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RESEARCH ARTICLE

Developing Argumentation and Critical Thinking in Academic Writing: A Mixed-Methods Study

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Abstract

This article examines the theoretical and practical mechanisms for developing argumentation and critical thinking skills in the process of academic writing among higher education students. The study employs a mixed-methods approach to analyze students' logical reasoning, quality of argumentation, and analytical thinking in written discourse. The findings indicate that interactive, argumentation-based instructional methods, such as the Claim–Evidence–Reasoning (CER) model, peer review, and problem-based writing tasks – significantly improve both the quality of academic writing and the level of critical thinking. The results highlight the importance of integrating modern pedagogical strategies into academic writing instruction.

KEYWORDS

Academic writing, argumentation, critical thinking, academic competence, higher education, pedagogical mechanisms.

INTRODUCTION

Academic writing in higher education serves not only as a means of expressing knowledge but also as a fundamental tool for developing students' critical thinking, logical reasoning, and independent decision-making skills (Flower & Hayes, 1981; Hyland, 2004). Contemporary pedagogical practices demonstrate that the development of academic writing competence plays a crucial role in preparing students for scholarly communication and contributes significantly to both their professional and personal development (Gillet, Hammond, & Martala, 2012). Academic writing among higher education students can and will improve if its delivery becomes more structured and consistent and if student progress and development are purposely evaluated and measured against set learning outcomes (Gabi, 2022).

Among the core components of academic writing, argumentation and critical thinking occupy a central position. Argumentation refers to the process of constructing logically coherent claims supported by evidence (Graff & Birkenstein, 2016; Toulmin, 2003), while critical thinking involves analyzing information, evaluating alternative perspectives, and drawing independent, well-reasoned conclusions (Paul & Elder, 2014; Ennis, 2018). According to Walton (2006) and Jimenez-Aleixandre & Erduran (2007), this involves:

- giving reasons to support or criticise claims;
- using theoretical principles or empirical evidence to support positions taken.

Because all claims are questionable and, therefore, open to doubt, reasons serve the purpose of justifying such questions or doubts (Walton, 2006).

Recent studies indicate that although both skills are widely discussed in the literature, there is still a lack of integrated pedagogical frameworks that simultaneously develop argumentation and critical thinking in academic writing

instruction (Davies, 2013; Wingate, 2012). In particular, the effectiveness of interactive and dialogic learning environments remains underexplored in empirical research.

The aim of this study is to identify effective pedagogical mechanisms for developing argumentation and critical thinking in academic writing.

Research questions:

How will be argumentation developed in academic writing?

Which methods are most effective in fostering critical thinking?

How do these skills influence the quality of academic texts?

METHODS

This study adopts a mixed-methods approach, which integrates quantitative and qualitative data to provide a comprehensive understanding of complex educational phenomena (Creswell & Plano Clark, 2011; Nussbaum, 2008). This approach enables triangulation of findings and enhances validity through multiple data sources.

The study involved 50 undergraduate students aged 18–22, divided into experimental (n=25) and control (n=25) groups. Participants had intermediate language proficiency and had not previously undergone formal training in academic writing.

A quasi-experimental design included a pre-test, a five-week instructional intervention, and a post-test phase.

The experimental group was taught using argumentation-based and interactive methods. The Claim–Evidence–Reasoning (CER) model was used as the core instructional framework, which emphasizes structured argument construction (Andrews, 2010; Toulmin, 2003).

Additionally, problem-based writing tasks were implemented to promote deeper cognitive engagement and critical reasoning (Hmelo-Silver, 2004; Brookfield, 2012). Peer review activities encouraged collaborative learning and reflective thinking (Nussbaum, 2008; Rapanta, Garcia-Mila, & Gilabert, 2013).

The control group received traditional instruction based on lectures and individual assignments.

Data collection instruments included:

- CER-based analytical rubric.
- Student questionnaire.
- Classroom observation checklist.

The maximum score for writing tasks was 20, distributed across four dimensions: argument clarity, evidence quality, logical coherence, and critical thinking ability.

Quantitative datas were analyzed using an independent samples t-test, while qualitative data were examined using content analysis techniques (Creswell & Plano Clark, 2011).

Ethical approval was obtained, informed consent was secured, and participant confidentiality was maintained throughout the study.

