

DEMYSTIFYING RESEARCH WRITING: ADAPTING IMRaD FOR STUDENT NEEDS

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RESEARCH WRITING IS INTIMIDATING.

Many undergraduate and graduate students experience writing anxiety¹. Survey studies have shown that students feel incapable, unprepared, and/or unworthy when tasked with graded written work². As a result, some students are driven to abandoning graduate work³, while others – especially students from historically underrepresented groups⁴ – choose not to apply to graduate programs at all⁵.

Can we lower student writing anxiety by adapting the IMRaD structure to meet student needs, based on what student writing habits are likely to be coming out of high school?

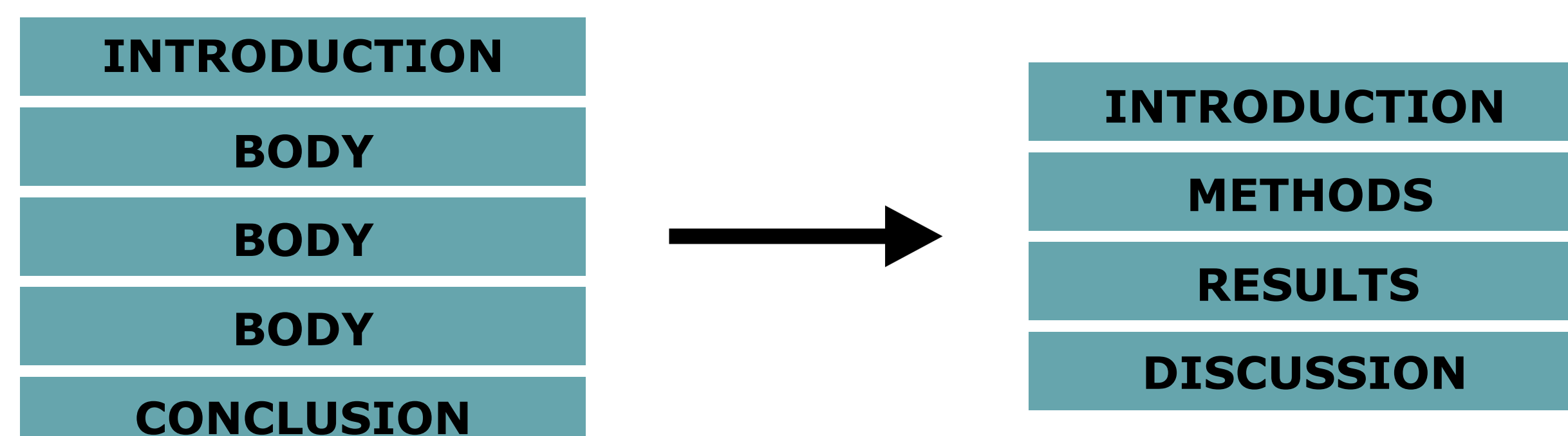
WHY LOOK AT IMRaD?

INTRODUCTION | METHODS | RESULTS | DISCUSSION

Modern high-school writing education prioritizes high performance on standardized writing assessments¹. To achieve this high performance, **students are taught the five-paragraph essay as a pre-determined “structure for success” and receive feedback through a grade².**

Unlike standardized writing assessments, published research takes many forms, from lab reports to book chapters. **The structure of a particular research paper is determined by the relevant disciplinary conventions³:** biology papers tend to follow a different structure from philosophy papers, and so on. Finally, instead of a grade, **articles receive feedback through publication and citation⁴.**

When high-school and college students first engage with research, they apply the strategies that worked for standardized writing assessments⁵ and produce middling results. We theorize that for these students, IMRaD serves as a replacement for the five-paragraph essay structure.



When IMRaD is used as a direct replacement for the five-paragraph essay, **students do not recognize research writing as a unique rhetorical situation whose universal conventions have been developed in response to the needs of its audience⁶.**

This failure inhibits their research and lowers the quality of their written work⁷.

METHODOLOGY:

We divided all published research articles into 4 broad categories: humanities, social sciences, natural sciences, and STEM. Though IMRaD is a STEM-specific structure, we used it as a starting point for the rhetorical analysis of structural features from all categories.

We performed rhetorical analysis on 40 published research articles from across the categories. **Our goal was to identify key rhetorical elements that authors used to structure the information in their articles.**

We developed the following expanded article structure:

CRITIQUE = what are the shortcomings of our existing knowledge?

SUMMARY = what existing knowledge informs your project?

GAP = how does your project fit into the existing knowledge?

RATIONALE = why is your project worthwhile?

OBJECTIVES = what are the specific goals of your study?

IMPACT = what is the “big picture” contribution of your project?

TAKEAWAY = how did you carry out your research?

FINDINGS AND INTERPRETATIONS = what were your results?

FUTURE AVENUES = what are some possible next steps?

LIMITATIONS = how was your research limited?

