

Introduction

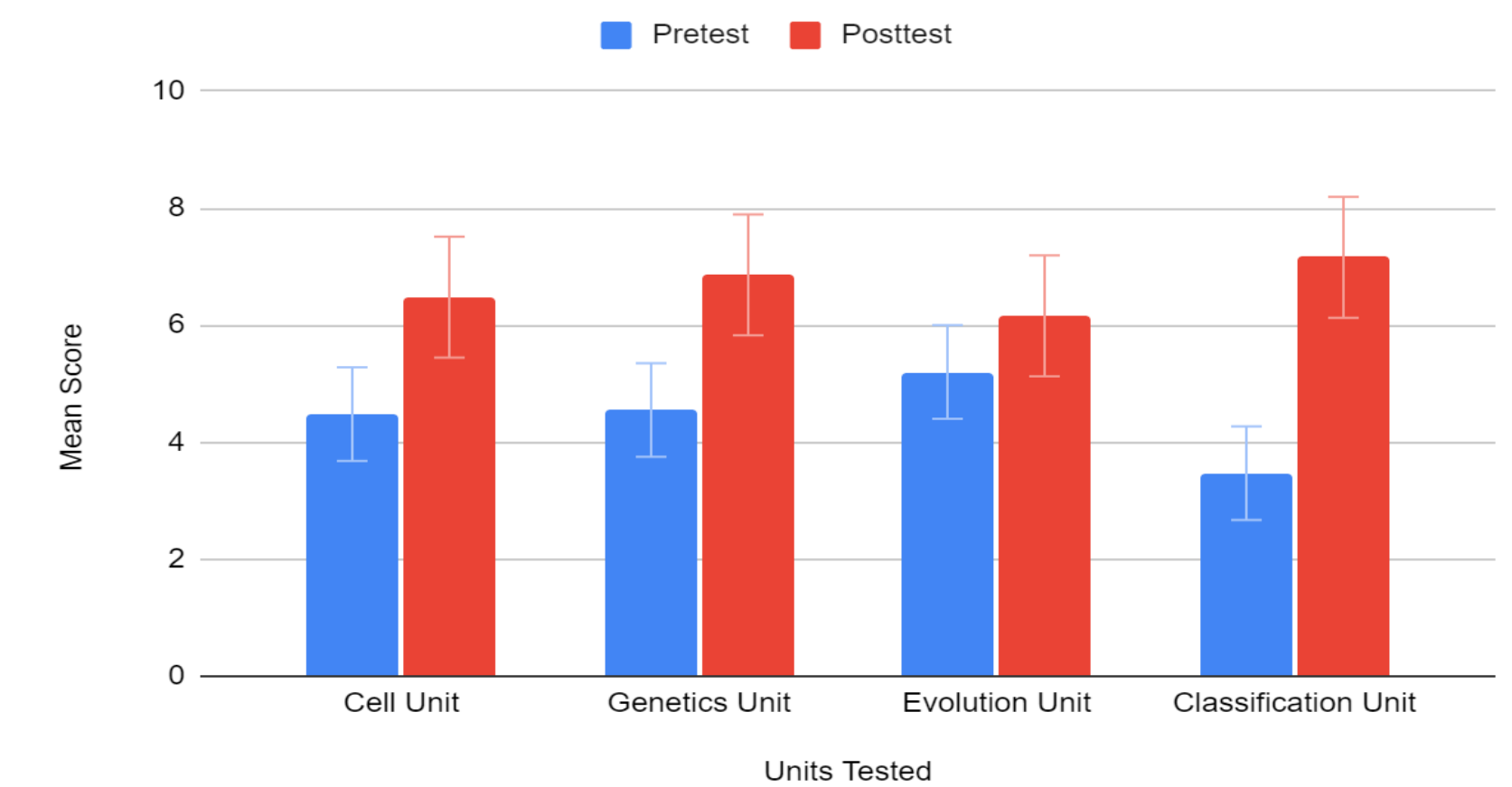
Cross curricular collaboration between content areas has been seen to be effective for not only increasing interest in multiple subject areas but can increase student's content knowledge as well as retention of content. With this in mind, seventh graders from Saratoga Middle High School in Saratoga, Wyoming participated in a cross curricular collaboration that involved reading a science fiction novel in their English Language Arts class while learning the science behind the novel in their life science class. The novel chosen was Maximum Ride by James Patterson. This book is about kids that were genetically modified to have both human and animal genes and their adaptations due to this. The purpose of this treatment was to see if when students read the novel, they understood the science concepts behind the novel better and retain the information more than when they were not reading a novel as well.

Treatment

Students will be reading the novel Maximum Ride by James Patterson. Data will be collected in the following ways:

- Pre and Posttests
- Student Surveys
- Cumulative Final Exam
- Observational Studies
- Classroom Assessment Techniques (CATs)
 - Minute Papers
 - Categorizing Grid
 - Pros and Cons Grid

Figure 3. Graph showing the gains between the pre and posttests for each unit.



