

THE EFFECT OF ADDING REBUTTAL TO CLAIM, EVIDENCE, AND REASONING TO ENHANCE STUDENTS’ ABILITY TO ENGAGE IN SCIENTIFIC ARGUMENTS

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Research Question

Data Collection

Will the implementation of rebuttal benefit student growth in the process of using the Claim, Evidence, Reasoning, and Rebuttal (CERR) teaching technique as opposed to the traditionally accepted method of Claim, Evidence, and Reasoning (CER) in the science classroom?

	Data Sources
1	Pre and Post Intervention Likert Survey
2	Evaluative Presentation Rubric
3	Comparative Content Assessment
4	Student Interviews

Treatment

Experimental Group (N=28) - Likert surveys used to measure morale - CER Outlines used to gain experience in developing an argument - CERR Rubric set as a guideline and tool - Interviews conducted to gauge interest and growth	Unit Covered (Genetics) - Should genetic modification be supported through taxpayer dollars? - Should GMOs be supported by the government through taxpayer dollars? - Students were allowed to choose their topic
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Results

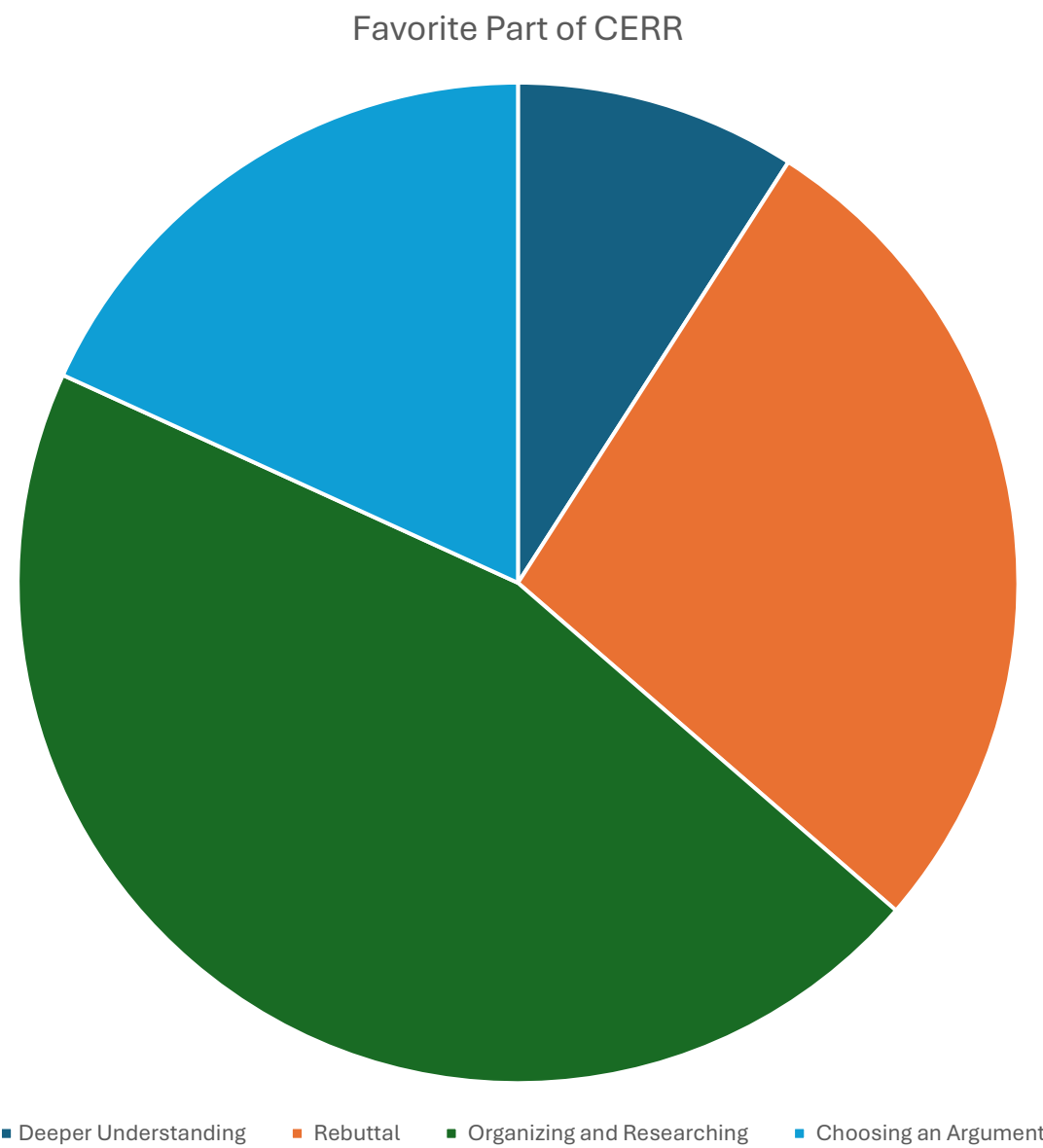
Qualitative Results

Quantitative Results

Value

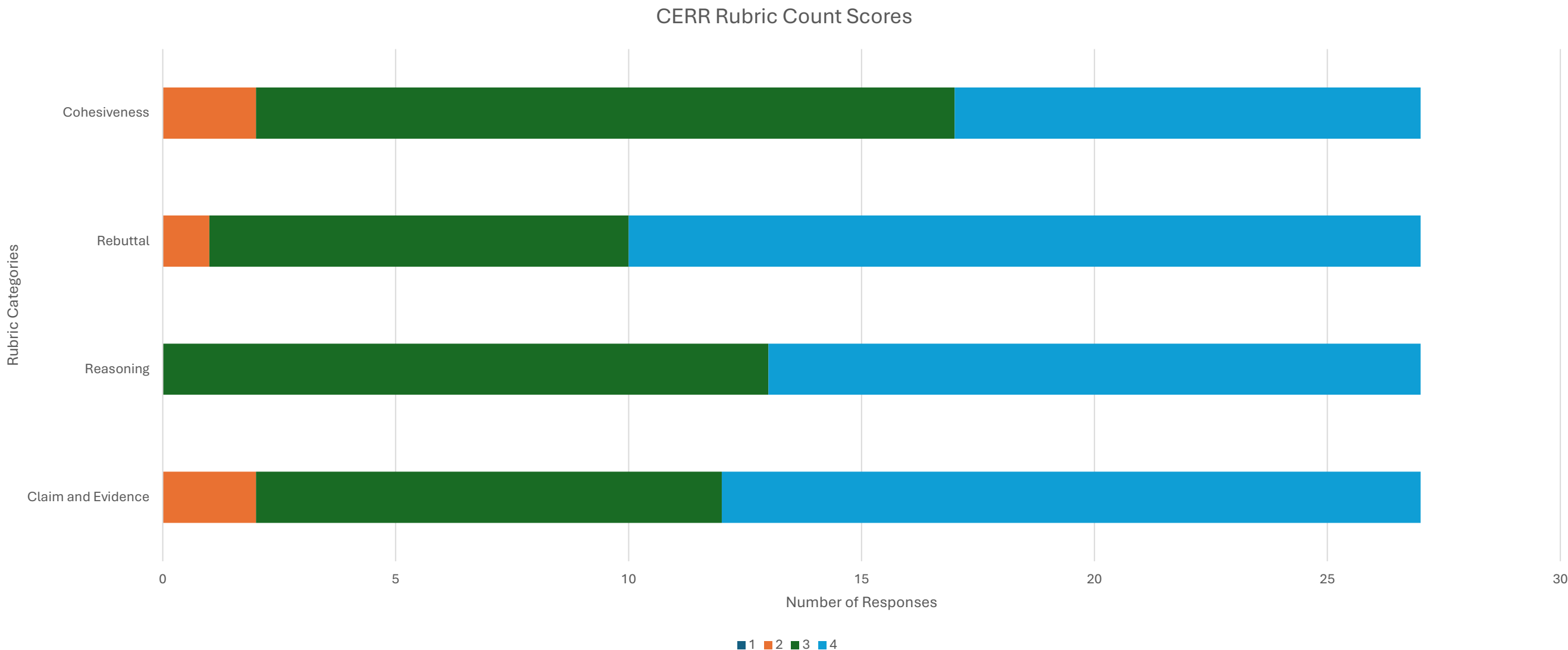
The data show students’ favorite part of CERR

- 45% of students stated that organizing and researching was their favorite part of CERR
- 27% of students listed rebuttal as their favorite part of CERR



The data show CERR Rubric Scores on a scale of 1-4 that were observed during presentations

- 26 of 27 students scored a 3 or 4 on the rebuttal portion of the rubric
- 17 students scored full points on the rebuttal portion of their presentation



- Evidence supports that rebuttal helps students learn applicable skills
- Positive feeling from students that engaged in CERR
- An increase in students that generally like science content and feel that they were better at understanding science content as a result