

How to write and organize the discussion in an academic paper: A workshop

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The theme of the workshop

The purpose of the workshop was for the participants to produce a checklist for writing a discussion for an academic paper. To get discussion going among participants, the workshop began with plenum discussions of and responses to two initial questions:

1. What is the purpose of a discussion in an academic paper?
2. What are examples of bad practice in discussions in academic papers?

Following these initial discussions, the scene was set with some recapitulations on the topic of discussion writing from the literature, including the field of mathematics education research.

Setting the scene

An effective discussion section is central to conveying the significance of a research study. Across academic traditions, several approaches can be used to shape this section, but they commonly involve two complementary elements: a *concise summary* of the study's main outcomes and an *interpretive commentary* that offers deeper insight into those outcomes (American Educational Research Association [AERA], 2006). The interpretive commentary moves beyond merely restating results and instead provides an explanation of what the findings mean, why they may have occurred, and how they fit within broader scholarly conversations.

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According to English (2019), a strong interpretive commentary typically addresses several key aspects. First, it should clarify how each research question was answered through the study. Second, authors are expected to explore possible reasons for the outcomes observed, discussing both how and why particular patterns emerged. This requires sensitivity to the contexts in which the outcomes occurred, acknowledging the situational and methodological conditions that shaped the findings. Third, the commentary should illuminate how the results support, extend, or challenge existing theoretical perspectives and previous research. Finally, authors should consider possible alternative interpretations of the findings, demonstrating awareness that empirical data can often be understood in more than one way.

Crucially, the discussion section must articulate the relationship between the study's conclusions and its theoretical framework. This connection helps readers understand the conceptual grounding of the research and the implications of the findings for ongoing theoretical debates. Whether the results reinforce or call into question established frameworks, authors should be explicit about how theory and evidence interact in their study.

In addition to theoretical considerations, discussions may also address broader implications. According to AERA (2006), these implications may be theoretical, practical, or methodological. Regardless of their form, however, any claims made in the discussion must be firmly supported by the study's data. Prior scholarship has emphasized this point: Bol and Hacker (2014) and Robinson et al. (2013) argue that recommendations and conclusions must remain evidence-based, avoiding extrapolations that are not warranted by the findings.

The trinity of research question(s), theoretical framework, and methodology is crucial to touch upon in the discussion section. If not already clear from the study: How did theoretical framing assist in phrasing the research question(s)? How did methodology provide the necessary means for addressing the research question(s)? And did theoretical framing and methodology complement each other?

Robinson et al. (2013) further advise that authors should limit their discussions to claims directly supported by their data and refrain from making recommendations about educational practice or policy. This restraint serves to maintain a clear boundary between empirical evidence and the researcher's opinion about broader educational issues. As they note, such boundaries help preserve the "legitimate warrants of empirical research" (p. 291).

While educational implications are often valued—particularly in fields such as mathematics education—the distinction between evidence and opinion remains essential. Authors may discuss potential implications, but

they must do so in ways that remain grounded in the actual findings and avoid overstating the study's reach. By maintaining this balance, researchers ensure that their discussion sections contribute meaningfully and responsibly to academic and professional discourse.

This need for careful, theoretically informed, and evidence-based discussion is further underscored by journal editors in the field. Lyn English, editor-in-chief of the international journal *Mathematical Thinking and Learning*, observes that a recurring weakness in submitted manuscripts is the "failure to revisit the study's conceptual framework in light of the findings" (English, 2019, p. 474). She also notes that some authors provide "little or no reference to existing research when interpreting their outcomes" (p. 474), thereby missing the opportunity to position their work within the broader scholarly landscape. As English emphasizes, it is essential for researchers to show clearly how their study extends current work and advances the existing knowledge base. Her comments highlight the central message of this workshop: that strong discussion sections require researchers to articulate the significance of their findings through explicit engagement with theory, prior research, and the empirical evidence their study provides.

The workshop task

The actual work in the workshop consisted of participants in groups devising their own checklist for writing a discussion. They were provided with the following list of bullets for a potential structure of a discussion section:

1. Opening the discussion
2. Interpreting the findings
3. Connecting back to literature (previous research)
4. Practical and theoretical implications
5. Limitations
6. Future research directions
7. Closing the discussion

In the following, I provide my own take on what each of the bullets above should encompass. These are supplemented with input from the workshop participants.

