

## An Exploration of Gender Differences in Academic Writing in Science

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**Abstract :** Underrepresentation of women in academia, particularly in science, has been discussed by many scholars for decades. The causes of this underrepresentation are debated to this day. Publication is an important aspect of success in academia, and publication and citation rates are significant metrics in performance review, promotion, and employment. It has been established that men's and women's language use in general, both spoken and written, is different. However, no one, to our knowledge, has looked at whether men's and women's writing in science is different. If there are significant differences in the writing of men and women, then these differences may affect women's ability to succeed in science. This study is part of a larger project to explore whether differences can be recognized in the academic science writing of men and women. Mono authored articles from high ranking physics, biology and psychology journals by men and women authors were compared in terms of readability statistics. In particular, the abstract and introduction sections were compared, as these are the first sections encountered by a reviewer, and so may have an important effect on their impression of the work. The Flesch Reading Ease, the percentage of passive sentences and the Flesch-Kincaid Reading Grade Level were calculated for each section of each article, along with counts of numbers of sentences, words per sentence and sentences per paragraph. Significance of differences was tested using the Behrens statistic. It was found that for both physics and biology papers there were no significant differences in the complexity or verbosity of the writing of men and women authors. However, there was a significant difference between the two disciplines, with physics articles being generally more readable (higher readability score) while also more passive (higher number of passive sentences). In contrast, the psychology articles showed a difference between men and women authors which may be significant. The average readability for introductions in women's articles was 28 which was higher than for men's articles, which was 19 (higher values indicate more readable). Women's articles in psychology also had a greater proportion of passive sentences. It can be concluded that, at least in the more traditional sciences, men and women have adopted similar ways of writing, and that disciplinary differences are greater than gender differences. This may not be the case in psychology, which many consider to be more closely aligned with the humanities. Whether the lack of differences is because women have adapted to a masculine way of writing, or whether the genre itself is gender neutral needs further investigation.

**Keywords :** academic writing, gender differences, readability, science

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