Interdisciplinary Transfer of Argumentation Skills: Enhancing Argumentation and Writing for STEM Contexts

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ABSTRACT

This case study examines the transfer of argumentation skills from an English language development course to writing a literary research paper in a university literature course. It explores how explicit instruction in academic writing, argumentation, and intercultural awareness supports interdisciplinary learning, writing proficiency, and potential applications in STEM education. Data were collected through a personal diary and an interview. Findings suggest that structured instruction and interdisciplinary engagement help apply argumentation techniques across disciplines. The participant demonstrated improvement in constructing arguments, integrating evidence, and adapting writing to diverse audiences. Although based on a single case, this study highlights the pedagogical value of integrated curricula and explicit argumentation training. Future research could explore these processes across disciplines using triangulated methods.

INTRODUCTION

The ability to transfer academic skills across disciplines represents a core objective of higher education, particularly in courses that emphasize critical thinking, argumentation, writing proficiency, and intercultural awareness. Research on skill transfer emphasizes the importance of metacognition, structured instruction (Bista & Bista, 2025), and reflective practices in facilitating the adaptation of knowledge and strategies across domains (DeKeyser, 2007; Perkins & Salomon, 1992). In the fields of second language acquisition, academic literacy, and intercultural learning, writing development depends on exposure to diverse rhetorical structures, interdisciplinary integration, and guided reflection (Hyland, 2003). Interculturality also plays a pivotal role as students engage with literary and academic traditions from different cultural contexts, enhancing adaptability and critical engagement. Reflective journals and personal diaries offer valuable insight into learners' cognitive processes, self-regulation strategies, and evolving academic competencies (Moon, 2006).

This case study investigates the transfer of argumentation skills, writing proficiency, and intercultural awareness between two upper-level courses in an English language teacher education program: *Advanced Communication II* (ACII) and *Contemporary Literature of England and the United States*. The focus is on how one student applied rhetorical techniques and intercultural insights developed in ACII to produce a well-structured literary research paper. Drawing on her diary and a semi-structured interview, the study explores the metacognitive and intercultural mechanisms that support skill transfer, the role of scaffolded instruction in writing development, and the challenges encountered throughout the process.

This study adopts a qualitative case study in an effort to explore how interdisciplinary and intercultural learning may contribute to writing development, academic agency, and cross-cultural engagement. Although this case is situated within humanities-based courses, the implications of this research extend beyond these domains. In particular, it speaks to ongoing discussions in STEM (an acronym for Science, Technology, Engineering, and Mathematics) education, where clear argumentation, logical coherence, and evidence-based reasoning are equally essential. Scholars have emphasized that structured support in academic writing helps STEM students develop stronger rhetorical skills, particularly in constructing arguments for lab reports, research articles, and technical proposals (Bybee, 2013; Davies et al., 2021). Moreover, frameworks such as claim-evidence-reasoning (CER) have been widely adopted to support students in articulating well-grounded arguments and connecting data to conclusions, fostering both critical thinking and communication skills in STEM contexts (Diola et al., 2025). These perspectives echo recent findings indicating that multilingual STEM learners often encounter difficulties when transferring writing strategies across genres and

disciplines (Bybee, 2013; Ching Ching & Mao, 2025; Bista & Bista, 2025). By drawing attention to the role of argumentation and intercultural competence, this case study contributes to broader conversations on how writing instruction can foster interdisciplinary and professional communication in STEM fields.

The article begins with a literature review that outlines the main theoretical perspectives on skill transfer, academic writing, reflective learning, and intercultural communicative competence (ICC) (Byram, 1997, 2020). The methodology section details the research context, participants, instruments, and analytical procedures. Findings are discussed through the student's reflections, emphasizing both facilitating factors and obstacles, and highlighting the role of intercultural understanding in shaping writing strategies. The conclusion synthesizes the findings obtained, discusses pedagogical implications for academic writing instruction, and suggests directions for future research on interdisciplinary learning, interculturality, and metacognitive development in higher education.

LITERATURE REVIEW

Interdisciplinary Learning: The Role of Communicative Competence in Writing

This case study highlights the importance of communicative competence in interdisciplinary learning. Communicative competence, as defined by Hymes (1972), refers to a language user's ability to communicate effectively in socially appropriate contexts. It encompasses both grammatical competence (knowledge of syntax, morphology, and phonology) and sociolinguistic competence, which involves understanding the social conventions governing language use. Communication occurs through multiple modes, including spoken, written, visual, gestural, and multimodal forms, each contributing uniquely to the meaning-making and interaction process. However, language teachers often prioritize speaking when assessing communicative competence, overlooking the essential role of writing in developing a well-rounded linguistic skill set (Germain, 2018; Netten & Germain, 2012).

