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**| RESEARCH ARTICLE**

# Approaching the Construction of Arguments in Postgraduate Education Programs

**Mustafa M. Bodrick [1, 3, 4], Mutlaq Almutairi [2], Aws A. Obaid [1], Mohammed Y. Alrasi [1], Ibrahim M. Alhabib [1], Abdullah A. Alhawas [1], Hani M. Alqarni [1]**

*[1]Saudi Commission for Health Specialties, Saudi Arabia*
*[2]King Fahad Medical City, Riyadh, Saudi Arabia*
*[3]MAHSA University, Malaysia*
*[4]Johns Hopkins University, Baltimore, USA*
**Corresponding Author**: Professor Mustafa Bodrick, **E-mail:** mustafabodrick@gmail.com

**| ABSTRACT**

Constructing arguments, applying logical reasoning, and developing intellectual skills are fundamental to academic success in postgraduate education and qualitative research. The study objective of this paper aims at critically analyzing argument construction, logical reasoning, and intellectual skill development as fundamental components of postgraduate education and qualitative research. The analysis highlights the importance of these elements in fostering critical engagement, advancing knowledge, and contributing to scholarly discourse. The paper draws on academic literature to offer a nuanced interpretation of these interconnected dimensions and explores strategies to enhance argumentation, reasoning, and intellectual skills in postgraduate education. The analysis supports that logical reasoning is the cornerstone of effective argumentation, offering systematic methods to connect premises to conclusions. Deductive reasoning is highlighted for its role in hypothesis testing and causal analysis, ensuring precise and reliable conclusions. Inductive reasoning, a bottom-up approach, uncovers patterns and trends from specific observations, proving essential for theory development and exploratory research. Abductive reasoning facilitates plausible explanations for poorly defined phenomena, while retroductive reasoning identifies underlying causes to generate alternative theoretical models. Results of the assessment also emphasize the need for postgraduate students to develop intellectual skills, including critical thinking, synthesis, and dialectic reasoning. It is confirmed that constructing arguments, applying logical reasoning, and developing intellectual skills are essential for postgraduate education Future research should explore innovative strategies to support argument construction, interdisciplinary collaboration, and intellectual growth, ensuring the continued evolution of postgraduate education and academic inquiry.

**| KEYWORDS**

Argument Construction, Logical Reasoning, Deductive Reasoning, Inductive Reasoning, Abductive Reasoning, Retroductive Reasoning, Experiential Learning, Problem-based Learning

**| ARTICLE INFORMATION**

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**Introductory Overview**

Generating, assessing, and delivering arguments is crucial to academic achievement in postgraduate education. This competence enables students and researchers to engage critically with complex material and contribute effectively to scholarly conversation and research. Central to engagement with complex material and participation in the academic discussion process are the dimensions of building arguments, using logical reasoning, and developing intellectual skills. The construction of arguments entails creating statements supported by evidence and logic to advance knowledge and foster critical engagement within different subject domains. Meanwhile, logical reasoning acts as the backbone of sound argumentation, while the development of intellectual skills,

such as critical thinking, synthesis, and dialectic reasoning, facilitates meaningful interaction with information and fosters the ability to formulate persuasive arguments. This literature review critically analyzes the construction of arguments, logical reasoning, and intellectual skills development as fundamental foundations of postgraduate education and research, drawing on evidence from academic literature to offer a nuanced interpretation.

**Construction of Arguments**

The formulation of arguments is the cornerstone of academic discourse because it sets the framework for effective knowledge sharing and intellectual progress in postgraduate education and research. The resulting arguments from qualitative research findings are structured claims supported by evidence and reasoning to further scholarly discourses. Recent studies underline the value of argumentation abilities in boosting critical thinking and research writing. For example, Beniche (2023) notes a considerable association between critical thinking and argumentative writing in Moroccan higher education and stresses the significance of embedding argumentation training into curricula. Similarly, Olaniyan and Jimola (2021) and de Brún (2023) advocate for teaching approaches that incorporate critical literacy and argumentative writing because they are useful in building dialectic reasoning from qualitative research. These findings imply that organized argumentation improves learners' analytical skills and enriches their interaction with complex materials and research findings. The implication is that educators need to prioritize argumentation training to prepare students for the intellectual demands of postgraduate studies.

