

Comparing a Virtual Field Trip to a Traditional Field Trip

Turning The Schist Show Into Something Gneiss

By Tess Ritcey

Abstract

Students at the undergraduate level have stated that field trips are enjoyable and worthwhile, because they are able to apply what they learned in the classroom to a real world example. However, traditional field trips are not always a realistic option, because of all the constraints that come with an in person field trip. It has been shown that online field trips can provide students with the same opportunities that traditional field trips do, without all the limitations. For my study, I looked at the factors that impact students learning and enjoyment, in a traditional field trip compared to a virtual field trip. To conduct my research, I created an in person and virtual field trip experience for students to Point Defiance Park. After completing the field trip, students filled out a survey that I created. Results showed that there are positive and negative factors that influence students learning and enjoyment, on both the traditional and virtual field trips. My main conclusion was that traditional field trips provide hands on experience, so they are still beneficial, however virtual field trips are a great alternative for students and classes that are unable to get out into the field.

Research Question

What factors contribute to a student's learning and enjoyment in a traditional in person field trip compared to a virtual field trip in Geosciences undergraduate education?

Background

- Students in undergraduate introductory Geosciences classes have stated that some of these classes are taught very traditionally, and they are not that applicable to their life (Orion, 2019).
- It is important for educators to make their curriculum current and add in components that are engaging and useful. Field trips are a great way to get students interested in studying and enjoying Earth Science.
- Online field trips are a great way for students to have a field experience, without all the other factors that come with a traditional field trip. With the use of immersive technology, field trip quality and accessibility can improve (Klippel et al. 2019).
- Virtual field trips are usually more equitable because they don't require a physical component that some students may not be able to do. Also, they don't cost as much and students can usually do them on their own time so it won't interfere with people's work or class schedule.
- Research has shown that a student's enjoyment is correlated with a student's learning, and it has been concluded that enjoyment and fun help with the absorption of learning (Lucardie, 2014).
- It has been shown that there is a strong correlation between enjoyment and high achievement in science (Ainley, 2011).

Motivation

This study will allow the PLU Geosciences department to see if virtual field trips can provide students with the same level of enjoyment and learning, which will hopefully allow the opportunity to engage more students in learning about Earth Science.

Study Area

The location of the traditional and virtual field trip was Point Defiance Park!

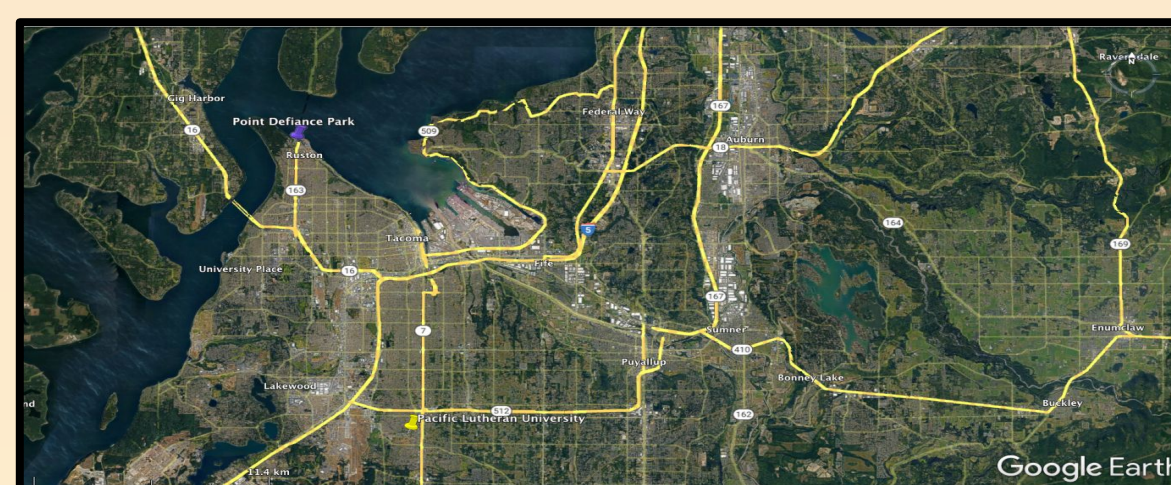


Figure 1 (top left): A map that shows the location of Point Defiance Park in comparison to Pacific Lutheran University.

