

Brian Luna-Research Award Application

For the past two years I have been involved in Physics Education Research. I have focused specifically on the Physics 256 course here at Western Kentucky University. Due to the heavy load of technical writing within this course it was my and Dr. Bonham's thought to look into how to improve the writing in the course over time; teaching students to build a strong framework for further data centered reports. We decided see if using a peer review system in the labs would improve the quality of lab reports within the course. I have presented the resulting data from this research at both the KAPT and the national AAPT meetings in the past year.

My role in the data gathering process for this research was in coding the reports from both the control and experimental sections of the 256 lab. The control sections wrote reports every week while the experimental sections wrote reports every three weeks using the peer review process that we designed. Every report written by the control sections over the course of two semesters I coded using a coding scheme designed specifically for the Physics 256 report grading system.

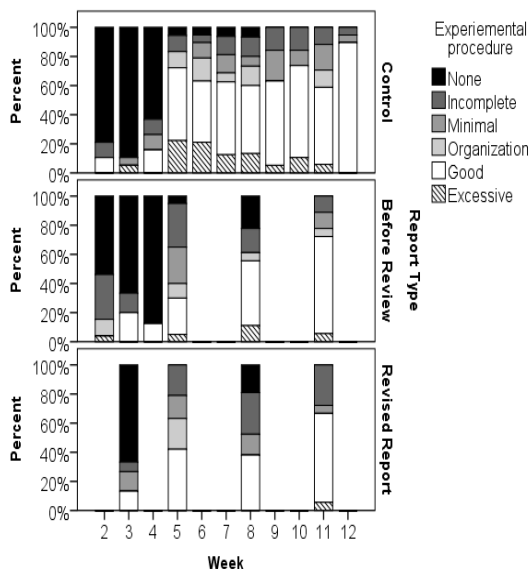


Fig. 1: Comparison of experimental procedure quality between control and experimental sections.

The data I gathered showed that the peer review sections did just as well as the control sections. The students in the experimental sections were also not writing a report as frequently as in the control sections. Therefore, the peer review process designed for Physics 256 by Dr. Bonham and I did, in fact, improve the quality of the students writing with less writing involved for the students. Fig. 1 shows an increase in both experimental and control section's inclusion of quality experimental procedures over the length of the course.

Research data collected over the quality of reports showed an increase over the course of a semester. However, I also wanted to look at the student integration and understanding of the peer review method. I collected data to find out if the students from both sections personally preferred the peer review method over the instructor centered method and which method they thought was best for instruction. The results showed that a large majority of both sections found the peer review method to be preferable and thought it would be a better instructional method.

For the experimental sections I coded both of the pre and post revision reports for each student using the same coding scheme as I did for the control group. Not only did I receive useful data from this portion of the research but also I was able to collect and code the feedback that each student gave during the peer review process. We were also able used a separate coding scheme for the peer feedback in order to gauge the quality of feedback. I then compared this to the improvement over the semester for each section.

The data I gathered showed that the peer review sections did just as well as the control sections.