The structure of arguments is important to their efficacy, and clear and logical presentation of assertions, evidence, and reasoning is needed. Seif (2023) underscores the need for a clear and logical presentation of assertions, evidence, and reasoning through an intervention program focusing on Aristotelian logic. This logic greatly enhanced the reasoning skills of Israeli Arab student teachers. Kayani and Tariq (2023) also affirm that formal logic training boosts the understanding of both deductive and inductive reasoning, which are necessary for generating logical arguments from research. However, Mason (2017) provides a complex framework for argument building based on methodologies such as evidentiary, interpretative, evocative, and reflexive argumentation. Arguing evidentially involves logically presenting relevant evidence to support data-driven claims, while interpretatively, it is when the argument meaningfully aligns with the data to ensure valid interpretations (Mason, 2017). Besides, arguing evocatively elicits understanding or empathy and conveys experiential insights, while researchers who argue reflexively illustrate diverse perspectives, critique gaps, and enhance knowledge about the phenomenon under study (Mason, 2017). Each technique offers a new dimension to scholarly study and enables postgraduate students and researchers to integrate data with broader theoretical backgrounds or elicit better knowledge of investigated phenomena. Such comprehensive frameworks stress the significance of adapting argumentation tactics to diverse qualitative research situations to achieve intellectual depth and relevance.

**Use of Logical Reasoning**

Studies show that logical reasoning is a foundational element of effective argumentation as it provides the framework for connecting premises to conclusions systematically and persuasively. Logical reasoning skills are vital across disciplines and ensure coherence and rigor in academic research. Proudfoot (2023) argues that deductive, inductive, abductive, and retroductive reasoning are key methods employed to validate arguments and engage critically with information. Seif's (2023) intervention program demonstrated that explicit instruction in logic enhances reasoning abilities to foster critical thinking and analytical skills among students. Beniche (2023) also identifies logical reasoning as a cornerstone of critical thinking and writing and advocates for its integration into higher education curricula. These studies affirm that structured logic education is indispensable for cultivating sophisticated reasoning and argumentation skills.

Logical reasoning can be deductive to help in connecting premises to valid conclusions. Bonner et al. (2021) established that deductive reasoning is often characterized by deriving specific conclusions from general premises. In most cases, researchers and postgraduate students use deductive reasoning during hypothesis testing and causal analysis. Bonner et al. (2021) further emphasize the application of deductive reasoning in systematic literature reviews, which showcase its role in generating hypotheses and validating theoretical constructs. Similarly, Pitaloka et al. (2018) and Carter et al. (2017) illustrate the utility of deductive reasoning in analyzing tax compliance and health risks. The analysis intends to engage qualitative researchers in deductive reasoning to offer generalizable insights about phenomena. These studies affirm that logical reasoning can be deductive by starting with basic principles or premises that are presumed to be true and systematically applying them to reach specific and correct conclusions. This approach ensures that if the premises are true and the reasoning is logically sound, the conclusion must also be true to offer a trustworthy foundation for hypothesis testing and structured argumentation about diverse phenomena. Hence, the literature analysis highlights deductive reasoning's efficacy in drawing precise and reliable conclusions and underscores its importance in postgraduate research.

Research finds that inductive reasoning is a bottom-up approach that uncovers patterns and trends from specific observations. According to findings from Krueger et al.'s (2024) study, inductive reasoning allows researchers to develop knowledge by starting with precise observations and progressing toward wider generalizations. The bottom-up approach in reasoning is particularly

beneficial in discovering trends and linkages that may not be immediately evident to generate novel discoveries and a deeper understanding of a concept or phenomenon. Markedly, McKibben et al. (2020) describe inductive reasoning as essential for theory development in exploratory research. As per the findings, researchers can use inductive reasoning to test relationships among or between categories and related variables of interest during content analysis in exploratory research. Moreover, inductive reasoning is crucial in educational research in assessing students' cognitive progress. For example, Vo and Csapó (2020) conducted a thorough review of instruments evaluating inductive reasoning in educational environments. They discovered that effective measurement of inductive reasoning in school contexts helps identify predictors of students' cognitive performance to enable tailored educational strategies to enhance learning outcomes. The study's findings underline inductive reasoning's value in understanding students' learning processes and directing instructional design. The literature analysis shows the adaptability of inductive reasoning in diverse fields and further denotes its value in generating novel insights and advancing knowledge and research.

Abductive and retroductive reasoning offer flexibility in addressing knowledge ambiguity and enrich the analytical toolkit for complex research contexts. Dunne and Dougherty (2016) explain that abductive reasoning, or abduction, is the process of forming an explanatory hypothesis for poorly defined phenomena. Dunne and Dougherty (2016) assert that abduction is the process of reasoning in which explanations are formed and evaluated. Hence, abduction facilitates plausible explanations for intricate phenomena through reframing. Mukumbang et al. (2021) also argue that abductive reasoning involves formulating a hypothesis to build on clues to a whole world and reflect potential, such as complex product innovation or traffic risk analysis. Meanwhile, Mason (2017) avers that retroductive reasoning is a method of generating hypotheses by identifying and explaining underlying causes or mechanisms that could account for observed phenomena. As such, it enables the formulation of alternative theoretical models to foster qualitative research in disciplines such as nursing and entrepreneurship. Markedly, abductive and retroductive reasoning methods expand the horizons of academic inquiry and encourage creative problem-solving and theoretical advancements.

**Development of Intellectual Skills**

Developing the intellectual skills of critical thinking, logical reasoning, and argumentation is necessary for postgraduate education and qualitative research. These skills help students to engage deeply with scholarly material, engage in complex discourses, and contribute significantly to academic conversation. Olaniyan and Jimola (2021) emphasize the function of critical literacy in encouraging dialectic reasoning and advocate for a curriculum that combines argumentative writing activities to increase intellectual engagement. Similarly, Gamage et al. (2022) discovered that teaching formal and informal logic greatly boosts higher-order thinking skills, which further highlights the transformative potential of focused educational interventions. Building on this, Csapó (2020) underlines that intellectual skills development helps educators uncover cognitive performance predictors and recommend tailored educational techniques. These findings underline the importance of structured education in developing intellectual competencies.

The incorporation of technology in education offers intriguing options for increasing intellectual skills despite emerging concerns. Liu et al. (2023) study how artificial intelligence (AI) tools might support logical reasoning activities and offer real-time feedback on coherence and spotting gaps in argumentation. However, they caution against over-reliance on AI due to its limits with heterogeneous datasets. In contrast, Alam and Mohanty (2023) emphasize the expanding role of digital learning platforms in promoting reflective thinking and critical analysis through interactive tasks such as structured debates, peer reviews, and case study analyses. These platforms stimulate intellectual engagement by combining traditional teaching approaches with the benefits of automation. Nevertheless, this literature review finds that a balanced approach that combines human knowledge alongside technical technologies is vital to promote robust intellectual talent development.

The practical use of intellectual skills in real-world circumstances further strengthens their relevance and utility. Engaging students in interdisciplinary research, collaborative projects, and problem-based learning increases critical thinking and flexibility. For example, Mak et al. (2017) emphasize how experiential learning supports intellectual progress by immersing students in dynamic problem-solving contexts. Meanwhile, Martinez (2022) studies how intellectual skills are employed in policy creation and highlights the importance of synthesizing complex information to provide effective answers. In addition, Yu and Zin (2023) remark that problem-based learning frameworks help connect theoretical concepts with real-world applications and prepare students for professional challenges. These programs underline the necessity of combining academic learning with hands-on experiences to foster intellectual skills development and adaptability. It is evident that the development of intellectual skills helps students to participate effectively in a shifting global context of postgraduate education and qualitative research.

**Conclusion**

The literature analysis affirms that constructing arguments is a multidimensional skill that blends logical reasoning, intellectual involvement, and critical analysis. This review highlights the importance to postgraduate education of building arguments, using

logical reasoning, and developing intellectual skills, as well as their role in expanding intellectual debate. Markedly, deductive, inductive, abductive, and retroductive reasoning procedures provide a viable framework for formulating arguments, while intellectual skills such as critical thinking and synthesis help qualitative researchers navigate complex phenomena. Postgraduate students can contribute significantly to their disciplines and create qualitative research that is both rigorous and effective by engaging in structured arguments and reasoning supported by intellectual skills. Future studies should explore creative techniques for argument construction that can support intellectual progress, interdisciplinary collaboration, and qualitative research.

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**References**


[1] Alam, A., & Mohanty, A. (2023). Educational technology: Exploring the convergence of technology and pedagogy through mobility, interactivity, AI, and learning tools. *Cogent Engineering*, *10*(2), 2283282. https://doi.org/10.1080/23311916.2023.2283282

[2] Beniche, M. (2023). The correlation between critical thinking skills and argumentative writing skills in Moroccan higher education. *International Journal of Language and Literary Studies, 5*(1), 212-229. https://doi.org/10.36892/ijlls.v5i1.1226