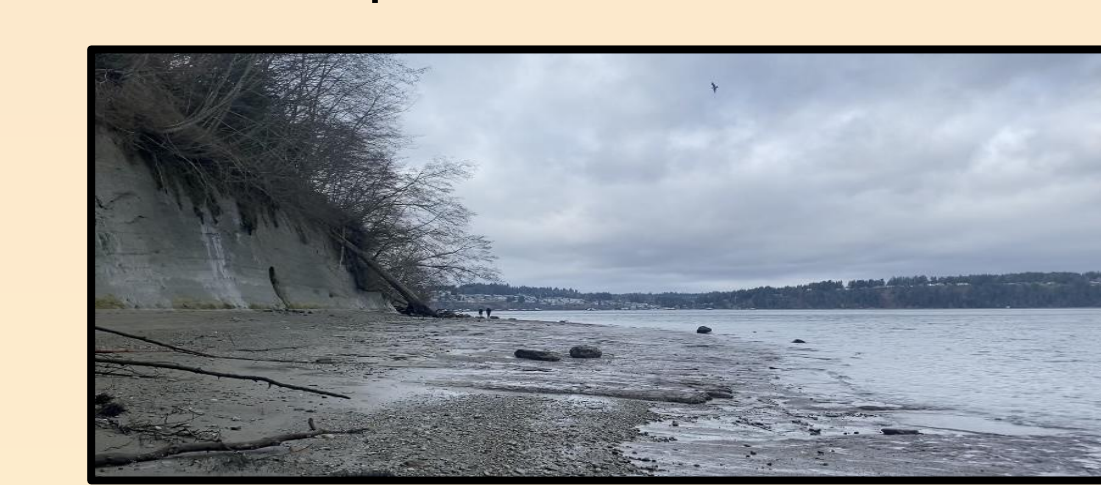


Figure 2 (top right): The beach at Point Defiance Park. This is the main location where the field trips were conducted.