A proposed "checklist" for writing a discussion section in an academic paper

1. Opening the discussion

A strong discussion begins with a clear and focused summary of the study's central findings, presented without replicating the full results section. This opening should explicitly address the research questions or hypotheses,

briefly restating them to remind readers of the study's guiding purpose. Situating the findings within the paper's broader aims or theoretical framework helps establish coherence, signaling how the discussion contributes to the overall argument of the manuscript. Because the discussion must stand on its own, this opening should orient readers by stating directly what the section is about and how the forthcoming analysis interprets the study's outcomes.

2. Interpreting the findings

Interpreting the findings involves explaining why the results emerged as they did, considering potential mechanisms, patterns, or contextual factors. This interpretation should be grounded in the study's conceptual framework, showing how the framework helps make sense of the outcomes—and, where relevant, how the findings may also prompt a reconsideration of the framework itself. Comparing the results with previous research clarifies whether they align with, extend, or diverge from earlier work, and helps explain any inconsistencies. Throughout this interpretive process, it is essential to highlight the most significant aspects of the findings, using appropriate organizational strategies (such as meaningful subheadings) to guide the reader. Ultimately, this section should demonstrate clearly whether and how the research questions were answered.

3. Connecting back to literature

A key responsibility of the discussion is to reconnect the findings with the theoretical constructs and bodies of literature introduced earlier in the paper. This involves showing how the results confirm, refine, or challenge the theoretical perspectives that framed the study. Engaging with recent and relevant research enables authors to position their contribution within the state of the art, demonstrating how their work aligns with existing knowledge, adds something new, or contests established assumptions. By synthesizing points of agreement and divergence, this section shows how the study participates in ongoing scholarly conversations.

4. Practical and theoretical implications

The implications section explains why the study matters beyond its immediate findings. Theoretical implications clarify how the research advances understanding in the field, whether by extending existing explanations, questioning taken-for-granted assumptions, or suggesting new conceptual directions. Practical implications focus on how the findings may inform educators, practitioners, or policymakers, while methodological implications may highlight lessons about research design or analysis. Across all types of implications, authors must ensure that claims remain

proportionate to the scope of the data and methods, avoiding overgeneralization while still demonstrating the study's relevance.

5. Limitations

An honest and thoughtful discussion of limitations strengthens rather than weakens a paper. Authors should identify the main constraints of their study—such as sample characteristics, methodological boundaries, or contextual factors—without framing them apologetically. Instead, limitations should be presented as conditions that shape the interpretation of the findings. Importantly, acknowledging limitations provides a foundation for suggesting how future research might address gaps or build on the study in productive ways.

6. Future research directions

Future research directions should follow logically from the study's findings, limitations, and implications. Rather than relying on generic statements such as “more research is needed,” authors should propose concrete next steps, such as replication in different contexts, extensions of the research design, or methodological refinements. These suggestions should be connected to both the theoretical and practical issues raised earlier, indicating how subsequent work could deepen understanding or broaden the applicability of the findings.

7. Closing the discussion

The discussion should end with a succinct concluding paragraph that draws together the paper's central insights. This closing statement reiterates the study's main contribution and highlights its broader significance for the field. By briefly pointing to how the findings engage with ongoing debates or inform professional practice, the conclusion leaves readers with a clear sense of the research's value and the directions it opens for further inquiry.

Final comments

By creating their own checklists, participants deepened their understanding of the key elements that make discussion sections coherent and persuasive. The exercise reinforced insights from the workshop—especially Lyn English's points about revisiting the conceptual framework, engaging with prior research, and showing how the study advances knowledge.

The above checklist is presented as a flexible guide, not a rigid template, encouraging writers to reflect and adapt rather than follow a one-size-fits-all approach.

References

- American Educational Research Association. (2006). Standards for reporting on empirical social science research. *Educational Researcher*, 35(6), 33–40. <https://doi.org/10.3102/0013189X035006033>
- Bol, L., & Hacker, D. J. (2014). Publishing in high quality journals: Perspectives from overworked and unpaid reviewers. *Journal of Computing in Higher Education*, 26(1), 39–53. <https://doi.org/10.1007/s12528-013-9073-7>
- English, L. D. (2019). Towards article acceptance: Avoiding common pitfalls in submissions to *Mathematical Thinking and Learning*. In G. Kaiser & N. Presmeg (Eds.), *Compendium for early career researchers in mathematics education* (pp. 467–479). Springer. https://doi.org/10.1007/978-3-030-15636-7_24
- Robinson, D. H., Levin, J. R., Schraw, G., Patall, E. A., & Hunt, E. B. (2013). On going (way) beyond one's data: A proposal to restrict recommendations for practice in primary educational research journals. *Educational Psychology Review*, 25(2), 291–302. <https://doi.org/10.1007/s10648-013-9223-5>