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# Student perceptions of scholarly writing: student generation of collaborative rubrics to score scholarly writing

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# Student perceptions of scholarly scientific writing in pharmacology: student generation of collaborative rubrics to score literature reviews in social pharmacology

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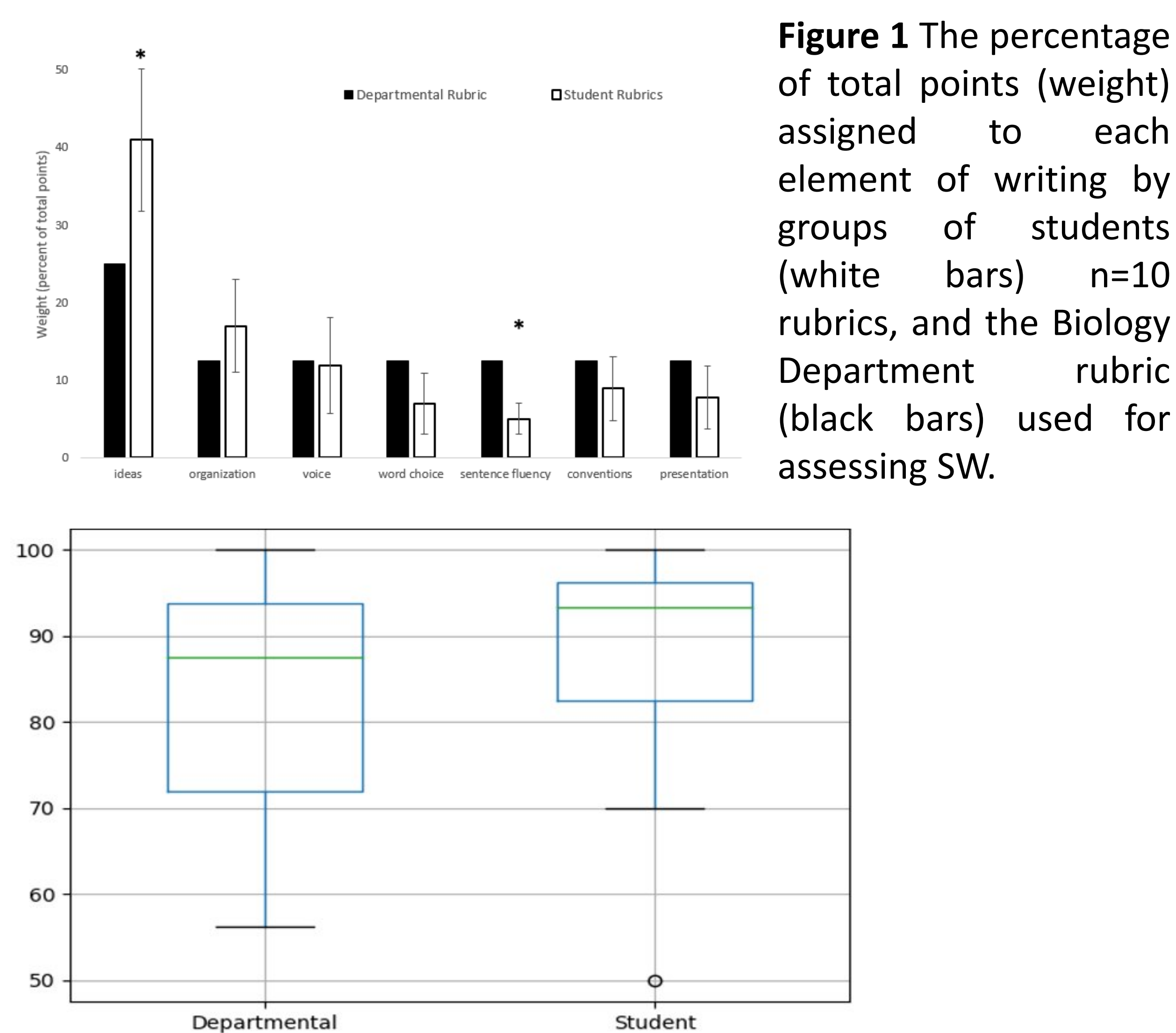
## Introduction

Scientific scholarly writing (SW) is an important skill in all fields of study. Despite a strong focus on writing in many courses, faculty and students have disparate expectations related to scholarly writing. While there has been extensive research into faculty expectations of scholarly writing, little work has been done exploring student expectations. A better understanding of this may lead to more effective teaching strategies in the area of scientific scholarly writing. Herein, we present a classroom exercise where students were asked to write a rubric that would be used to score a summative writing assessment. This will provide insights into what students value with respect to scholarly writing, as well as demonstrate a viable classroom tool for engaging students in the writing process.