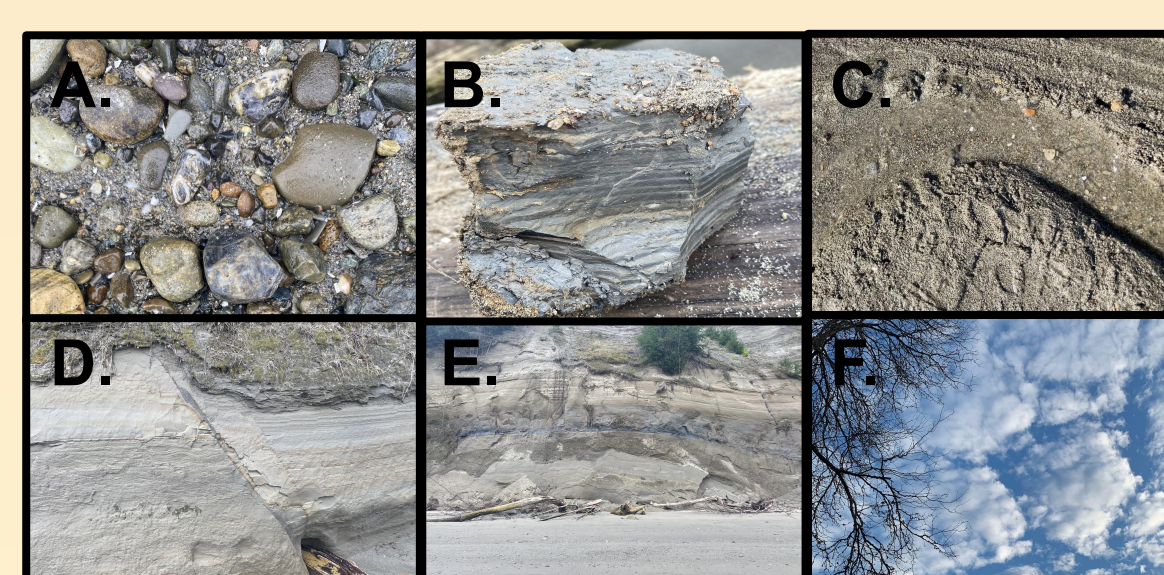


Figure 3 (bottom right): The six pictures show the six geologic concepts students either looked at while at Point Defiance, or looked at while doing the virtual field trip assignment. The six concepts were rocks (A), a rock chunk (B), a stream channel (C), a fault (D), a bluff (E), and clouds (F)!

Methods

Students in Geosciences 103 and 201 at Pacific Lutheran University could pick between a...

Traditional Field Trip



Figure 4: The traditional field trip group!

OR

Assignment

I created and ran two parallel field trips! A scavenger hunt style in person field trip (figure 4), completed hard copy. Also, a virtual field trip assignment, completed on google slides (figure 5). Students were prompted to find and observe six geologic concepts at different locations.

Observation

Students on both field trips made observations about what they saw. Students here were making observations about the rock chunk (figure 6 and 7)!



Figure 6: Students observing the rock chunk.

Questions

Students then answered discussion questions which were the same on both field trips. We discussed them as a group on the traditional field trip (figure 8), while the virtual field trip it was completely independent. Shown here were the rock chunk questions (figure 9)!



Figure 8: Students and I discussing their answers to the discussion questions.

Survey

Students on both field trips then completed the same survey that I created (figure 10). I analyzed my data by graphing the quantitative results I received, from the student's ranking their learning, enjoyment, and overall experience from 1 - 5, 1 being the lowest and 5 being the highest. I also quoted some of the answers I received from the qualitative questions to support my conclusion.

Figure 10: The Google Form survey all students filled out after going on their field trip of chose.

