



2022-3

## In-Class Evolution Discussions Change Bible Interpretation

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Abele, Jessica, "In-Class Evolution Discussions Change Bible Interpretation" (2022). *Library/Life Sciences Undergraduate Poster Competition 2022*. 26.

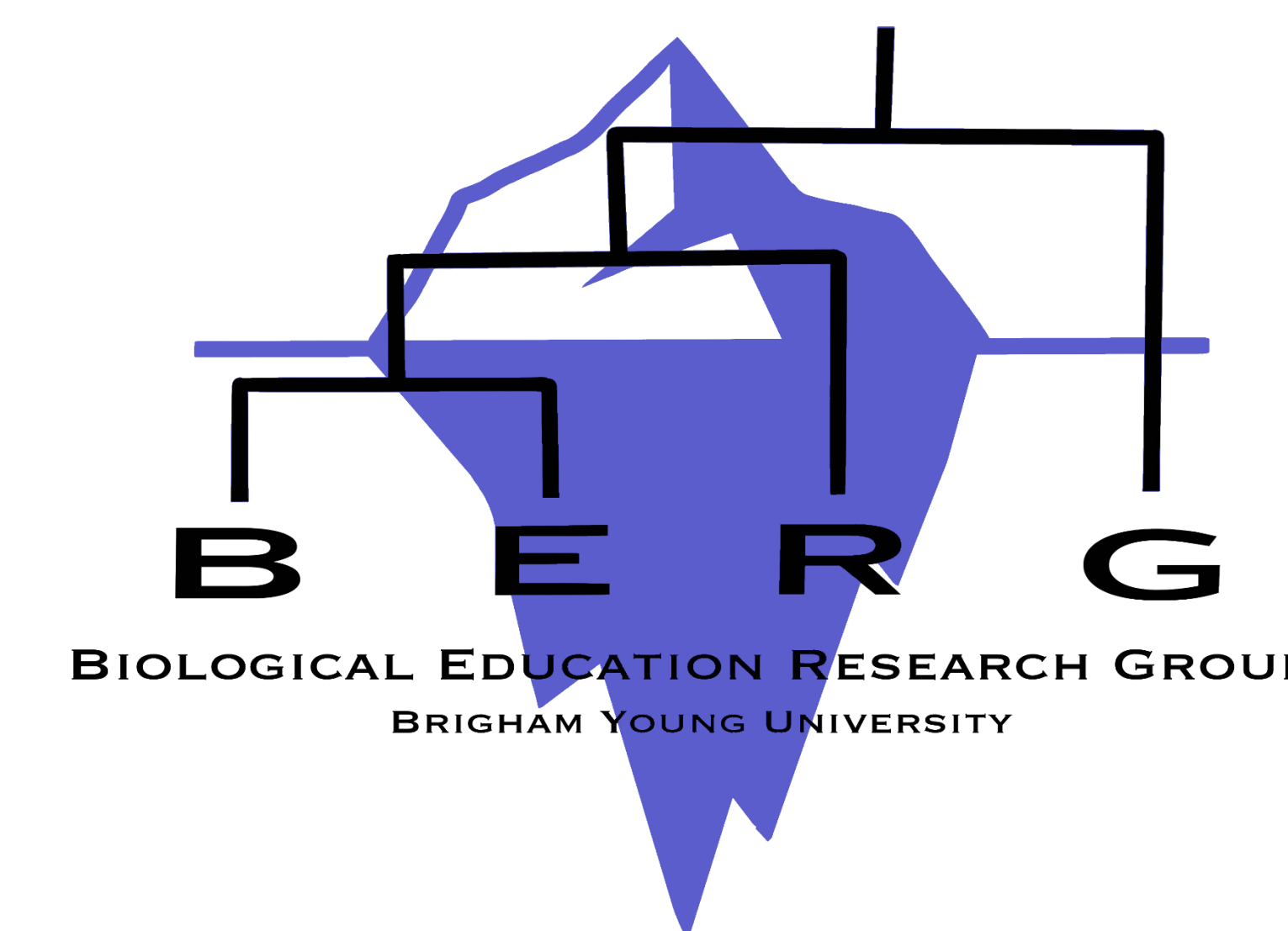
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# In-Class Evolution Discussions Change Bible Interpretation

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## Introduction

Conflict between religion and evolution is a major barrier for religious biology students. Educators have been working to increase evolution acceptance by using a variety of methods (e.g., increasing evolution knowledge, addressing creationism in class, etc.) with little success. However, recent research shows using a reconciliatory approach to evolution and religion increases evolution acceptance while overall religiosity is unaffected (Lindsay et al., 2019).

