

ARGUMENT DRIVEN INQUIRY

The Key to Student Understanding

Background

This research paper looked at how to improve the students' ability to gain information from laboratory investigations. The action research focused on increasing students' knowledge of key concepts being covered in hands-on activities by using Argument Driven Inquiry. The goal was to help students write meaningful conclusions to their lab write-ups that showed an understanding of the key concepts being taught during the lab. The research question investigated in this action research was whether Argument Driven Inquiry improves the quality of conclusions being written in the lab write-up and if the approach helps the students gain a greater understanding of the concepts being taught. The students were asked to comment on how the Argument Driven Inquiry helped them and how they felt about the process.

Primary Research Question

Will the use of argumentation in Argument Driven Inquiry improve the students' understanding of the concepts being covered in a laboratory investigation?

Secondary Research Questions

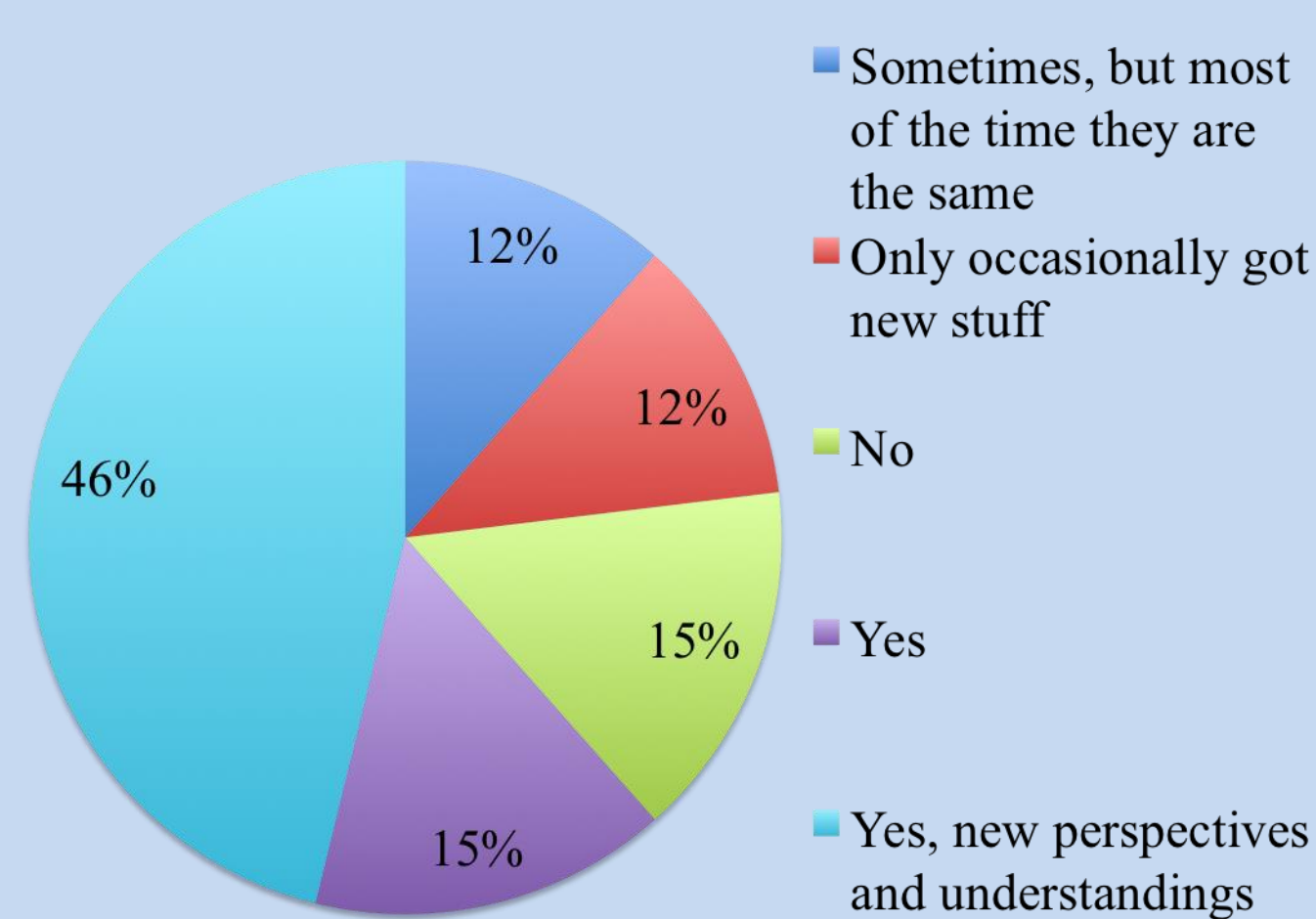
What is the student perception of argumentation? Does multiple formats of argumentation, inquiry activities, case studies, misconception probes, and discrepant events increase the argumentation process? Will the argumentation process better prepare students for the rigors of common core?