Virtual Field Trip

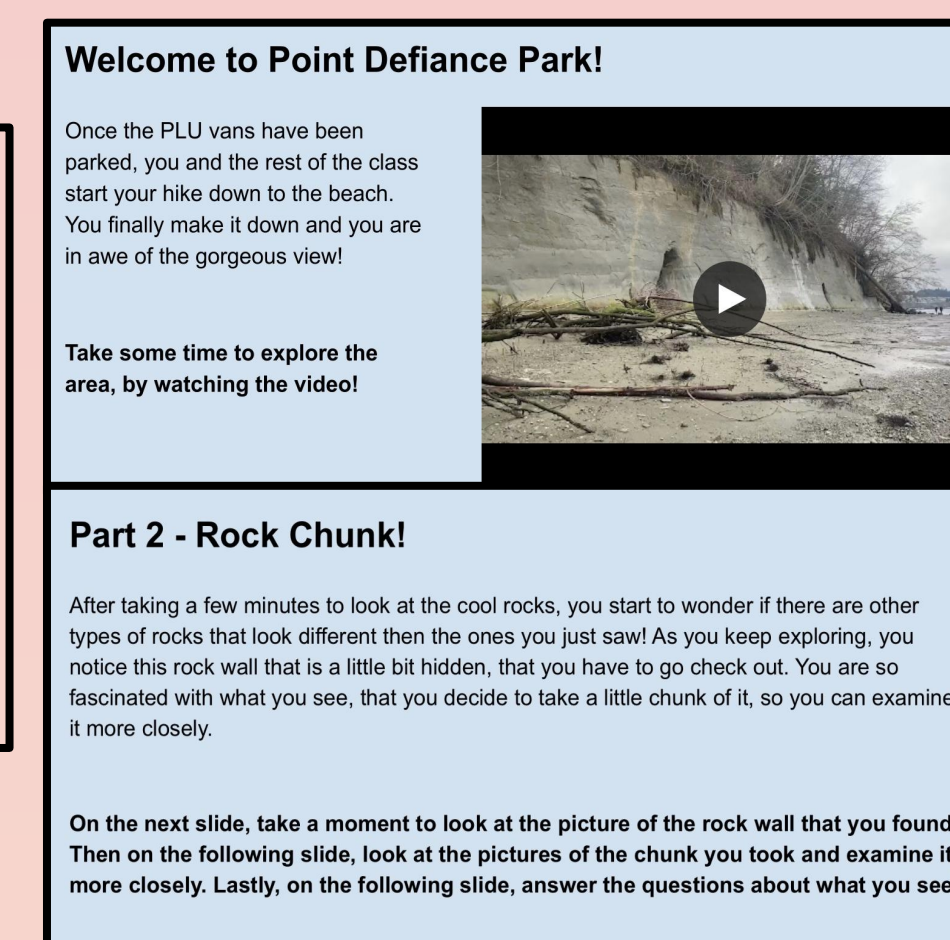


Figure 5: The welcome to Point Defiance slide and the rock chunk scenario slide on the virtual field trip.

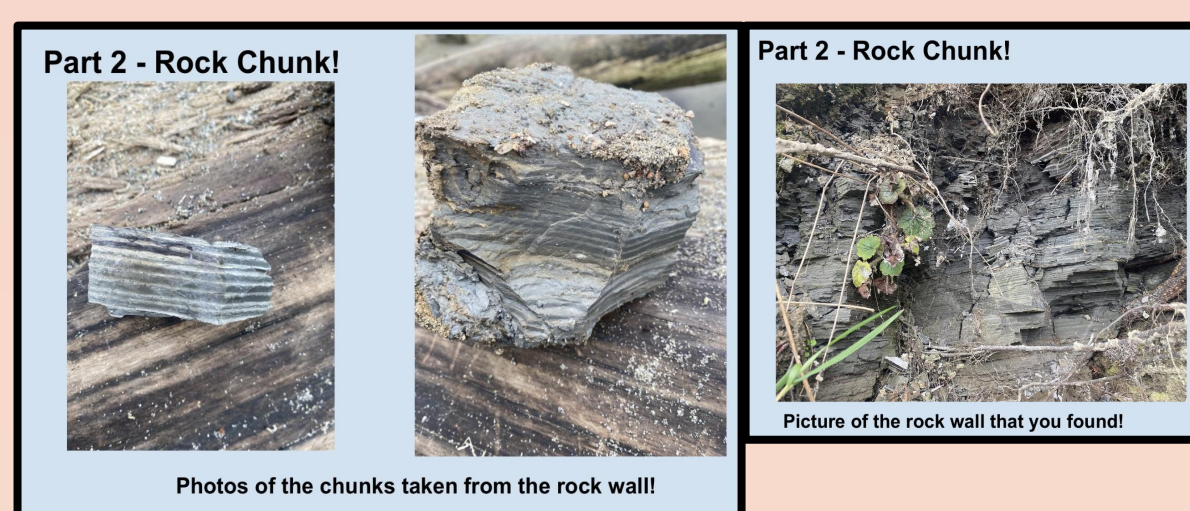


Figure 7: The pictures students observed of the rock chunk on the virtual field trip.