Research Questions

1. Does the collaboration between English and science improve learning of science content?
2. Does the teaching of science content in conjunction with science content lead to better retention of science content?

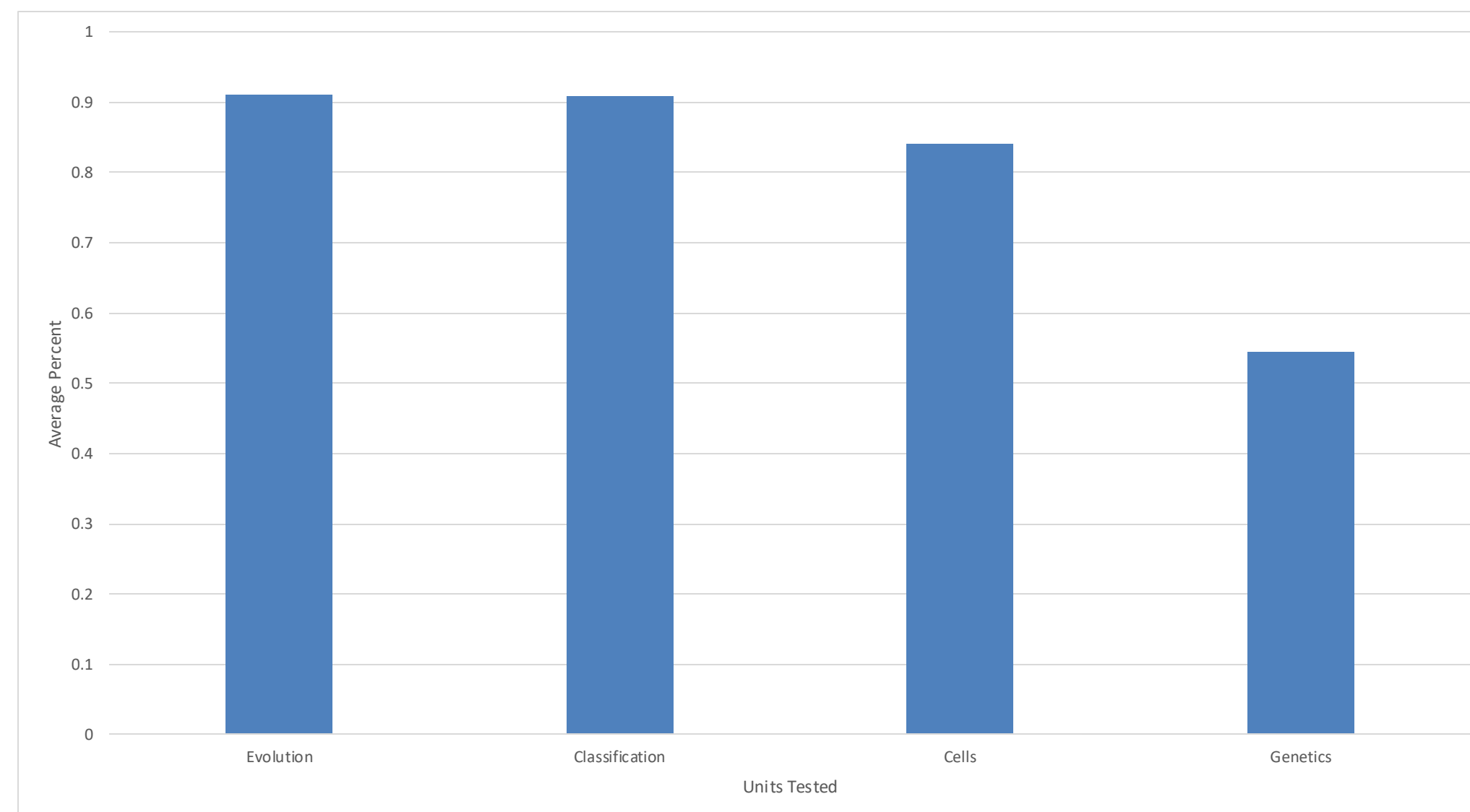
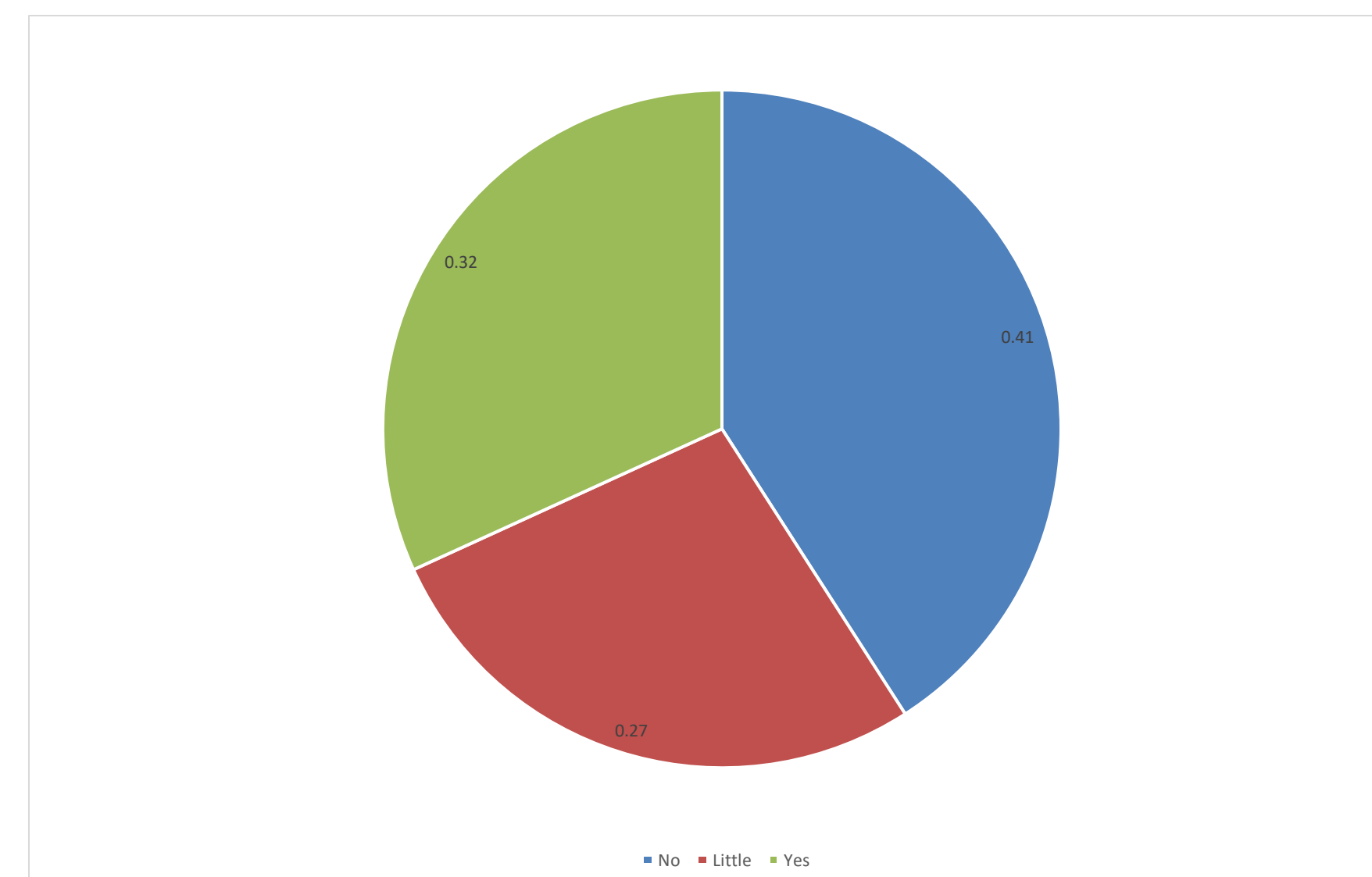


Figure 1. Graph showing percentages of information retained in each unit.

Student Quotes

These quotes were in response to the question on the student survey "Do you think that reading Maximum Ride by James Patterson helped you to learn science content like genetic engineering and evolution better? Why or why not?" Some of the quotes included: "yes, it made us ask more question", "this is not meant to sound rude, but yes the novel was literally about genetic engineering.", and "Yes, because it told us about what happens when two genes mix, but no because it didn't really explain it to us"(referring to the process of genetic engineering".

Figure 2. Graph that shows percentages of student's opinions towards their learning genetic engineering from the novel Maximum Ride.



Analysis

- The units with the highest normalized gains were the two nontreatment units: cells and classification.
- The units that showed the most retention on the final exam were evolution (treatment unit) and classification (nontreatment unit)
- Through observational studies, the majority of the students were engaged and motivated to do the project on genetic engineering that was tied to the novel.
- The level of understanding of the material during the project was also observed to be high amongst the students.
- According to the student survey, 60% of the students felt that reading the novel Maximum Ride by James Patterson did help them to have a better understanding of genetic engineering.
- The biggest complaint among the students according to the student survey was that the novel did not explain the process of how the mixing of two different species was being accomplished.

Conclusions

- Based on quantitative data, the data is inconclusive
 - No pattern of higher retention for the treatment and nontreatment units
 - Normalized gains were higher in nontreatment units but only by a slight margin
 - Retention of information found on final exam had a treatment and nontreatment unit scoring the same percentage.
- Based on the qualitative data, the majority of students did feel that the novel helped them to learn the material better.
- Teacher observations found that student engagement and understanding was slightly higher than normal with the treatment units.
- This study would benefit from being ran a few more years to gather more data to see if there is better retention and understanding of science content.

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