If the students' religiosity is not changing, what in their beliefs is changing that allows for reconciliation? One area of interest is the students' beliefs about the Bible.

We used survey data from students in an introductory biology course at a religious university to examine the relationship between evolution acceptance and a belief in Bible literalism.

## Methods

- Survey data was collected from 184 students in an entry level biology course.
- Surveys were administered before and after evolution reconciliation was discussed in their classes.
- The surveys gauged student religiosity and evolution acceptance.
- Included in the religiosity survey were questions asking for the student's opinion about how the Bible should be interpreted.
- Students' pre-discussion evolution acceptance scores were paired with pre-discussion Bible interpretation scores.
- Students' post-discussion evolution acceptance scores were paired with post-discussion Bible interpretation scores.

### References

Lindsay, J., Arok, A., Bybee, S. M., Cho, W., Cordero, A. M., Ferguson, D. G., . . . Jensen, J. L. (2019). Using a reconciliation module leads to large gains in evolution acceptance. *CBE—Life Sciences Education*, 18(4), ar58. <https://doi.org/10.1187/cbe.19-04-0080>

## Results

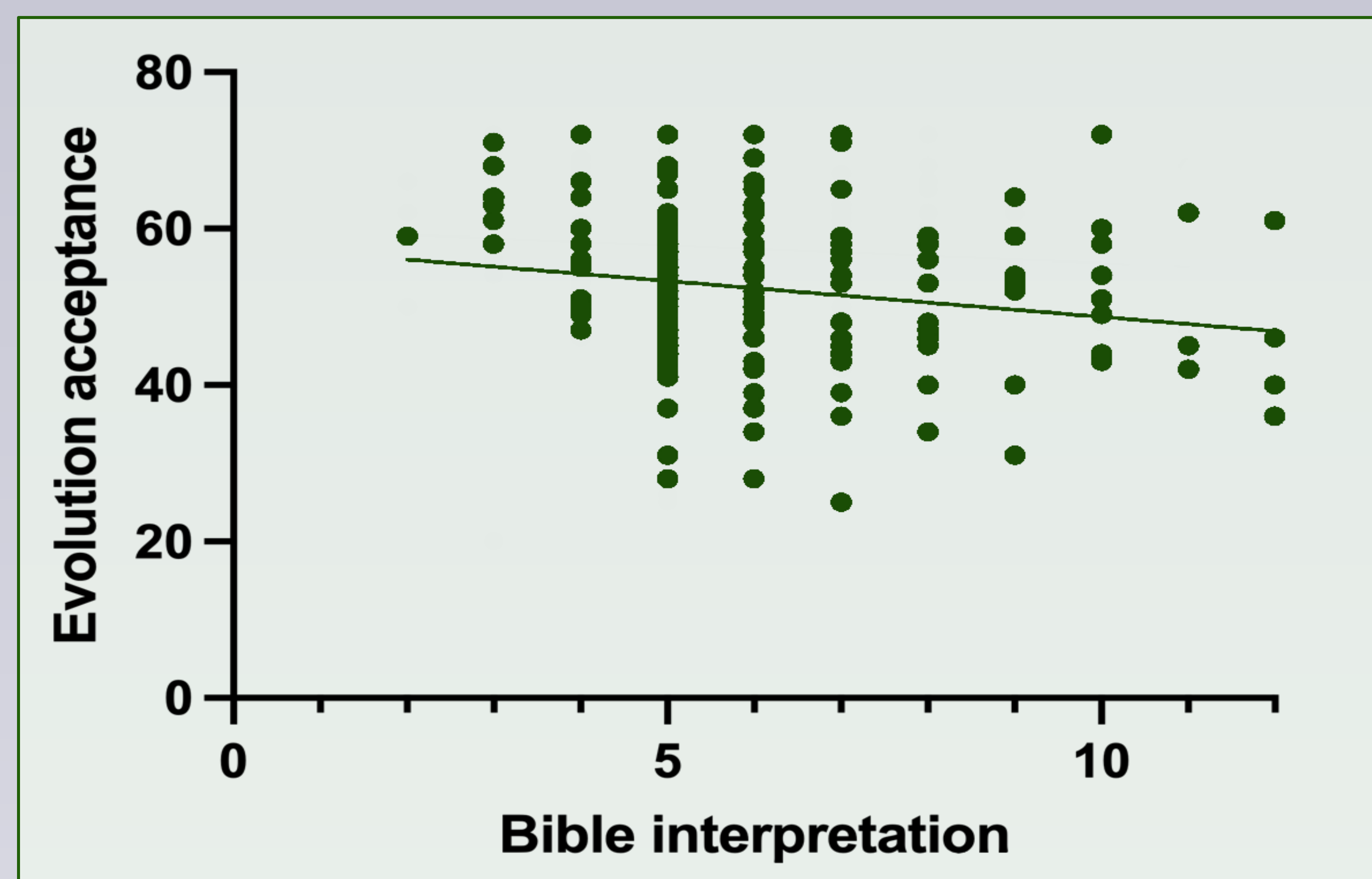


Figure 1. (Top) Pre-survey data. Significant correlation  $p < 0.001$ .

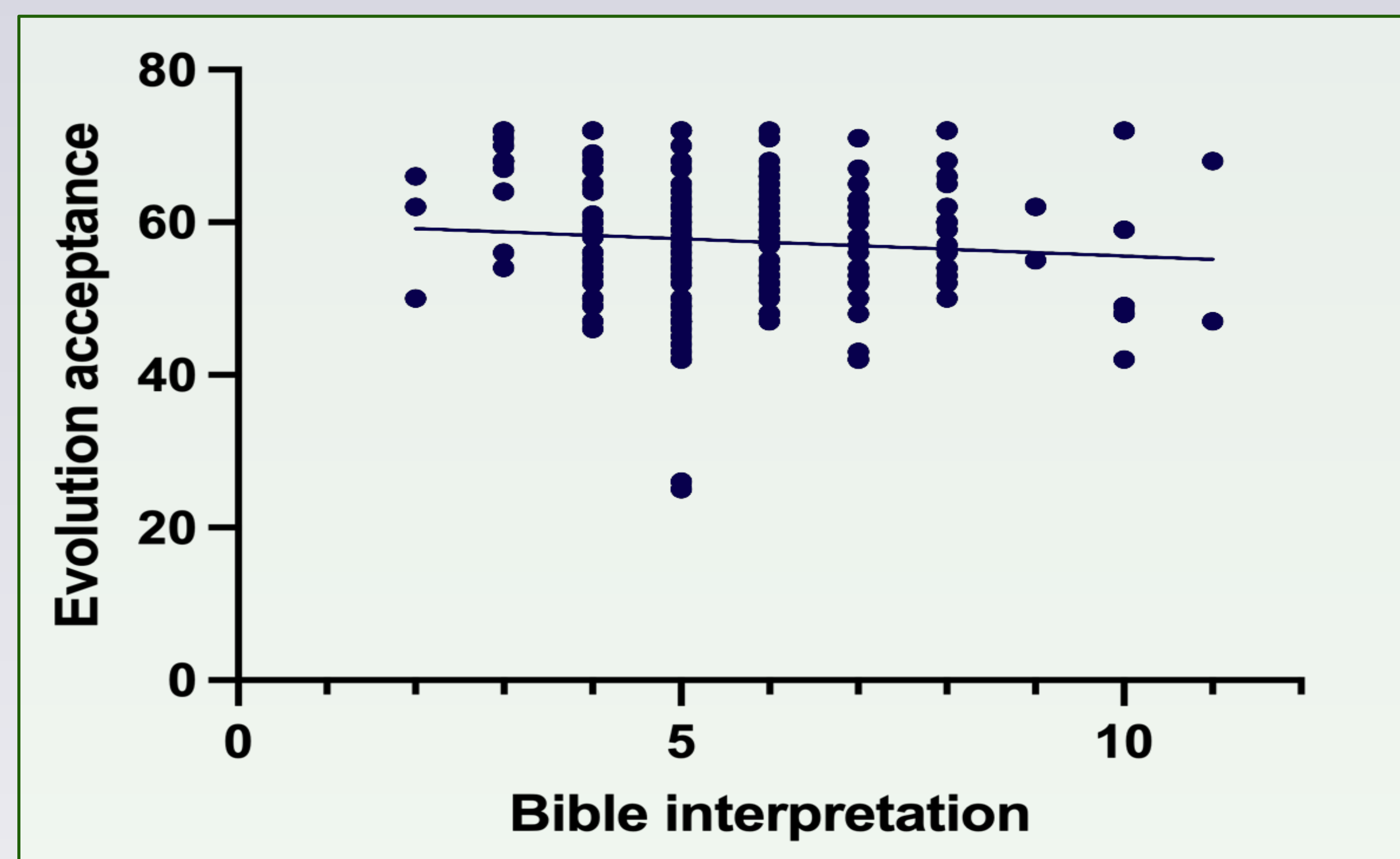


Figure 2. (Bottom) Post-survey data. No significant correlation.