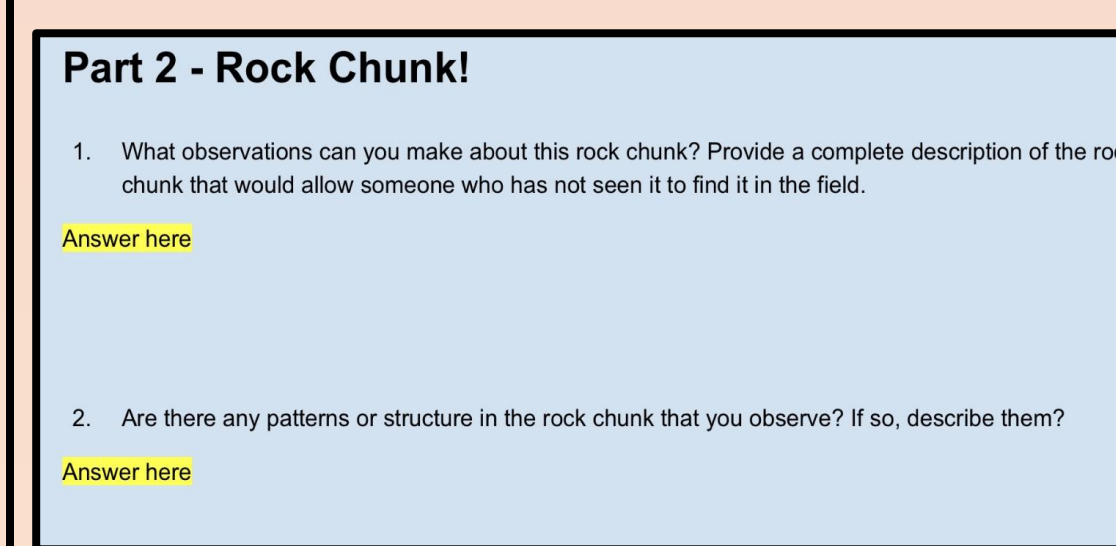


Figure 9: The discussion questions students answered about the rock chunk on both field trips.

Results

Sample Size = 16 Students

Virtual Field Trip

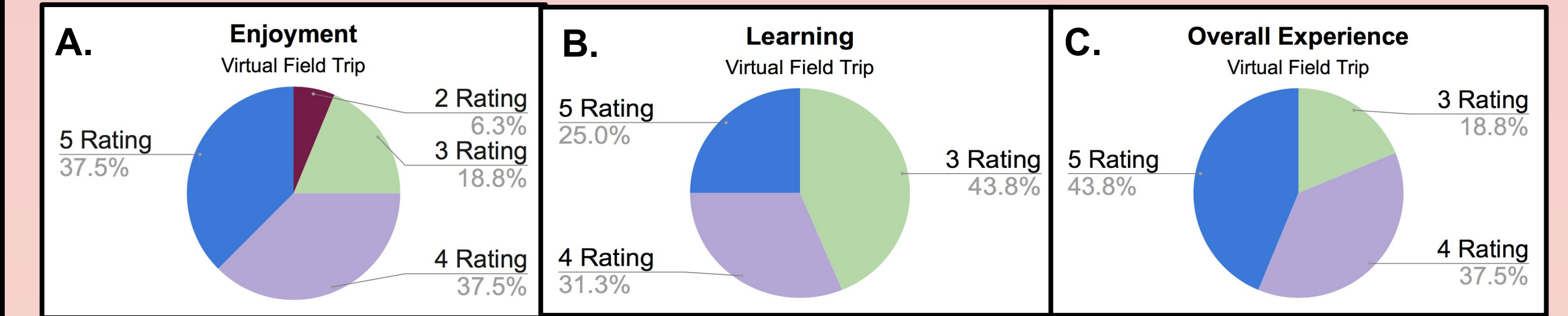


Figure 12: Student's ranking of their enjoyment (A), learning (B), and overall experience (C) on the virtual field trip.

Student Responses

- "The videos were fun, the atmosphere and tone of the slides was fun and bubbly, it just felt very inviting".
- "It was informational and very user friendly! I enjoyed completing it on my own time".
- "I would try to create a 3d simulation of the bluff to enhance the experience".
- "Maybe bring in the rock samples pictured in the virtual one into class for students to see in person".

Discussion and Conclusion

- Similarities between the two field trips were that students enjoyed seeing the geological concepts in a real life setting and the assignments were fun and easy to follow.
- The differences were that on the traditional field trips students could ask me questions and they got to interact with their peers. On the virtual field trip, students could complete the assignment on their own time, and they did not experience negative weather and physical demands which was a negative factor for some students on the traditional field trip.
- Virtual field trips at Pacific Lutheran University in the Geosciences Department, can provide students with the same level of enjoyment and learning, as traditional field trips do. Virtual field trips are especially good options for classes and students that may not be able to get out into the field, which matches the conclusion (Klippel et al. 2019) made.
- Traditional field trips do provide students with hands on learning experiences, that virtual field trips will never provide. If possible it is still important that PLU Geosciences classes still gives the option for students to go on in person field trips, which connects back to (Orion, 2019) that states educators should keep their curriculum current and applicable to student's lives.
- Results showed that enjoyment and learning are linked, which was what (Lucardie, 2014) and (Ainley, 2011) concluded. This means that field trips in the future should be fun for students, so they will want to be engaged in the discussion, so they can fully learn the material.
- The sample size was larger for the virtual field trip, and the students who chose to attend the traditional field trip on their Saturday, usually were students more interested in Geology, making it not a fully fair comparison. Next time I would get all students to complete both the traditional field trip and the virtual field trip, to have a more accurate comparison. This way both groups would have the same sample size and participants, and they would have something to compare it to when completing their rankings.

References

Dorothy Lucardie, The Impact of Fun and Enjoyment on Adult's Learning, *Procedia - Social and Behavioral Sciences*, Volume 142, 2014, Pages 439-446, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2014.07.696>. (<https://www.sciencedirect.com/science/article/pii/S1877042814046242>)

Klippel A, Zhao J, Jackson KL, et al. Transforming Earth Science Education Through Immersive Experiences: Delivering on a Long Held Promise. *Journal of Educational Computing Research*. 2019;57(7):1745-1771. doi:10.1177/0735633119854025

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Results

Sample Size = 10 Students

Traditional Field Trip

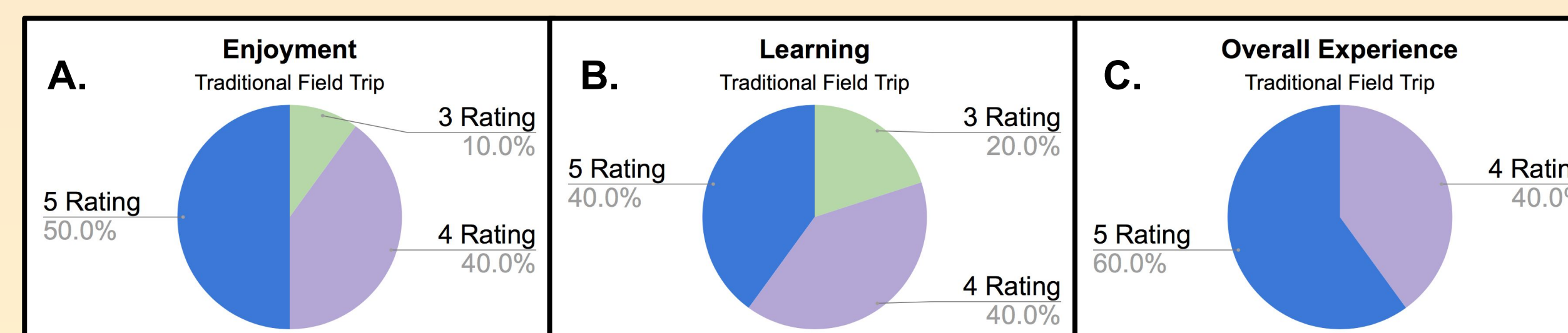


Figure 11: Student's ranking of their enjoyment (A), learning (B), and overall experience (C) on the traditional field trip.

Student Responses

- "It was nice to see geologic concepts in person and experience it with my classmates".
- "I thought the leader was really approachable with question".
- "I would tell students to wear warm layers because the weather was frigid".
- "Maybe some time to eat lunch".