## Methods

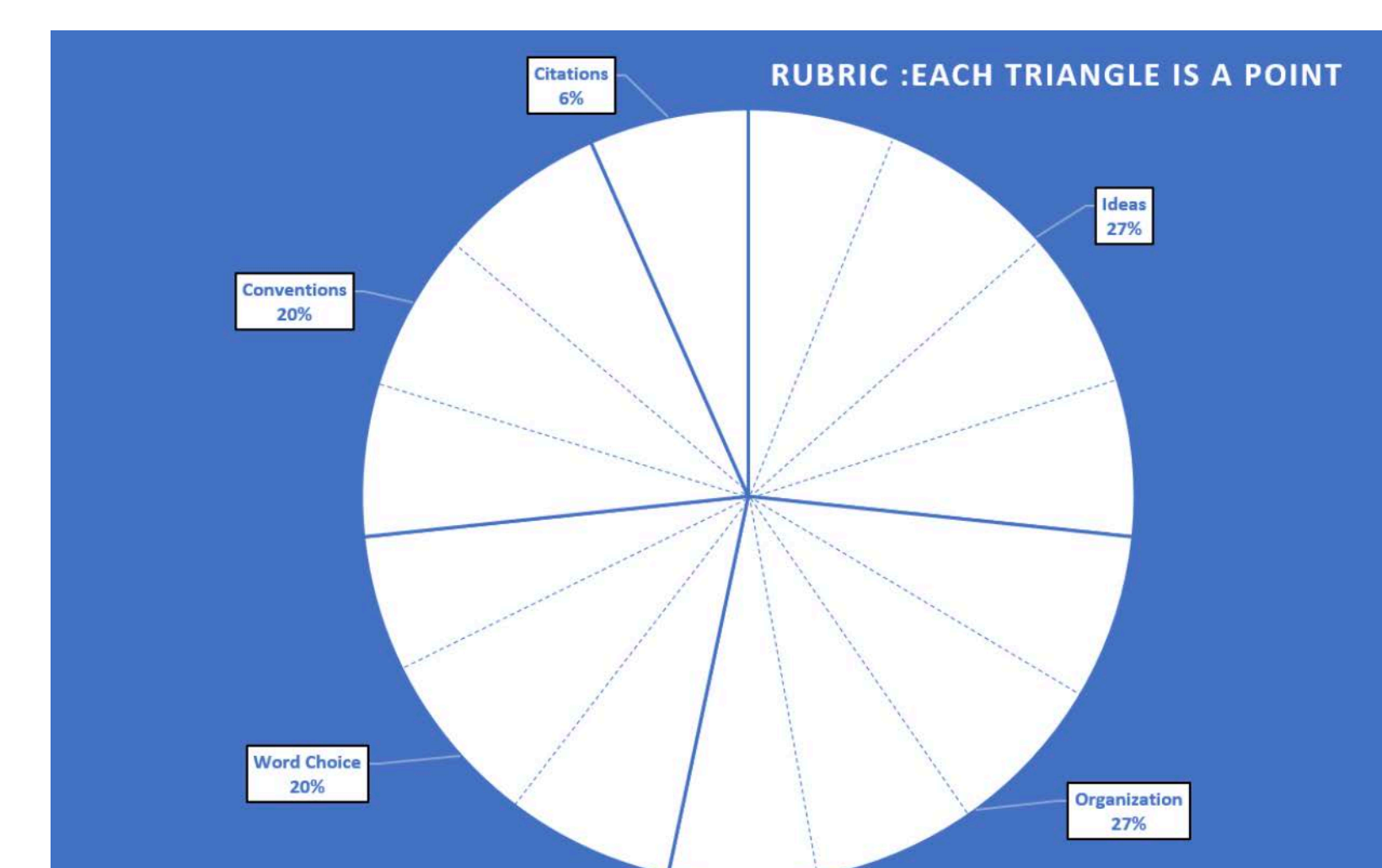
This work was done in a 300-level course called “Foundations of Pharmacology”, which is taken mainly by senior Biology and Chemistry undergraduate students. Through the semester, students completed a series of scaffolded writing assignments leading up to the course final papers. Each week, students completed a short, graded writing assignment over course content focusing on one specific element of writing: ideas, organization, voice, word choice, sentence fluency, conventions, and presentation. Students read and reviewed two peer-reviewed articles in the field. At the end of the semester, student groups were tasked with developing their own rubric for grading of the course final paper. Groups ranged from 2-5 students each. A faculty generated departmental rubric was also mapped to the selected writing elements to for comparison. The student rubrics were compared to the departmental rubric weights using one-sample t-tests. A random selection of 15 student papers were identified using a random number generator. These papers were scored independently using the student rubric and the departmental rubric. The two scores for each paper were compared using a pair t-test to evaluate for any significant difference in final grade. All research presented herein was approved by the Xavier University Institutional Review Board.

## Results



**Figure 1** The percentage of total points (weight) assigned to each element of writing by groups of students (white bars) n=10 rubrics, and the Biology Department rubric (black bars) used for assessing SW.

**Figure 2** Scores (percent) assessed by two independent investigators using student generated rubrics and a faculty created departmental writing rubric. Mean  $\pm$  SD for the student rubric scores and departmental rubric scores were  $87.2 \pm 0.14$  for the student rubrics and  $82.5 \pm 0.16$  respectively. There was no significant difference between the two groups ( $p=0.105$ ).



**Figure 3** An example of a rubric scoring guide submitted by a group of students. In addition to the visual aide, they also submitted written criteria for each category.

## Discussion

This study demonstrates the feasibility of involving students in the assessment process through the creation of student-generated, collaborative rubrics. There is not significant difference between student rubrics and the departmental writing assessment rubric in terms of the percentage of points assigned to seven different elements of quality SW, and so students are still being evaluated on similar criteria. Additionally, no significant difference between scores was observed when the same set of 15 papers were scored using both the student-generated rubrics and a faculty-generated departmental writing rubric. While the scores were, on average, slightly higher with the student rubrics, the difference amounts to only about one-half letter grade difference (B to B+). This amount of grade inflation is outweighed by the potential pedagogical gains, such as increased inclusion, discussions about writing, and students gaining autonomy over their work. This study also provides insight into what students find to be important elements in SW. Previous studies have found that students often focus on conventions and skills based on learning from secondary education, putting great value on conventions such as correct grammar and spelling, on avoiding the first person, and on ensuring proper formatting. Our results indicate, however, that students place larger emphasis on ideas and organization at the expense of conventions and presentation. This could be due to differences in student populations, or it could be that these rubrics are used to score an actual summative assessment, causing students to assess their opinions more critically about SW. We hope that by involving students in the writing process to a greater degree and by giving them a degree of autonomy over their assessment, students will become more engaged and develop positive feelings about scholarly writing.

## Acknowledgments

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