Initial results indicated no statistically significant difference between the groups ($p>0.05$), confirming baseline equivalence:

Table 1. Students' Pre-Test Results Before the Experiment

Group	Average Score	Minimum Score	Maximum Score
Experimental Group	10,4	7	13
Control Group	10,2	6	14

After the intervention, a significant improvement was observed in the experimental group compared to the control group:

Table 2. Students' Post-Test Results After the Experiment

Group	Average Score	Minimum Score	Maximum Score	Improvement (%)
Experimental	16,8	14	20	61,5%

Group				
Control Group	11,2	8	15	9,8%

Statistical analysis revealed a significant difference between groups (t=8,72, p<0,001), indicating the effectiveness of argumentation-based instruction.

The improvement in the experimental group demonstrates that structured argumentation training significantly enhances students' ability to construct logical and evidence-based academic texts. These findings align with previous research emphasizing the role of explicit argumentation instruction in improving academic writing quality (Graff & Birkenstein, 2016; Wingate, 2012).

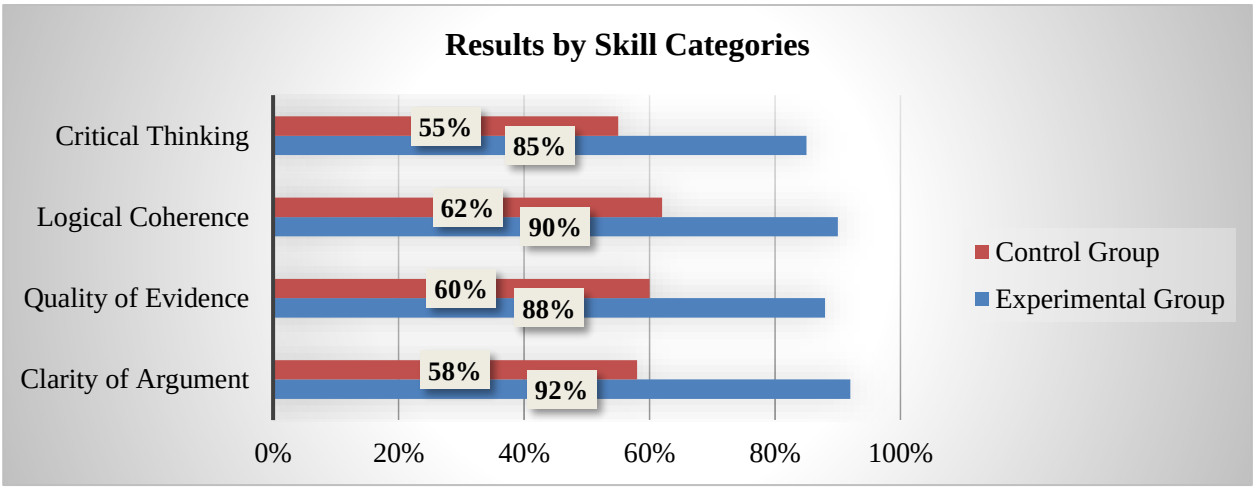

Figure 1. Post-study results of students' academic skills

The diagram illustrates the post-intervention performance of students across four key academic writing competencies: critical thinking, logical coherence, quality of evidence, and clarity of argument. The results demonstrate a substantial difference between the experimental and control groups in all measured categories. The experimental group consistently outperformed the control group, indicating the effectiveness of the implemented instructional intervention. In terms of clarity of argument, the experimental group achieved the highest score (92%), compared to 58% in the control group. Similarly, significant improvements were observed in logical coherence (90% vs. 62%) and quality of evidence (88% vs. 60%), suggesting that structured argumentation training enhanced students' ability to construct well-reasoned and evidence-based texts. Notably, critical thinking skills also improved considerably, with the experimental group reaching 85%, while the control group remained at 55%. This indicates that interactive and argumentation-based teaching methods contributed to deeper analytical engagement and reflective thinking. Overall, the findings confirm that the integration of targeted pedagogical strategies, such as argumentation frameworks and peer interaction has a significant positive impact on students' academic writing performance and higher-order thinking skills.

DISCUSSION

The findings of this study confirm that argumentation-based instructional strategies significantly enhance academic writing competence. These results are consistent with theoretical perspectives that highlight the importance of structured reasoning and discourse-based learning in higher education (Paul & Elder, 2014; Davies, 2013).

Problem-based learning contributed to the development of independent thinking and analytical reasoning skills, supporting the findings of Hmelo-Silver (2004) and Brookfield (2012). Furthermore, peer review practices facilitated reflective learning and improved students' ability to evaluate their own and others' writing critically (Nussbaum, 2008).