Writing plays a crucial role in organizing and articulating thoughts. Like speaking, it follows cognitive processes that allow individuals to capture and structure ideas. Despite its significance, research indicates that students' writing skills frequently lag behind their speaking abilities, likely due to the dominant emphasis on oral communication in language education (Yusupov et al., 2021). This imbalance suggests that prioritizing speaking may hinder the development of writing skills, leading to incomplete linguistic proficiency. Integrating writing into communicative language teaching not only strengthens overall language abilities

but also fosters critical thinking, a key component of effective second-language communication (Byrnes et al., 2010; Kern, 1992).

Building on the importance of integrating writing into communicative competence, written discourse requires mastery of linguistic structures that support coherence and cohesion. The concept of linguistic competence (Genesee & White, 2024) extends beyond grammatical accuracy to include the orthographic system, lexical choices, morphology, and syntax, which are fundamental for constructing meaningful and accurate written communication. This aligns with Belmonte and McCabe's (2024) notion of "textual competence" (p. 35), which emphasizes the ability to structure cohesive and coherent texts. Similarly, Canale and Swain's (1980) model, as well as the Common European Framework (CEF), define "discourse competence" as the ability to organize language effectively, incorporating cohesion, coherence, deixis, and generic structure (Belmonte & McCabe, 2024, p. 35).

Cohesion and coherence are essential in both oral and written communication. Celce-Murcia et al. (2003) and Celce-Murcia et al. (2014) stress that language users must develop these skills to produce clear and logically connected discourse. Halliday and Hasan (1978) further explain that cohesion refers to the semantic ties that bind a text together, contributing to its overall coherence and textual "texture" (p. 2). They argue that a text is distinguished by its sense of unity, which emerges when ideas are logically structured and interconnected. This reinforces the need to integrate writing instruction into language education, ensuring that learners develop the ability to construct cohesive, coherent, and meaningful discourse across various communicative contexts.

Building on the role of coherence and cohesion in written discourse, Yusupov et al. (2021) highlight the growing significance of communicative competence in writing within foreign language instruction. They argue that while oral communication represents only a fraction of a language's potential, written discourse serves as a crucial medium for preserving linguistic and phonetic knowledge. Moreover, writing supports the development of other skills, reinforcing speaking, listening, and reading. By engaging in written production, students consolidate oral language skills and gain mastery of the language's graphic system. This perspective emphasizes the need to prioritize writing in foreign language education, not merely as a support for oral communication but as a fundamental communicative skill in its own right. As educational paradigms evolve, greater emphasis is placed on equipping students to articulate their thoughts effectively in writing. Consequently, writing has become a key objective in language programs at all levels (Belmonte & McCabe, 2004), ensuring that learners develop comprehensive communicative competence that extends beyond spoken interaction.

Transferable Skills

Strong written communication and argumentative competence equip students to engage in disciplinary thinking beyond language instruction, extending their abilities to fields such as literary analysis. Ching Ching and Mao (2025) demonstrate that interdisciplinary writing pedagogies, particularly writing-to-learn (WTL) strategies, help STEM students transfer knowledge across academic domains while fostering critical thinking and writing fluency. These foundational abilities contribute to rhetorical clarity, conceptual integration, and the effective construction of literature-based research papers. Fletcher (2018) emphasizes the centrality of written argumentation to academic success and highlights its relevance across disciplines. Similarly, Barnes (2020) stresses that developing student agency in writing enables learners to shape their voices and communicate across varied academic contexts.

Learning transfer involves more than applying prior knowledge; it requires reconfiguring and adapting existing knowledge to meet changing academic demands (Fletcher, 2018). Creely (2020) argues that students refine written competence through the reconstruction of texts, a cognitively demanding process that enhances critical thinking and metacognitive awareness (Creely et al., 2021). Hart and Heaver (2013) highlight the importance of resilience in this process, noting that educational interventions fostering resilience help students manage academic complexity. Through iterative reconstruction, students build rhetorical flexibility and intellectual depth, supporting long-term academic growth.

Textual reconstruction also fosters intercultural awareness by encouraging students to engage with diverse rhetorical traditions and discourse conventions. As learners revise and reshape their writing, they encounter alternative communicative practices and broaden their understanding of cultural perspectives. Byram (1997, 2020) defines ICC as an individual's ability to interact effectively and appropriately with people from different cultural backgrounds. It extends beyond linguistic proficiency to include knowledge, attitudes, skills, and critical cultural awareness that enable learners to tackle intercultural interactions successfully. ICC involves understanding one's own and others' cultural perspectives and communicating in ways that promote mutual respect, tolerance and understanding. Such ability enables individuals to explore such diversity, a capacity that emerges through cross-cultural rhetorical engagement.

Fletcher (2018) suggests that rhetorical awareness, combined with a transfer-oriented mindset, enables learners to adapt writing strategies effectively. Takona (2025) supports this perspective through research in statistics education, showing that culturally responsive pedagogy (CRP), when scaffolded appropriately, allows students from diverse backgrounds to engage with rigorous academic content. His findings indicate that intercultural sensitivity, paired with thoughtful instructional

design, enhances comprehension and academic confidence in interdisciplinary learning.

Reynolds' (2020) concept of prismatic translation offers a theoretical lens for understanding reconstruction as a multidimensional reworking of meaning. Rather than transferring knowledge directly, students reshape texts to meet new disciplinary demands, reinforcing agency and adaptability in the process.

Fletcher (2018), drawing on Perkins and Salomon's (2012) theory of expansive framing, argues that transfer thrives when students perceive learning as broadly relevant. Expansive framing connects new insights to past and future experiences, facilitating the integration and application of knowledge. Unlike bounded framing, which restricts learning to isolated tasks, expansive framing fosters continuity and relevance. This resonates with Huber and Hutchings' (2004) framework of integrative learning, which promotes the synthesis and application of knowledge across contexts. Newell (1999) reinforces the value of such integration, claiming it strengthens students' capacity to engage with interdisciplinary challenges.

Integrative learning equips students with tools to navigate complex academic and professional environments. Interdisciplinary strategies, such as blending literary and rhetorical analysis, may enhance communicative competence, promote intercultural sensitivity, and facilitate effective knowledge transfer. Through such experiences, students are likely to develop rhetorical agility, critical thinking skills, and resilience, all of which appear to be transferable across contexts.

Skill transfer across courses supports interdisciplinary learning by encouraging students to move beyond subject boundaries and construct deeper conceptual linkages. Frank et al. (1992) describe this process as uniting distinct academic domains, fostering broader intellectual engagement. Rather than merging fields into one framework, interdisciplinary learning may promote dialogue between them, enhancing collaboration and understanding (Philipp & Schmohl, 2023). These dialogic interactions can strengthen academic and professional networks, helping students to develop adaptive, expansive ways of thinking that may support lifelong intellectual growth.

RESEARCH METHOD

This case study seeks to explore potential answers to the following research questions:
1. In what ways might communicative competence in writing influence the transfer of learning?
2. Which argumentation elements may be considered essential for a literary research paper, and how might they be applied across disciplines?
3. What learning strategies did the student use to transfer and apply argumentation skills in writing a literary research paper?

Rationale for the Case Study Design

A case study design was chosen for this research as it provides an in-depth exploration of a single participant's experience with argumentation skill transfer across interdisciplinary courses. Yin (2018) argues that case studies are ideal for examining phenomena within real-world contexts, particularly when the boundaries between the phenomenon and its environment are blurred. Similarly, Burns (2010) highlights that case studies in educational research offer rich, context-sensitive insights into individual learning processes, making them particularly useful for exploring knowledge transfer and interdisciplinary learning. Given this study's focus on how structured instruction, interdisciplinarity, and communicative competence may shape academic writing development, a case study framework was considered appropriate to allow for a detailed, experience-driven analysis of how argumentation skills might evolve across courses (Yin, 2014).

Context

This case study was conducted within the Teaching English as a Foreign Language (TEFL) program at a state-owned university in Mar del Plata, Argentina. It focused on two fourth-year courses that share a common emphasis on academic writing and argumentation. Table 1 summarizes and compares the key features of these courses, highlighting the connections between their writing components and their interdisciplinary approach to argumentation.

As shown in Table 1, both courses share a focus on developing students' argumentation skills. However, they apply these skills in different disciplinary contexts: ACII emphasizes general academic writing, while the literature course focuses on literary analysis. Despite ACII providing a solid foundation in argumentation, students often encounter challenges when transferring these skills to the specific demands of writing a scholarly research paper. This case study explores how structured instruction and interdisciplinary engagement may help bridge this gap.

Table 1

Comparison of Advanced Communication II (ACII) and Contemporary Literature of England and the United States

Course	Advanced Communication II (ACII)	Contemporary Literature of England and the U.S.
Semester	- First semester	- Second semester
Focus	Academic writing and oral communication in English	Literary analysis through the study of fiction
Key Writing Components	- Clear, debatable thesis - Support claims with arguments and examples - Address counterarguments - Structured conclusions	- Category-based literary analysis - Textual evidence to support a thesis - Structured argumentation
Purpose of Argumentation Training	Preparation for structured academic writing across disciplines, including literature	Application of argumentation in literary research papers
Language Proficiency Target (CEFR)	C2	C2

Participants

This case study involved two participants. The primary participant, Cindy (pseudonym), was a 23-year-old fourth-year student who completed both *Advanced Communication II* (ACII) and *Contemporary Literature of England and the U.S.* She documented her learning through a personal diary, reflecting on challenges and strategies developed in ACII, which she later applied to her final argumentative essay in the literature course. She also contributed to the final report.

Cindy had previously completed several language development courses, including Oral Discourse I and II, Process Writing I and II, Integral Communication, and Advanced Communication I, where she acquired foundational writing and oral communication skills. She also took cultural and literature courses, but had not previously made interdisciplinary connections. In ACII and the literature course, she experienced a turning point, recognizing how integrating language development and literary analysis enhanced her academic performance. The second participant was an experienced teacher-researcher who co-conducted the study and co-authored the report.

Instruments for Data Collection

This exploratory case study used a personal diary to document the participant's learning process and explore skill transfer across courses. A life document approach, specifically a reflective journal, captured her strategies, experiences, and cognitive development throughout the coursework. After demonstrating successful transfer of content from *Advanced Communication II* and *Contemporary Literature of England and the United States*, the participant was invited to record her learning trajectory. The diary revealed insights into her writing development, argumentation integration, and challenges faced.

Additionally, a 20-minute semi-structured interview was conducted by Participant 2 after the literature course. It expanded on her reflections, offering deeper insights into how she transferred skills across disciplines. She discussed learning strategies, the influence of structured instruction, and the role of interdisciplinary learning in shaping her academic confidence and agency. Interview questions are included in the Appendix section.

The analysis of Cindy's diary entries and interview data followed an inductive thematic approach (Braun & Clarke, 2006), with manual coding conducted by the second author. Diary notes were reviewed iteratively to identify recurring themes related to argumentation strategies, writing development, and intercultural awareness. Codes were refined through cycles of comparison and grouped into broader thematic categories that aligned with the study's research questions. This manual, interpretative approach allowed for an in-depth exploration of the participant's learning process and perception of knowledge transfer across contexts.

RESULTS

Personal Diary

Analysis of Cindy's personal diary and marginal notes from ACII reveals the development and transfer of argumentation skills into her literary research paper. Her reflections, summarized in Table 2, emphasize structural awareness, rhetorical strategies, critical thinking, and academic resilience. Notes were thematically categorized to trace how she internalized and refined these techniques. Participant 2 analyzed to ensure a systematic approach to identifying patterns. Table 2 presents a condensed overview of the findings, illustrating the evolution of Cindy's skills and their impact on her academic growth.

Table 2

Condensed analysis of Cindy's diary notes

Category	Notes from Cindy's diary	Analysis & interpretation
Understanding essay structure	Thesis → claims → counterarguments → conclusion = structure. Without a thesis, no direction. Counterarguments strengthen arguments.	Cindy gained clarity on structuring essays, improving coherence, and argument strength.
Use of connectors	Connect ideas with: *therefore, however, in contrast.* Use persuasive phrases: '*This demonstrates that…*'.	The use of connectors helped improve logical flow in her writing.
Clear claims & evidence	Claims need evidence; without it, they are just opinions. Use examples and direct references.	Stronger focus on evidence, enhanced analytical depth.
Acknowledging opposition	Address counterarguments early. Refuting opposition makes the argument stronger.	Engaging with the opposition made arguments more credible.
Audience awareness	Write for teachers, not just for myself. Clarity matters more than complexity.	Awareness of the audience refines clarity and persuasiveness.
Confidence & agency	Understanding structure = control. Planning reduces anxiety and improves argument quality.	Planning before writing increases confidence and efficiency.
Critical thinking & culture	Argumentation = real-life critical thinking. Different perspectives expand knowledge and openness.	Argumentation skills enhance broader critical thinking and intercultural awareness.
Resilience & self-efficacy	A blank page was overwhelming. Breaking into steps made writing manageable.	Overcame writing anxiety by structuring tasks effectively.

