development Goals and inclusive student participation [18]. In this context, it is important for educators to guide students in understanding the contexts in which each institution operates, the characteristics of the students participating in the exchange and the power imbalances inherent in global education systems.

III. METHODOLOGY

An action research study was planned, to include approximately 210 master's students (around 60 at Monash Malaysia and 150 at the University of Warwick). Students at Warwick were distributed across 2 conditions: Group A (Control): Traditional curriculum and Group B (AI Training): Presentation skills training using Microsoft Speaker Coach. All students were invited to participate in the virtual collaboration, with only 4 students from Monash Malaysia and 8 from the University of Warwick volunteering.

A. Instruments and Data Sources

The data collection for the study is due to be completed in June 2026. The following data collection methods are planned.

Quantitative: One of the module assessments for both groups is a presentation. A presentation rubric assessing content, delivery, and use of inclusive language, drawing on but not determined by AI feedback was created to evaluate presentation skills.

Qualitative: Interviews/focus groups (online) conducted by trained research assistants (not module leaders) to mitigate pressure and capture nuanced experiences of intercultural teamwork and AI-supported learning. Each session will last up to one hour. It will be conducted online via secure video-conferencing platforms (e.g., Microsoft Teams or Zoom). It will take place at the end of the module, after students have engaged with collaborative and AI-supported activities.

B. Assessment, Ethics, and Inclusion Considerations

The study embeds AI feedback, using Microsoft Speaker Coach, into presentation assignments while ensuring final grading is based on academic judgment, rather than automated scores. The rubric explicitly asks assessors to consider clarity of ideas and inclusive language, and to use AI feedback as supportive, not determinative. This approach leverages both AI and safeguards assessment integrity.

Because some participants are students of the investigators, separate research processes distinct from credit-bearing activities were set, including explicit consent for each data collection method. No academic penalty for non-participation was guaranteed, and research assistants (not instructors) have been hired to run interviews/focus groups. Ethical approvals from the University of Warwick and Monash University were sought before cross-site data collection.

The design intentionally formed intercultural, interdisciplinary teams, and the presentation rubric emphasizes inclusive communication. The virtual exchange format lowered

barriers to international participation (e.g., caregiving responsibilities, financial constraints), allowing broader participation in global learning experiences. Co-designed materials and rubrics ensured pedagogical consistency across groups.

C. Analysis Plan

Quantitative analyses will include descriptive statistics and inferential tests (t-tests, ANOVA, MANOVA) to examine between-group effects. Where assumptions of the general linear model are not met, appropriate non-parametric tests will be used. Qualitative data will undergo thematic analysis to identify patterns in intercultural teamwork and AI-supported learning experiences. Integration will be achieved through triangulation of quantitative and qualitative findings, with particular attention to cross-site and cultural variation.

IV. Expected Contributions

This work-in-progress offers engineering educators across the Americas a scalable evidence-based model for integrating AI-supported assessment, virtual international collaboration, and interdisciplinary problem-solving into postgraduate curricula. By uniting the strengths of WMG at the University of Warwick, renowned for its engineering expertise, industry-aligned innovation culture, and applied AI capabilities, with the Psychology Department at Monash University Malaysia, which contributes with specialized knowledge of counselling practice, human behavior, learning processes, and student development, the project creates a powerful interdisciplinary learning ecosystem. This collaboration enables the co-creation of teaching resources that blend technical AI competencies with human-centered skills such as communication, career adaptability, and intercultural teamwork; skills increasingly critical for engineers working in diverse, technology-rich environments. For educators in the Americas, the project demonstrates both a transferable pedagogical model and a set of adaptable outputs (rubrics, toolkits, case-based activities, and evaluation instruments) that can strengthen engineering programs seeking to modernize assessment, embed ethical and inclusive AI use, and expand global learning opportunities.

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