Treatment

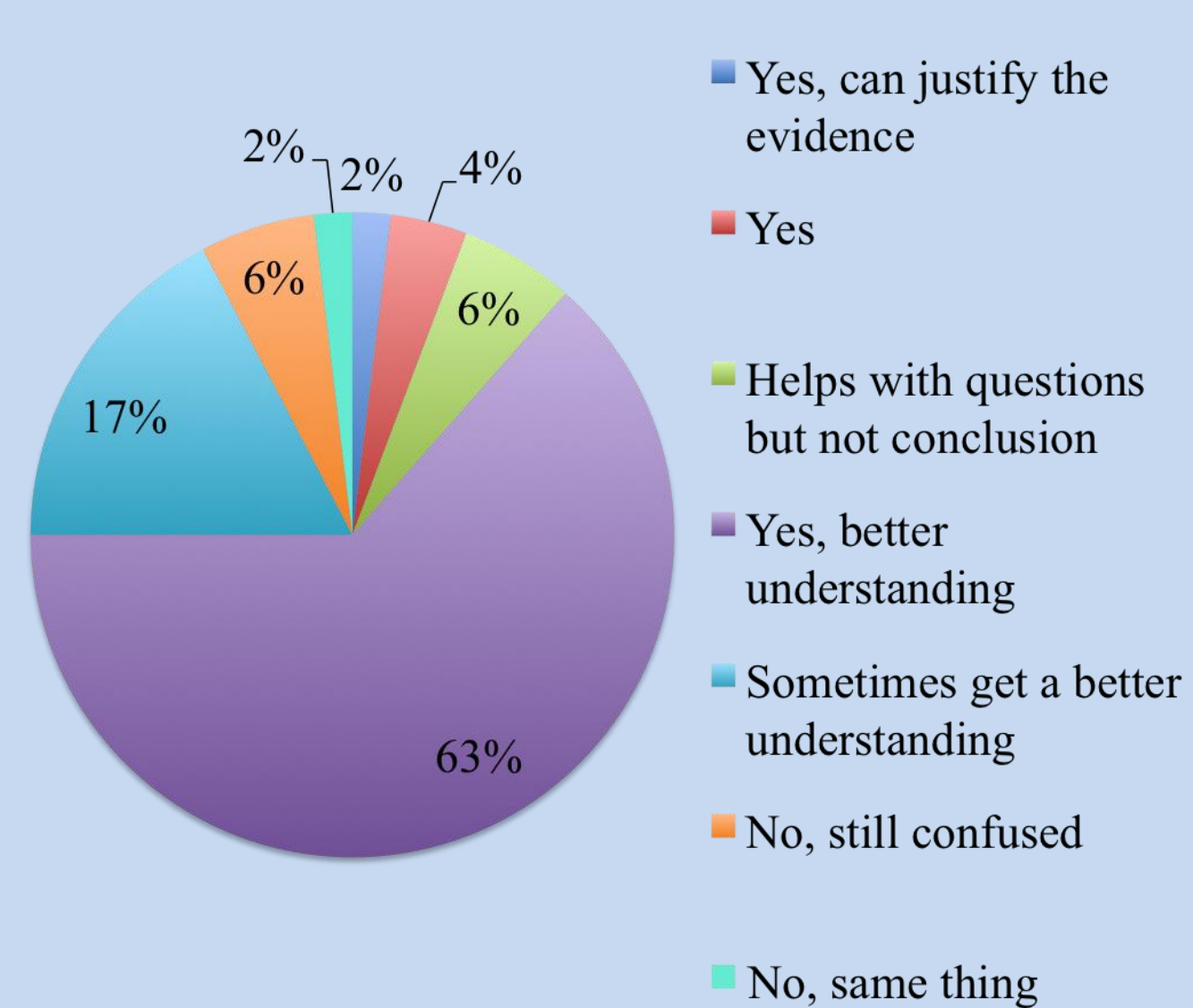
This investigation focused on how the use of argumentation would expand the knowledge of the students and help to make them more accountable for their own learning. The research project used laboratory activities that gave a clear question, and a means for the students to develop an oral argument. These activities helped students use the information gained to write a conclusion that explained the concepts taught in the laboratory activity.

Focus Question: Will the use of argumentation in Argument Driven Inquiry improve the students' understanding of the concepts being covered in a laboratory investigation?			
Sub questions	Data Source		
Sub question 1: What is the student perception of argumentation?	Student Surveys	Interviews	Classroom Discussions
Sub question 2: Does multiple formats of argumentation, inquiry activities, case studies, misconception probes, and discrepant events increase the argumentation process?	Content Pre-Tests	Content Post-Tests	Analysis of Rubric Scores from pre-treatment and post-treatment.
Sub question 3: Will the argumentation process better prepare students for the rigors of common core?	Baseline data from pretreatment labs using the rubric for assessment.	Improvement on Completion of Claims / Evidence worksheet over time.	Improvement in the ability to use data in argumentation.

Question 4: When you listened to all the other groups present their arguments did it help you improve your argument?



Question 5: After the argumentation process, is it easier to answer lab questions and write conclusions?



Results

The use of the argumentation process resulted in an immediate improvement of the lab conclusions using the Claims and Evidence form and the oral argumentation process. Students' conclusions included key concepts covered in the labs as well as an increase in the use of academic vocabulary. Sixty one percent of the students stated that listening to the other groups helped improve their arguments. Sixty three percent of the students also stated that after the argumentation process, answering lab questions and writing conclusions was easier.



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