From a broader perspective, the integration of argumentation and critical thinking aligns with the concept of dialogic learning environments, which promote active knowledge construction rather than passive reception (Osborne, 2010; Hyytinen, Toom, & Shavelson, 2019).

This study has several limitations:

- relatively small sample size;
- short intervention duration;
- single institutional context.

Future studies should consider larger samples, longitudinal designs, and the integration of digital tools in academic writing instruction (Kuhn, 2019; Ennis, 2018).

CONCLUSION

The development of argumentation and critical thinking skills plays a crucial role in enhancing students' academic writing competence. These skills enable learners to construct coherent arguments, critically evaluate information, and produce academically rigorous texts. The findings suggest that integrating CER-based instruction, peer review, and problem-based learning significantly improves students' writing performance and cognitive engagement. These results have important pedagogical implications for curriculum design in higher education, particularly in promoting independent, analytical, and research-oriented thinking skills.

REFERENCES

1. Andrews, R. (2010). Argumentation in higher education: Improving practice through theory and research. Routledge.
2. Creswell, J. W., & Plano Clark, V. L. (2011). Designing and conducting mixed methods research (2nd ed.). SAGE Publications.
3. Brookfield, S. D. (2012). Teaching for critical thinking: Tools and techniques to help students question their assumptions. Jossey-Bass.
4. Davies, M. (2013). Critical thinking and the disciplines reconsidered. Higher Education Research & Development, 32(4), 529–544. https://doi.org/10.1080/07294360.2012.697878
5. Ennis, R. H. (2018). Critical thinking across the curriculum: A vision. Topoi, 37(1), 165–184. https://doi.org/10.1007/s11245-016-9401-4
6. Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. College Composition and Communication, 32 (4), 365–387. https://doi.org/10.2307/356600
7. Gabi, C. (2022). Academic writing. Altralogue Publishing.
8. Gillet, A., Hammond, A., & Martala, M. (2012). Teaching academic writing in UK higher education. Routledge.
9. Graff, G., & Birkenstein, C. (2016). They say / I say: The moves that matter in academic writing (3rd ed.). W. W. Norton & Company.
10. Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? Educational Psychology Review, 16(3), 235–266. https://doi.org/10.1023/B:EDPR.0000034022.16470.f3
11. Hyland, K. (2004). Disciplinary discourses: Social interactions in academic writing. Longman.
12. Hyytinen, H., Toom, A., & Shavelson, R. J. (2019). Enhancing scientific thinking through the development of critical thinking skills. Studies in Educational Evaluation, 60, 1–10. https://doi.org/10.1016/j.stueduc.2018.11.003
13. Jimenez-Aleixandre M.P., & Erduran S. (2007). Argumentation in Science Education: An Overview. In Erduran S., & Jimenez-Aleixandre M.P. (eds). Argumentation in Science Education. Science & Technology Education Library, vol 35 (pp. 3-27). Springer. DOI: https://doi.org/10.1007/978-1-4020-6670-2_1
14. Kuhn, D. (2019). Critical thinking as discourse. Human Development, 62(3), 146–164. https://doi.org/10.1159/000500171
15. Nussbaum, E. M. (2008). Collaborative discourse, argumentation, and learning: Preface and literature review. Contemporary Educational Psychology, 33 (3), 345–359. https://doi.org/10.1016/j.cedpsych.2008.04.004
16. Osborne, J. (2010). Arguing to learn in science: The role of collaborative, critical discourse. Science, 328 (5977), 463–466. https://doi.org/10.1126/science.1183944
17. Paul, R., & Elder, L. (2014). Critical thinking: Tools for taking charge of your learning and your life (3rd ed.). Pearson Education.
18. Rapanta, C., Garcia-Mila, M., & Gilabert, S. (2013). What is meant by argumentative competence? Educational Psychology Review, 25(4), 483–502. https://doi.org/10.1007/s10648-013-9226-8
19. Toulmin, S. (2003). The uses of argument (Updated ed.).

Cambridge University Press.

20. Walton, D. (2006). Fundamentals of critical argumentation. Cambridge University Press.

21. Wingate, U. (2012). 'Argument!' helping students understand what essay writing is about. Journal of English for Academic Purposes, 11(2), 145–154. https://doi.org/10.1016/j.jeap.2011.11.001