Note. Authors' own work.

Cindy's diary notes from the ACII document her evolving understanding of argumentative writing, which she later applied in her literature course. Her reflections highlight the importance of structured learning, effective rhetorical strategies, and audience awareness. This echoes Ching Ching and Mao's (2025) findings that personalized feedback enhances students' argumentation and academic confidence. By internalizing these skills early, Cindy established a solid foundation for effective transfer, demonstrating how interdisciplinary learning promotes intercultural adaptability, agency, and academic resilience.

The Interview

After completing the literature course, Cindy participated in a semi-structured interview to discuss how insights from ACII informed her literary research paper. Her responses, aligned with the categories in Table 1, emphasized that argumentation training and structured learning in ACII were key to organizing ideas and applying skills across disciplines. She further explained:

> *"In previous language courses, I had been exposed to some concepts about writing an expository essay, but in ACII, I learned the importance of a strong foundation—a clear thesis, structured arguments, and a logical conclusion. This helped me approach my literature paper confidently, without feeling lost."*

Cindy's response illustrates successful knowledge transfer, as she applied the argumentative framework from ACII to structure her literary analysis. Though familiar with expository writing, ACII helped her internalize the importance of a clear thesis, organized arguments, and logical flow. This foundation enabled her to approach the literature paper confidently. She also noted that while transition words had been taught earlier, ACII clarified their effective use alongside argumentative phrases. Applying these tools helped her develop a cohesive, polished style—something she previously struggled with—making her analysis clearer and more accessible to readers across academic and cultural contexts. She added:

> *"I found myself using the same transition words from ACII, like 'therefore,' 'however,' and 'in contrast', to make my literary analysis flow better. It made my paper sound more professional and easier to read."*

Her ability to integrate these linguistic tools across disciplines highlights her metacognitive and intercultural awareness, as she acknowledged that effective communication transcends disciplinary boundaries and requires adaptation for diverse audiences. When discussing the processes of developing a clear claim and

supporting it with evidence, Cindy noted that she applied the same principles she had learnt in ACII but with textual references instead of real-world examples:

"In ACII, I learned that a strong argument needs solid evidence. In my literature paper, I applied the same concept, except instead of real-world examples, I used textual evidence. The process was the same, and it made my analysis much stronger."

This insight sheds light on the interdisciplinary and intercultural nature of argumentation, demonstrating that the principles of logical reasoning, evidence-based claims, and cultural sensitivity remain consistent across different academic fields. Addressing counterarguments was another skill Cindy recognized as essential for strengthening her argument. Initially, she had assumed that counterarguments weakened her position, but ACII helped her shift her perspective:

"I used to avoid counterarguments because I thought they would weaken my position. But in ACII, I learned that engaging with opposing views strengthens an argument. In my literature paper, I applied the same strategy by discussing alternative interpretations of the text before explaining why my analysis was more compelling."

Her ability to engage with multiple perspectives, including different cultural interpretations of literary texts, shows intellectual flexibility and ICC. When reflecting on audience awareness and academic identity, Cindy explained how she became more conscious of writing with her professors and a broader academic community in mind:

"In ACII, I was always thinking about how my professors would evaluate my argumentation. That mindset carried over into my literature paper—I made sure my claims were clear and my analysis well-structured because I knew my work was being assessed."

This shift highlights the development of academic agency and intercultural adaptability as Cindy actively adjusted her writing to meet diverse expectations, engage with different interpretative frameworks, and ensure clarity and coherence across academic and cultural boundaries. Cindy also spoke about how gaining confidence in ACII influenced her ability to write a complex literary research paper without feeling overwhelmed:

"Before ACII, I felt intimidated by long essays. But once I understood the structure, writing became much less stressful. When I started my literature paper, I didn't panic—I broke it down into steps, just like I did in ACII."