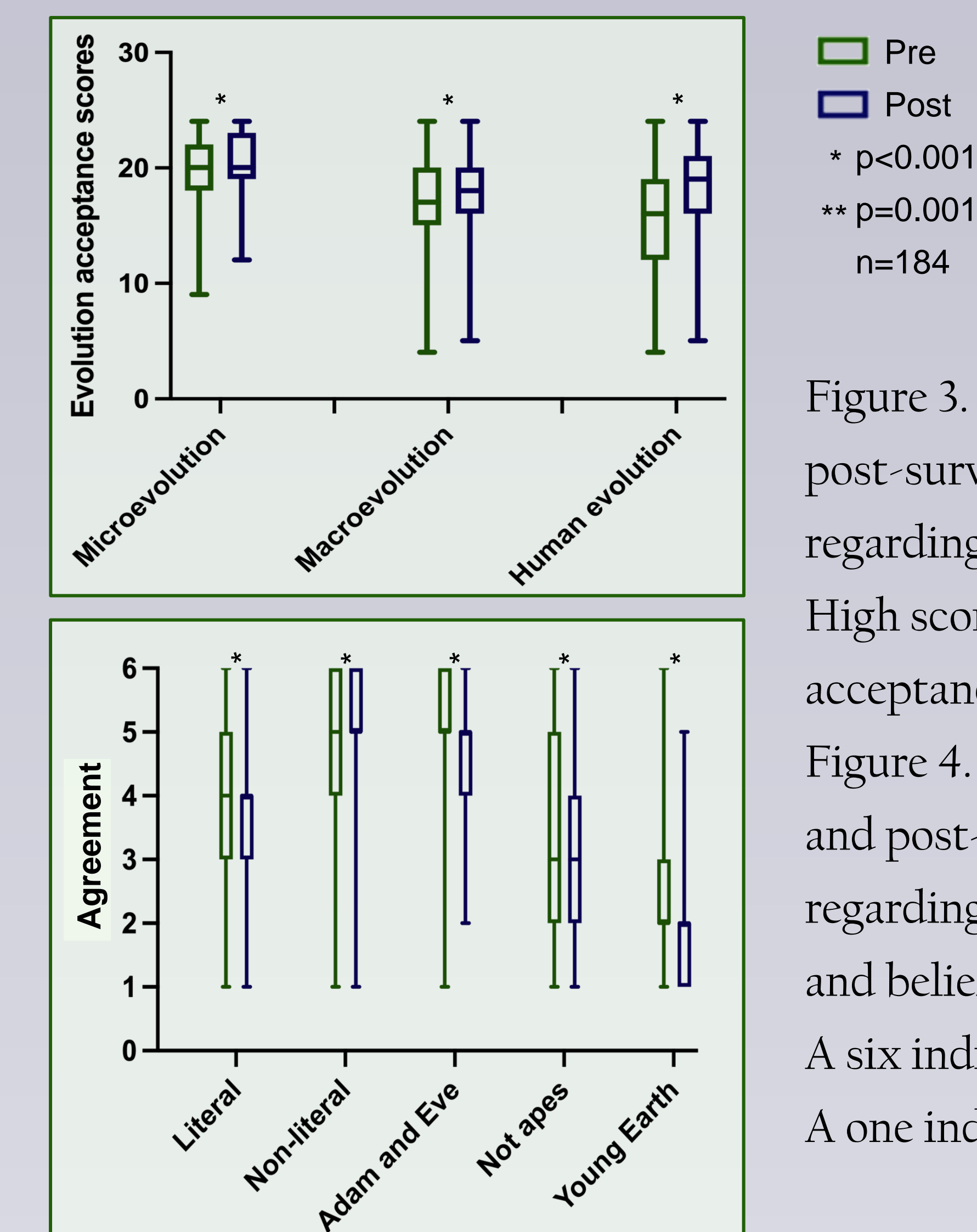


Figure 3. (Top) Pre-survey and post-survey responses regarding types of evolution. High scores indicate greater acceptance.