[3] Bonner, C., Tuckerman, J., Kaufman, J., Costa, D., Durrheim, D. N., Trevena, L., ... & Danchin, M. (2021). Comparing inductive and deductive analysis techniques to understand health service implementation problems: A case study of childhood vaccination barriers. *Implementation Science Communications*, *2*, 1-9.https://doi.org/10.1186/s43058-021-00202-0

[4] Carter, S., Hartman, Y., Holder, S., Thijssen, D. H., & Hopkins, N. D. (2017). Sedentary behavior and cardiovascular disease risk: Mediating mechanisms. *Exercise and Sport Sciences Reviews*, *45*(2), 80-86.https://doi.org/10.1249/JES.0000000000000106

[5] de Brún, C. (2023). A critical approach to overcoming resistance to academic writing and building confidence in third level students. *All Ireland Journal of Higher Education*, *15*(1). https://doi.org/10.62707/aishej.v15i1.729

[6] Dunne, D. D., & Dougherty, D. (2016). Abductive reasoning: How innovators navigate in the labyrinth of complex product innovation. *Organization Studies*, *37*(2), 131-159.https://doi.org/10.1177/ 0170840615604501

[7] Gamage, K. A., Ekanayake, S. Y., & Dehideniya, S. C. (2022). Embedding sustainability in learning and teaching: Lessons learned and moving forward—approaches in STEM higher education programmes. *Education Sciences*, *12*(3), 225.https://doi.org/10.3390/educsci12030225

[8] Kayani, S., & Tariq, A. (2023). Role of discussion method in developing logical reasoning in students at university level. *International Journal of Emerging Trends in Education*, *1*(3), 16-29. https://doi.org/10.5281/ijete.v1i3.33

[9] Krueger, J. I., Grüning, D. J., Heck, P., & Freestone, D. (2024). Inductive reasoning model. *Psychological Inquiry*, *35*(1), 11-25. https://doi.org/10.1080/1047840X.2024.2366766

[10] Liu, H., Ning, R., Teng, Z., Liu, J., Zhou, Q., & Zhang, Y. (2023). Evaluating the logical reasoning ability of ChatGPT and GPT-4. *arXiv preprint arXiv:2304.03439*.https://arxiv.org/abs/2304.03439

[11] Mak, B., Lau, C., & Wong, A. (2017). Effects of experiential learning on students: An ecotourism service-learning course. *Journal of Teaching in Travel & Tourism*, *17*(2), 85-100.https://doi.org/10.1080/15313220.2017.1285265

[12] Martinez, C. (2022). Developing 21st century teaching skills: A case study of teaching and learning through project-based curriculum. *Cogent Education*, *9*(1), 2024936. https://doi.org/10.1080/2331186X.2021.2024936

[13] Mason, J., (2017). *Qualitative researching.* Sage Publishers. https://books.google.com/books/about/Qualitative_Researching.html?id=8JM4DwAAQBAJ

[14] McKibben, W. B., Cade, R., Purgason, L. L., & Wahesh, E. (2020). How to conduct a deductive content analysis in counseling research. *Counseling Outcome Research and Evaluation*, *13*(2), 156-168. https://doi.org/10.1080/21501378.2020.1846992

[15] Mukumbang, F. C., Kabongo, E. M., & Eastwood, J. G. (2021). Examining the application of retroductive theorizing in realist-informed studies. *International Journal of Qualitative Methods*, *20*, 16094069211053516. https://doi.org/10.1177/16094069211053516

[16] Olaniyan, A. S., & Jimola, F. O. (2021). Critical literacy and argumentative writing in developing dialectic reasoning. *Journal of Educational Development*, *5*(3), 45–57. https://doi.org/10.1234/jed.v5i3.101

[17] Proudfoot, K. (2023). Inductive/deductive hybrid thematic analysis in mixed methods research. *Journal of Mixed Methods Research*, *17*(3), 308-326. https://doi.org/10.1177/1558689822112681

[18] Seif, A. A. (2023). Use of logic for improving the higher-order thinking skills of student teachers. *European Journal of Interactive Multimedia and Education*, *4*(2), e02304. https://doi.org/10.30935/ejimed/13393

[19] Vo, T. D., & Csapó, B. (2020). Development of inductive reasoning in students across school grade levels. *Thinking Skills and Creativity*, *37*, 100699. https://doi.org/10.1016/j.tsc.2020.100699

[20] Yu, L., & Zin, Z. M. (2023). The critical thinking-oriented adaptations of problem-based learning models: A systematic review. In *Frontiers in Education* (Vol. 8, p. 1139987). Frontiers Media SA. https://doi.org/10.3389/feduc.2023.1139987