Cindy's experience highlights the role of structured learning in fostering resilience, self-efficacy, and intercultural adaptability. Her reflections confirm that the argumentative, rhetorical, and intercultural skills developed in ACII had a lasting impact on her ability to craft a persuasive, well-organized literary research paper. The ability to transfer, adapt, and refine these skills across disciplines highlights the value of interdisciplinary learning and academic agency. By reconstructing her writing strategies through logical coherence and audience awareness, Cindy gained intellectual autonomy and strengthened her ICC. Her case demonstrates how integrated curricula may foster critical thinking and transferable competencies for diverse academic and professional contexts.

DISCUSSION AND CONCLUSIONS

The alignment between Cindy's diary notes and her interview responses underlines the effectiveness of structured learning, interdisciplinary knowledge transfer, and intercultural awareness. Her experience reveals several key findings:

Knowledge transfer through structured, intercultural learning: Cindy's ability to apply argumentation skills from *Advanced Communication II* (ACII) to her literature course reflects how structured instruction, when paired with intercultural engagement, fosters transferable competencies. Engaging with diverse literary traditions and rhetorical frameworks enabled her to adapt writing across cultural and academic contexts. Bista and Bista (2025) similarly found that doctoral students who used AI tools viewed them not as shortcuts but as support systems enhancing clarity, structure, and critical engagement. Like Cindy, they attributed the development of academic agency to structured, guided practice.

Interdisciplinary and intercultural instruction enhances adaptability: Cindy's successful application of argumentative strategies to literary analysis suggests that exposure to multiple rhetorical traditions may strengthen adaptability across academic contexts. Her experience indicates that structured engagement with diverse genres and expectations may help students develop more flexible writing skills, which are potentially applicable beyond the humanities. Although Cindy's case centers on literature, her approach (structuring claims, supporting them with evidence, and anticipating counterarguments) appears to reflect practices that are also valued in STEM disciplines, in which clarity, coherence, and logical reasoning are often central to effective communication. As Bista and Bista (2025) and Ching Ching and Mao (2025) claim, multilingual STEM students frequently encounter difficulties when transferring writing strategies across disciplines. Cindy's trajectory points to the value of instructional approaches that foreground the

transferability of argumentation skills and intercultural awareness, offering tentative insights that could inform writing instruction across fields.

Academic agency through mastery and cultural sensitivity: Cindy's progression from uncertainty to confidence highlights how scaffolded guidance fosters self-efficacy and intercultural adaptability. Practicing argumentation across both academic and literary contexts enabled her to tailor her writing to audience expectations. Bista and Bista (2025) note that students internalize academic norms and develop a scholarly voice through scaffolded writing tasks. Likewise, Takona (2025) demonstrates that culturally responsive instruction in STEM promotes academic agency by equipping learners to explore diverse epistemological frameworks. Cindy's experience also highlights significant implications for interdisciplinary writing instruction. Explicit scaffolding through claim–evidence–reasoning (CER) frameworks may help students internalize argument structures transferable across humanities and STEM (Davies et al., 2021). Programs influenced by Writing Across the Curriculum (WAC) similarly support students in developing disciplinary awareness and writing adaptability (Bazerman et al., 2005). Reflective practices, such as learning journals, have been shown to deepen metacognitive awareness and aid knowledge reconstruction (Ambrose et al., 2010). Complementing these, AI-supported feedback tools have been observed to provide targeted support on argument structure, coherence, and iterative revision processes in STEM writing contexts (Wang et al., 2024). Together, these strategies may support students in managing varied rhetorical demands while strengthening agency, resilience, and intercultural sensitivity.

Critical thinking, ICC, and knowledge reconstruction drive performance: Cindy's reflections show that argumentation skills are dynamic, evolving through the reconstruction of knowledge across academic and cultural contexts. Her ability to engage with multiple literary interpretations, consider alternative viewpoints, and structure persuasive arguments highlights the interplay of critical thinking and ICC. Takona's (2025) findings in STEM education confirm that scaffolded, culturally responsive instruction fosters intellectual flexibility and performance across fields.

Cindy's experience illustrates the long-term impact of an integrated curriculum that merges structured argumentation training with intercultural perspectives. Her case underscores the importance of cultivating critical inquiry, academic resilience, and global engagement, thereby equipping students with transferable skills applicable to diverse educational and professional contexts.