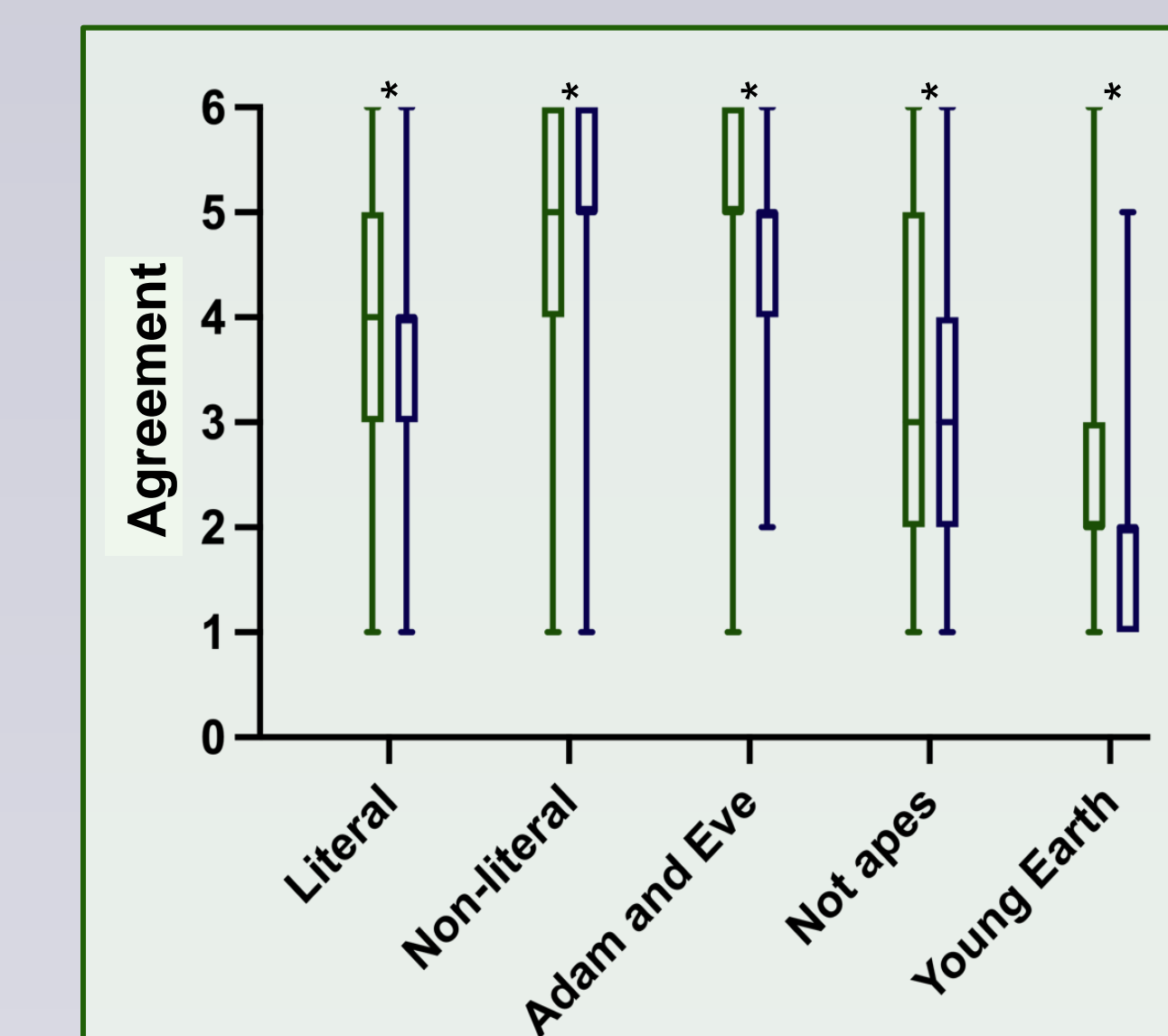


Figure 4. (Bottom) Pre-survey and post-survey responses regarding Bible interpretation and beliefs. A six indicates high agreement. A one indicates low agreement

## Conclusion

Prior to the in-class discussion of evolution:

- Biblical interpretation is a predictor of evolution acceptance.

After the in-class discussion of evolution:

- Students are less likely to agree with statements that would indicate a literal interpretation of the Bible. For example:
  - Adam and Eve of Genesis are universal ancestors of the entire human race.
  - Humans never could have been related to apes.
  - The Earth is not old enough for evolution to have taken place.

These data show that students' interpretation of the Bible shifts to a more non-literal view after an evolution reconciliation discussion. It does not conflict with evidence that student religiosity stays the same because different methods of biblical interpretation are used by different religious groups.

A Bible interpretation score of 12 indicates the student believes the Bible should be taken literally. A score of 2 indicates that the Bible should be taken non-literally. A high evolution acceptance score indicates a student was more accepting of evolution. A student's evolution acceptance was paired with their interpretation of the Bible. There is a significant correlation between evolution acceptance in the pre-survey data, but not in the post-survey data.