The expanded structure aimed to:

- Identify universal communicative elements that were present in published research regardless of the specific conventions used by different disciplines;
- Frame those communicative elements in a way that would increase reader comprehension regardless of the specific disciplinary conventions used by a particular article.

We applied the expanded article structure to 18 additional articles from across the disciplinary categories. **Our research questions were:**

- Did applying the structure increase comprehension of the article?
- Did applying the structure help the reader identify the rhetorical conventions used by the author to communicate information?
- Did the expanded structure map accurately to the rhetorical structure used in the article?

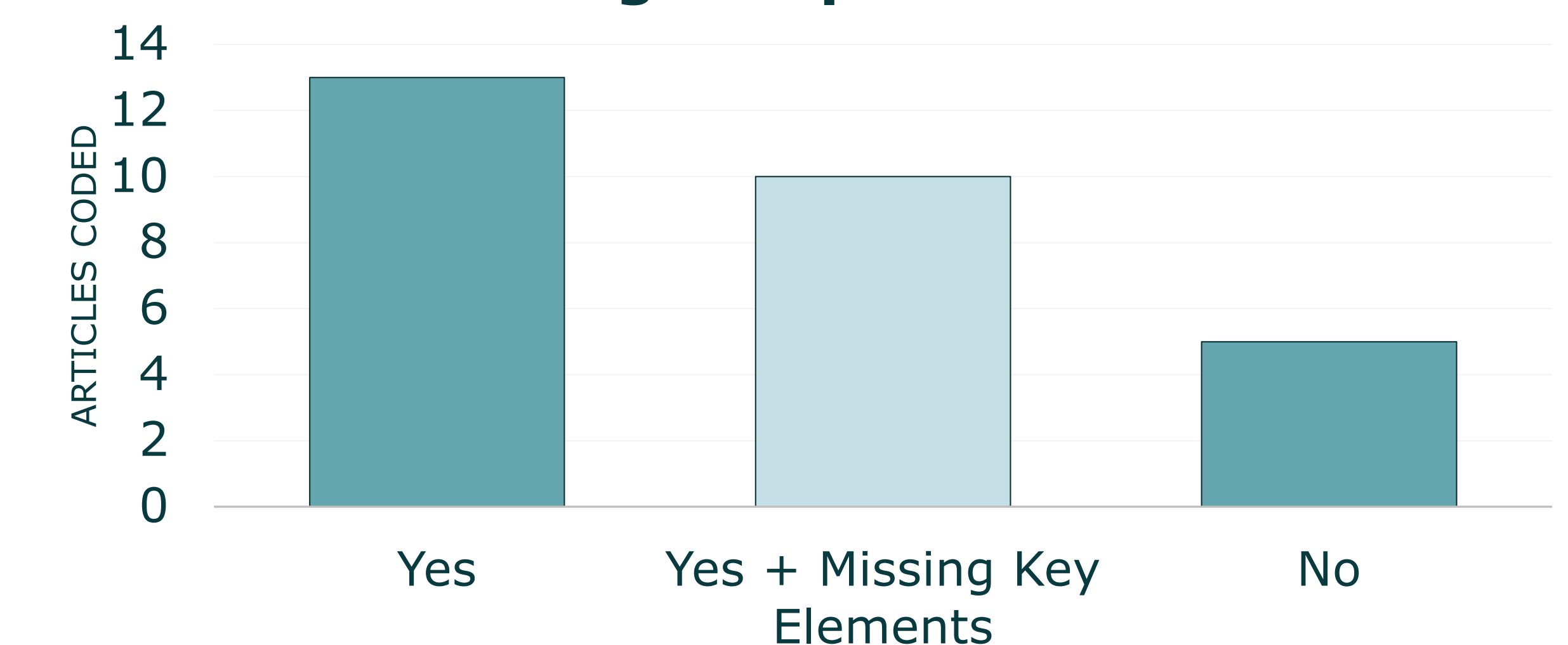
Can an expanded IMRaD structure assist students in identifying key rhetorical elements used to structure information in research articles?

RESULT: TOO MUCH VARIATION!

Of the 18 articles coded by researchers:

- 72% reported that the expanded structure was helpful.
- 77% of those that found the structure helpful reported that the structure was missing key rhetorical elements.**
- 28% reported that the expanded structure was not helpful.

Did the Expanded Structure Aid Reading Comprehension?



Our findings suggest that the rhetorical coding process itself was more helpful than the expanded code, confirming existing research on the subject¹.

We also found that **increasing the level of detail of IMRaD was not itself helpful**. Instead, it often increased confusion or misdirection due to variety in disciplinary conventions.

WHAT'S NEXT?

The project continues! The goal is to develop an educational tool. To this end, **we plan to study whether key rhetorical structures present across genres can be abstracted to universally-applicable guiding questions.**

We hope that adapting tools like IMRaD to meet the needs of incoming college students can produce a tool that helps students take on writing for novel rhetorical situations with confidence.

CITATIONS & ACKNOWLEDGEMENTS

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All sources cited on this poster can be found here:

