AI INTEGRATION IN LITERATURE REVIEW WRITING AMONG FYP STUDENTS: ENHANCING EFFICIENCY WHILE MAINTAINING ACADEMIC INTEGRITY

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Abstract

This qualitative study investigates how undergraduate students integrate artificial intelligence (AI) tools into their Final Year Project (FYP) literature review writing processes, addressing growing concerns about academic integrity and learning effectiveness in the age of AI. Through semi- structured interviews with students from Applied Linguistics and English Language programs, we conducted thematic analysis to examine AI integration practices, verification strategies, and ethical boundaries. Five major themes emerged: AI as organizational and discovery tool, cautious integration with human oversight, ethical boundaries and academic integrity, proportion and balance guidelines, and skills development concerns. Students demonstrated sophisticated understanding of AI limitations, employing rigorous verification strategies while using tools like Elicit, Claude, and ChatGPT primarily for structural organization, source discovery, and preliminary content support rather than direct writing. Participants established clear ethical guidelines, recommending 10-30% AI assistance with mandatory human synthesis and critical analysis. The study reveals that students recognize risks to research skill development from over- dependence while appreciating efficiency gains in organizational tasks. We propose a four-phase Human-AI Collaborative Model that balances technological efficiency with academic integrity, emphasizing transparency, verification, and human-controlled critical thinking. These findings inform best practices for ethical AI integration in academic writing and suggest that current

students are developing healthy frameworks for responsible AI use that preserve educational value while enhancing research efficiency.

Keywords: AI integration, literature review, academic writing, ethical practices, undergraduate research

INTRODUCTION

The integration of Artificial Intelligence (AI) in academic writing, particularly in literature review composition for Final Year Project (FYP) students, represents a significant shift in educational technology (Golan, Reddy, Muthigi, & Ramasamy, 2023). As AI tools become increasingly sophisticated and accessible, understanding how students navigate this technological landscape becomes critical for educators and institutions seeking to maintain educational standards while embracing innovation.

Literature review writing represents a cornerstone of academic research, requiring synthesis, analysis, and critical evaluation skills fundamental to scholarly development. Wagner, Lukyanenko, and Paré (2022) conducted a comprehensive review of AI tools in academic writing, highlighting their potential to enhance productivity and quality while noting concerns about over-reliance and the potential for AI to inhibit critical thinking skills. The integration of AI tools into literature review processes raises important questions about balancing technological assistance with human intellectual engagement.

Recent research has identified significant challenges that FYP students face in literature review writing. Malik et al. (2023) surveyed 245 undergraduate students across various disciplines and found that 68% reported difficulty in synthesizing information from multiple sources. Despite these challenges, students showed positive reception toward AI-powered writing tools, recognizing their benefits in grammar checks, plagiarism detection, language translation, and essay outlines. However, concerns persist about potential negative impacts on creativity, critical thinking, and ethical writing practices.

The application of AI in education has shown generally positive impacts when properly implemented. Chiu, Xia, Zhou, Chai, and Cheng (2023) conducted a systematic literature review identifying opportunities and challenges of AI in education, revealing

improvements inengagement, personalization of learning experiences, and development of higher-order thinking skills. However, ethical concerns surrounding AI use in academic settings include potential for plagiarism, privacy issues, equity in access, and changing educator roles.

This study addresses two primary research questions: How can AI be effectively integrated into the literature review process to enhance efficiency and accuracy? What are the best practices for utilizing AI tools in literature review writing while ensuring quality and ethical integrity? Through qualitative analysis of student experiences, we examine the practical realities of AI integration in academic writing contexts, contributing empirical evidence to guide institutional policy development.

RESEARCH APPROACHES

This qualitative study employed semi-structured interviews to explore undergraduate students' experiences with AI integration in literature review writing. Participants were recruited from Applied Linguistics and English Language programs at various Malaysian universities, representing students actively engaged in FYP literature review processes during the 2025 academic year.

Data collection occurred between June and September 2025 through individual interviews conducted via online platforms. Each interview session lasted approximately 20-35 minutes and followed a structured guide covering current practices, AI tool experiences, integration strategies, ethical considerations, and recommendations for best practices. Interviews were recorded with participant consent and transcribed for analysis.

Thematic analysis was employed to identify patterns and themes within the data, following Braun and Clarke's six-phase approach. Initial coding focused on identifying specific AI integration practices, while subsequent analysis examined broader themes related to ethical boundaries, verification strategies, and skill development concerns. Multiple researchers reviewed the coding to ensure reliability and validity of the thematic structure.

The study received ethical approval and all participants provided informed consent. Pseudonyms are used throughout to maintain participant anonymity while preserving the

authenticity of their experiences and perspectives.

FINDINGS AND DISCUSSION

AI as organizational and discovery tool

Students demonstrated clear preferences for using AI tools primarily as organizational and discovery aids rather than direct content generators. Participants consistently described AI's most valuable contribution as helping structure their literature reviews and locate relevant sources efficiently.

One student explained: "I used AI to generate the outline as well as to emphasise the important subtopics that were related to my research topic that I must include in my literature review." This organizational support proved particularly valuable during the initial planning phases, where students struggled with structuring comprehensive literature reviews.

Source discovery emerged as another critical application, with specialized tools like Elicit significantly reducing time investment. A participant noted: "Before I know about Elicit, I actually spend all day finding the research and I even told my supervisor that I couldn't find enough articles to do my LR. So yeah, it takes all day actually to find articles relating to my theories." The efficiency gains were dramatic, with literature search times reducing from entire days to hours.

Students also utilized AI for framework development and content organization. As one participant described: "I use Claude to organize my literature review the framework and for writing writing mostly I use my own words, but like I mentioned, sometimes when I feel that my sentences is not right I go to Quillbot to rephrase it." This approach maintained human control over content creation while leveraging AI's organizational capabilities.

Cautious integration with human oversight

Despite appreciating AI's efficiency benefits, students demonstrated remarkable sophistication in maintaining skeptical and verification-focused approaches. Every participant described systematic methods for checking AI outputs against original sources and academic standards.

The verification process was consistently rigorous: "I always go back to the original research papers to make sure that the contents are correct and aligned with the ideas from the research paper that I want to focus on." Students developed this practice in response to early experiences with AI inaccuracies and their awareness of potential consequences for academic integrity.

Trust emerged as a central concern, with one student explaining: "I have trust issues, so I'm checking it to ensure that if it's accurate and reliable because we don't know, we don't know. Like it's machines, right. So we have to use our own human intelligence to really verify the sources." This healthy skepticism led to the development of multi-layered verification systems.

Students also employed multiple AI tools strategically, using different platforms for specific functions while maintaining human oversight throughout. One participant described using "AI to check AI" through plagiarism detection tools, demonstrating awareness of potential academic integrity concerns and proactive approaches to address them.

Ethical boundaries and academic integrity

Participants articulated clear ethical principles governing their AI use, consistently emphasizing AI's role as a support tool rather than a replacement for human thinking. These ethical frameworks appeared to develop organically through experience and peer discussion rather than formal institutional guidance.

The principle of non-substitution was universally expressed: "Don't copy and paste like AI is supposed to be helpful as a guide and not as a machine for you to do your work." Students recognized the importance of maintaining human agency in critical thinking and analysis processes.

Transparency emerged as another key ethical principle, with students advocating for clear acknowledgment of AI use in academic work. One participant suggested: "Students should mention phrases like AI assisted in the academic work, for example, in the acknowledgements, students should use to the phrases like AI assisted this work is AI assisted, for example."

The paraphrasing requirement was consistently emphasized: "So first is to always be honest, if you use AI, at least paraphrase it into your own words, so that you will not do academic dishonesty, which is prohibited." This practice ensures that even AI-assisted content undergoes human processing and integration.

Proportion And Balance Guidelines

Students developed specific quantitative guidelines for appropriate AI assistance levels, suggesting remarkable consistency in their intuitive understanding of balanced human-AI collaboration. The recommended proportions ranged from conservative to moderate approaches.

Conservative estimates suggested minimal AI assistance: "I think AI assisted should own should be less than 10%." This approach emphasized maintaining primarily human-driven research and writing processes while using AI for specific, limited support functions.

