The Impact of the 5E Instructional Method on Students Abilities to Make Real-World Connections in Science

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Background

- Study was conducted in two general high school biology classrooms (*N*=23) over the course of two units, photosynthesis & cellular respiration.
- The 5E instructional method is a strategy used to introduce higher level thinking in the science classroom that focuses on developing skills versus rote content knowledge.
- Students who enter the workforce after high school need to develop skills in ways that are applicable to the real world.

Research Question

How does the use of the 5E method impact students' skills in making connections between in-class content and the world around them?

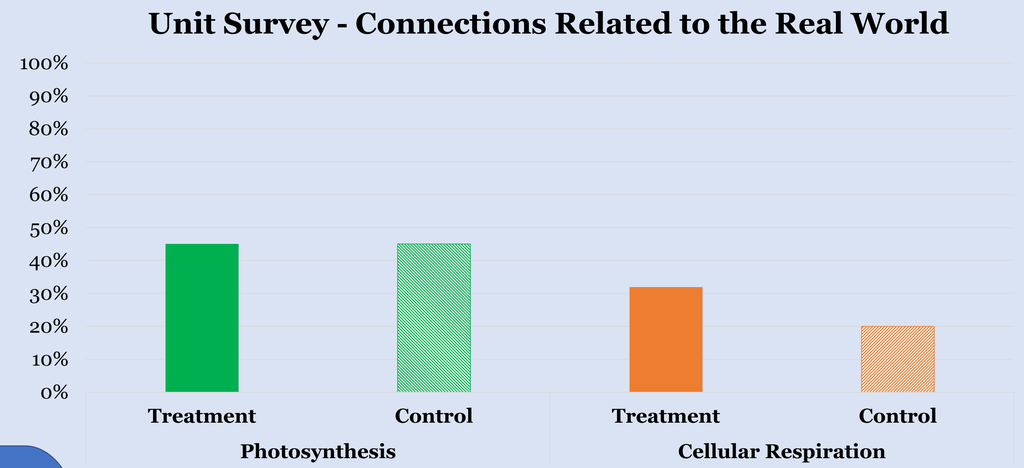
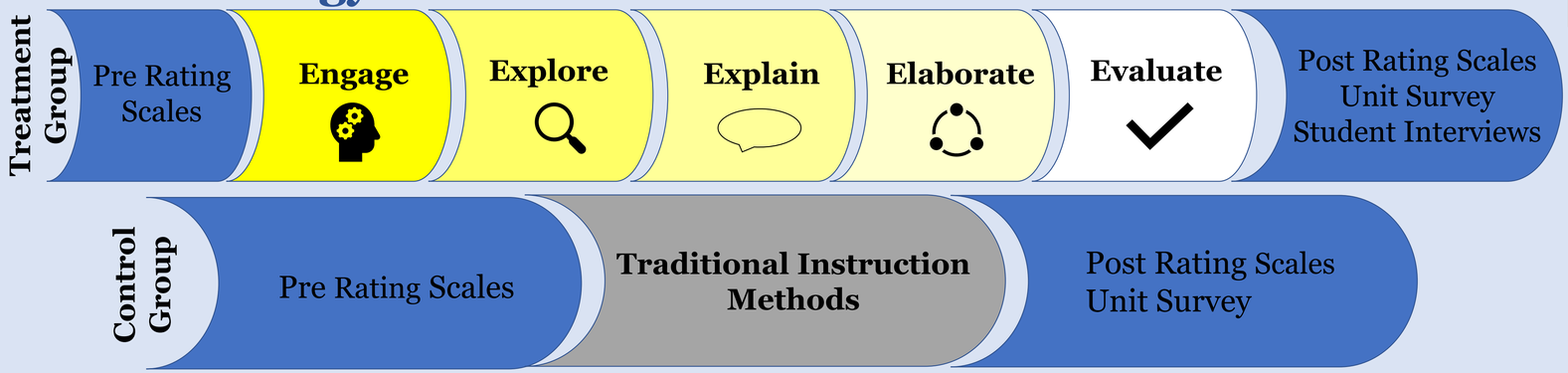


Figure 1. Bar graph showing the results of Unit Survey questions asking students to relate what they learned in class to the world around them, (*N*=23) .

Methodology & Treatment



Student Responses

"When we did the [photosynthesis] lab and test if leaves would float up with less baking soda, more baking soda, or no baking soda. It's like if you went to a river or pond and tested those different waters"

"The hummingbirds made me realize that animals do cellular respiration like we do"

Major Takeaways & Conclusions

1. Students enjoy the hands-on aspect of the 5E instructional method and using real-world examples to view phenomena.
2. Confidence in making connections between the classroom and the world around them increased more with the 5E instructional method versus traditional instructional methods.
3. The 5E treatment had an observable impact but did not make a significant difference in student's abilities to make real-world connections.

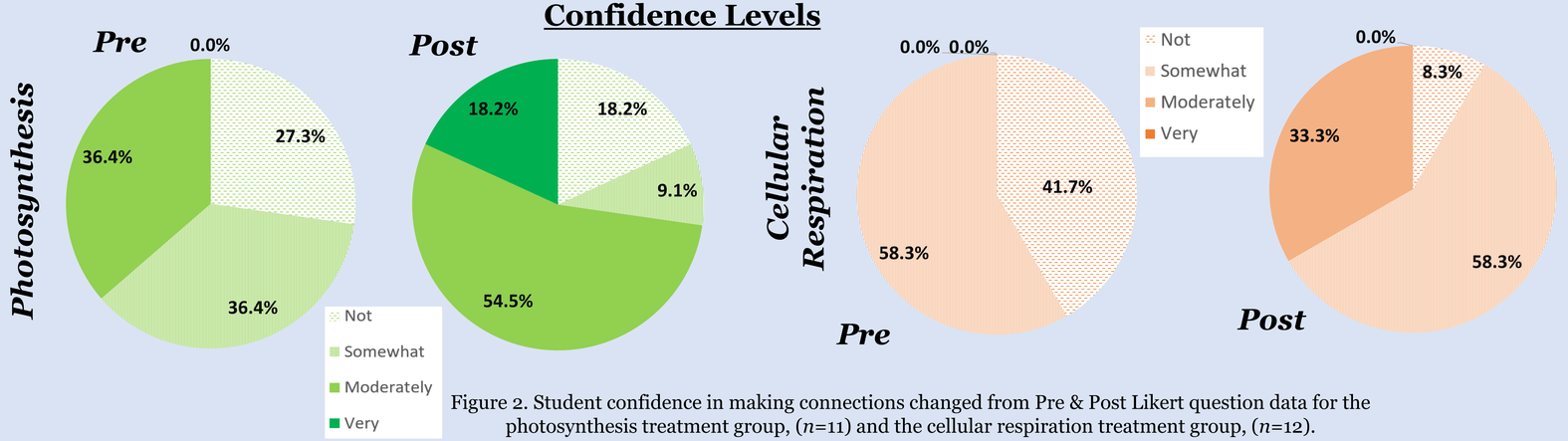


Figure 2. Student confidence in making connections changed from Pre & Post Likert question data for the photosynthesis treatment group, (*n*=11) and the cellular respiration treatment group, (*n*=12).