IMPLICATIONS

Future research could build on this case study by examining how the processes of knowledge transfer and knowledge reconstruction identified here operate across different academic disciplines, including STEM. While Cindy's experience demonstrates how structured, reflective writing practices can support students in transferring and adapting argumentation strategies to meet new academic demands, further studies might explore whether these strategies translate effectively to discipline-specific genres, such as lab reports, technical documentation, or research proposals in STEM contexts. Comparative research could offer valuable insights into how students manage the differing rhetorical expectations of humanities and STEM fields and how instructional models might facilitate greater awareness of genre-specific conventions while promoting adaptability across academic boundaries. Additionally, future studies might investigate how reflective writing practices, such as learning diaries and self-assessments, continue to support students' ability to transfer and reconstruct writing strategies over time. Such research could further examine how intercultural and interdisciplinary learning environments shape students' rhetorical flexibility, academic agency, and sensitivity to audience expectations. As Ching Ching and Mao (2025) point out, multilingual STEM students often encounter challenges in transferring general writing strategies to field-specific genres, and highlight the importance of explicit, scaffolded instruction that bridges disciplinary and cultural contexts. Investigating how digital tools, including AI-supported feedback, might support these processes also offers a promising avenue for future inquiry.

LIMITATIONS

This single-case study presents limitations regarding generalizability, as Cindy's experience may not reflect the diversity of student backgrounds, writing proficiencies, or learning styles. The reliance on self-reported data introduces potential bias, as reflections may be shaped by the participant's perceptions rather than objective measures of progress. Future research could strengthen the credibility of findings through triangulation with additional data sources, such as writing samples, instructor feedback, peer perspectives, and rubric-based assessments of writing performance. Incorporating these perspectives would enable a more comprehensive understanding of how writing strategies are transferred and reconstructed across disciplines, including STEM contexts, where writing conventions and genre expectations often diverge significantly from those

in the humanities. Such triangulation could also help clarify how instructional models support writing development in varied academic and professional settings.

CONCLUSION

Cindy's case study highlights the important role of structured instruction, interdisciplinary engagement, and intercultural awareness in the development of academic writing. Her deliberate transfer and refinement of argumentation strategies from ACII to her literature course suggest how explicit instruction and scaffolded learning opportunities can support the development of academic resilience and adaptability. Although she had been previously exposed to writing and cultural analysis, a deeper level of competence appeared to emerge when she recognized the value of integrating and transferring skills across disciplinary boundaries.

This study suggests that when knowledge transfer is reinforced through interdisciplinary and intercultural connections, students are better positioned to develop writing proficiency that extends beyond the requirements of individual courses. Clarity, coherence, and critical insight are more likely to be achieved within learning environments that emphasize rhetorical awareness and the adaptation of writing strategies across domains. Structured, reflective writing practices (supported by both traditional methods and emerging digital tools) may enhance students' engagement with academic discourse, fostering responsibility, intellectual flexibility, and agency. Cindy's progression across linguistic and literary frameworks illustrates how intentional instructional design may facilitate not only competence but also rhetorical adaptability and critical awareness.

Although this exploratory research is based on a single case, future longitudinal studies could offer deeper insights into how interdisciplinary writing transfer supports sustained academic growth across varied educational and disciplinary contexts, including STEM fields. In particular, exploring how strategies developed in humanities-based instruction can inform writing practices in scientific and technical disciplines may contribute to broader efforts to support students' rhetorical development across the curriculum.

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APPENDIX

Guiding questions for the semi-structured interview

1. How did your experience in ACII influence your approach to writing the literary research paper?
2. Which specific argumentation techniques from ACII (e.g., thesis formulation, counterarguments, use of evidence) did you find most useful when writing your literary research paper?
3. Did you face challenges in transferring argumentation skills from ACII to your literary research paper? If so, what were they?
4. How did the interdisciplinary nature of ACII and the literature course influence your academic writing and ability to construct arguments?
5. To what extent did ACII help you in the reconstruction of your argumentation strategies when adapting them to a literary research context?
6. Did you find it difficult to establish clear connections between the writing techniques developed in ACII and those required for the literary research paper? Why or why not?
7. How did exposure to different rhetorical traditions in ACII enhance your ability to transfer knowledge across disciplines and adapt your writing to different academic contexts?
8. What role did interdisciplinary learning play in shaping the way you structured and refined your literary research paper?
9. Did your experience in ACII contribute to developing intercultural communicative competence (ICC) by exposing you to different discourse conventions? If so, how?
10. How do you foresee applying the writing skills and argumentation strategies transferred from ACII to the literature course in future academic or professional contexts?

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