Moderate approaches recommended slightly higher AI integration: "Below 30% of literature review writing can be AI assisted and the rest of it should be our own work." This perspective acknowledged AI's efficiency benefits while maintaining clear boundaries around human intellectual contribution.

Balanced approaches described functional rather than percentage-based divisions: "I use AI about 30% in my literature review, just the sources itself. And then another 70%, I use my own words or my own knowledge to link." This framework distinguished between AI assistance in finding and organizing information versus human responsibility for analysis and synthesis.

Students consistently emphasized that these proportions should never approach equality or majority AI contribution, with one participant noting: "Never 100%" as a fundamental principle regardless of the specific percentage chosen.

Skills Development Concerns

Participants demonstrated awareness of potential negative impacts on research skill development from excessive AI dependence, showing sophisticated understanding of the trade-offs involved in AI integration. These concerns focused primarily on critical thinking and independent analysis capabilities.

The risk to analytical skills was clearly articulated: "Being too dependent on AI can weaken a person's critical thinking skills and also being too dependent on AI can make someone lazy." Students recognized that over-reliance on AI could undermine the educational objectives of literature review writing exercises.

Creativity and originality concerns were also prominent: "Students' ability to brainstorm and generate ideas can be affected when using AI." Participants worried that AI assistance might reduce their capacity for independent intellectual development and original thinking.

However, students also identified potential positive impacts on skill development, particularly in areas like citation management and source evaluation. One participant noted that having access to more sources through AI tools "sharpen my citing skills" by providing more practice with academic referencing conventions.

The verification and evaluation skills required for responsible AI use were seen as valuable additions to traditional research competencies. Students developed sophisticated approaches to source validation and cross-referencing that enhanced their overall research capabilities.

Human-AI Collaborative Model

Based on the thematic analysis findings, we propose a structured four-phase approach to AI integration that balances efficiency gains with academic integrity requirements. This model reflects the actual practices developed by students while providing a framework for broader application.

Phase 1: Planning and Discovery (AI-Assisted)

During initial research phases, AI tools provide maximum value for topic exploration, outline generation, and source discovery. Students should use specialized tools like Elicit for literature searches while employing general AI tools for structural planning. This phase leverages AI's organizational strengths while establishing human control over research direction.

Phase 2: Critical Analysis (Human-Led)

The analysis phase must remain primarily human-controlled, with students reading sources independently and developing arguments through personal reasoning. AI may provide clarification of complex concepts or terminology, but synthesis and critical evaluation should emerge from human intellectual engagement. This phase preserves the educational value of literature review writing.

Phase 3: Writing and Refinement (Collaborative)

The writing phase benefits from collaborative human-AI interaction, with humans maintaining responsibility for content creation while AI assists with grammar, clarity, and organizational suggestions. Students should draft content based on their analysis before seeking AI assistance with refinement and improvement.

Phase 4: Verification and Validation (Human-Controlled)

All AI-suggested information, sources, and content must undergo human verification against original sources. This phase requires systematic cross-checking and validation through supervisor consultation and peer review. The verification process ensures accuracy and maintains academic standards.

This model provides flexibility while maintaining clear boundaries around human responsibility for critical thinking, analysis, and synthesis. The collaborative approach recognizes AI's efficiency benefits while preserving the educational objectives of literature review writing exercises.

IMPLICATIONS FOR PRACTICE

The findings of this study, when considered alongside existing literature, reveal important implications for stakeholders in higher education. These recommendations address the gap between theoretical concerns about AI in academic writing and the practical realities of student experiences.

For students, the development of AI literacy emerges as a critical complement to traditional research skills. Our findings align with Adams and Chuah's (2022) emphasis on understanding current trends and future potentials of AI tools in research writing. Students should maintain critical thinking as their primary analytical tool while leveraging AI's organizational strengths. The study demonstrates that students can successfully navigate the concerns raised by Dergaa et al. (2023) about potential threats of AI in academic writing by developing robust verification practices and ethical frameworks. The proportion guidelines (10-30% AI assistance) identified in our study provide practical benchmarks that address Malik et al.'s (2023) findings about student concerns regarding creativity and critical thinking impacts.

For educators, the findings suggest a need to shift pedagogical approaches in response to AI integration. Rather than the blanket concerns about critical reading skills loss noted in previous literature, our study shows that students can maintain analytical capabilities while benefiting from AI efficiency gains. This aligns with Wagner et al.'s (2022) call for balanced approaches to AI in literature reviews. Educators should focus on teaching verification skills, ethical AI use, and synthesis capabilities rather than prohibiting AI tools entirely. The Human-AI Collaborative Model provides a structured framework for integrating AI instruction into research methodology courses.

For institutions, the study's findings address key challenges identified by Chiu et al. (2023) regarding opportunities and challenges of AI in education. Clear policies that recognize AI as a legitimate academic tool, when used responsibly, can help institutions navigate the paradigm shift described by Golan et al. (2023). The ethical frameworks developed by students in this study provide evidence-based foundations for institutional policy development. Investment in AI literacy programs becomes essential, particularly given Nazari, Shabbir, and Setiawan's (2021) findings on the effectiveness of AI-powered writing

assistants when properly implemented.

These implications demonstrate that the concerns raised by Perkins (2023) regarding academic integrity can be addressed through structured approaches to AI integration rather than prohibition, supporting the innovation potential identified by Mariani, Machado, and Nambisan (2023) in their systematic review of AI types and applications.

CONCLUSION

This study provides empirical evidence that undergraduate students are developing sophisticated and responsible approaches to AI integration in literature review writing, addressing many of the theoretical concerns raised in existing literature while realizing the efficiency benefits identified by previous research. The five major themes that emerged demonstrate students' capacity to establish ethical boundaries, employ rigorous verification strategies, and maintain human control over critical thinking processes while strategically leveraging AI's organizational and discovery capabilities.

The findings directly address the paradigm shift described by Golan et al. (2023) in AI and academic writing, revealing that students have developed practical frameworks for navigating this technological transformation. Unlike the concerns about over-reliance raised by Wagner et al. (2022), our study shows that students maintain healthy skepticism toward AI outputs while appreciating their organizational benefits. The proportion guidelines naturally developed by students (10-30% AI assistance) provide concrete parameters that address Malik et al.'s (2023) concerns about balancing AI benefits with preservation of critical thinkingskills.

The Human-AI Collaborative Model proposed in this study bridges the gap between theoretical frameworks and practical implementation, offering a structured approach that aligns with Chiu et al.'s (2023) identification of opportunities in AI education while addressing their noted challenges. The model demonstrates that the academic integrity concerns highlighted by Perkins (2023) can be effectively managed through systematic verification practices and clear ethical guidelines rather than prohibitive policies.

Importantly, the study reveals that current concerns about AI undermining academic learning may be overstated when integration occurs within carefully considered frameworks that prioritize human intellectual development. Students' sophisticated understanding of appropriate AI uses and limitations suggests they are developing competencies that will serve them in academic and professional contexts where AI collaboration becomes increasingly prevalent. This aligns with Adams and Chuah's (2022) vision of AI tools as enhancing rather than replacing human capabilities in research writing.

The verification strategies and ethical frameworks developed by students in this study provide evidence-based responses to the threats identified by Dergaa et al. (2023), demonstrating that responsible AI integration is achievable with appropriate guidance. The collaborative model supports Nazari et al.'s (2021) findings about the positive potential of AI-powered writing assistants when properly implemented within educational contexts.

Future research should examine the long-term effects of these AI integration practices on research skill development and academic outcomes, particularly as AI capabilities continue to evolve. Longitudinal studies would provide valuable insights into whether the ethical frameworks and verification practices identified here remain effective as AI technology advances. Additionally, comparative studies across different disciplines and educational levels would enhance understanding of the generalizability of these findings.

As AI technology continues to evolve rapidly, the frameworks developed by current students provide a foundation for ongoing policy development and pedagogical adaptation. The study suggests that rather than fearing AI's impact on academic writing, institutions should focus on supporting the development of responsible integration practices that preserve educational value while embracing technological innovation. The evidence presented here indicates that students are capable partners in this evolution, developing practices that balance efficiency gains with academic integrity requirements in ways that support rather than undermine their intellectual development.

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