Peer Review

Bianchi, Nicholas. 2025. “Mind the Gap: Investigating Cognitive Dissonance and Self-Esteem Correlations in Academia.” *Journal of High School Science* 9 (2): 304–24.

1.How do you know that - by the time the self esteem part of the questions came along - the participants had not already rationalized their performance on the test ? In other words, how do you know you are testing self-esteem prior to rationalization efforts? This is all the more relevant to the premise of your study because you state that “……consider an example. Suppose an individual values their academic ability but performs poorly on an exam, the resulting dissonance may lead to significant psychological discomfort. This discomfort then prompts efforts to either rationalize the poor performance or adjust their beliefs……”

2.you state “…….Students experiencing more cognitive dissonance report a more negative change in academic self-esteem……” does cognitive dissonance always mean actual score < student predicted score ? If yes, then fall in self esteem is logical. However, cognitive dissonance can also arise when actual score > predicted score. In this case, change in self esteem should be positive. Explain and discuss in the manuscript. I would mention and discuss “….underperformance-induced dissonance …..” before you state the hypothesis.

3.you state “…..underscoring that higher cognitive dissonance correlated with lower academic self-esteem…..” you will need to change this language throughout the manuscript to replace “…..academic self esteem…” with “……change in academic self esteem……” you are measuring the magnitude of the change in self esteem; not the self esteem. However, more below.

4.How do you know that the fall in self esteem is not dependent on the initial magnitude of self esteem? Please present a graph of self esteem before the test and the change in self esteem (before-after) after the test for these students. If they are directly or inversely proportional (i.e. self esteem before test is positively or negatively correlated with change of self esteem (before-after) test respectively, with a high enough correlation coefficient, then justify why and how you can attribute the change in self esteem to cognitive dissonance.

5.In Table 1, present the self esteem average and SD before the test as well as the self esteem average and SD after the test. Run a t-test on the two and provide evidence that the self esteem after the test is significantly lower ($p < 0.05$) then the self esteem before the test.

6.Provide a sample of all the test questions as well as the survey quesions as an appendix or in a supplementary file(s).

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1. How do you know that - by the time the self esteem part of the questions came along - the participants had not already rationalized their performance on the test ? In other words, how do you know you are testing self-esteem prior to rationalization efforts? This is all the more relevant to the premise of your study because you state that “……consider an example. Suppose an individual values their academic ability but performs poorly on an exam, the resulting dissonance may lead to significant psychological discomfort. This discomfort then prompts efforts to either rationalize the poor performance or adjust their beliefs……”

Response: To directly address concerns regarding the timing of self-esteem measurement relative to rationalization processes, two critical additions were made to the manuscript.

First, a final paragraph was incorporated into the *Cognitive Dissonance Measurement* subsection (*Section 3.3, Measurements*). This paragraph establishes the probabilistic reasoning underlying the study’s approach, emphasizing that cognitive dissonance research widely supports the notion that rationalization occurs predominantly through slower, reflective post-decision processes. While some studies (e.g., Jarcho et al.) suggest that rationalization mechanisms can emerge more rapidly, this effect is primarily observed in decision-making contexts where individuals must choose between competing options. In contrast, this study examines dissonance induced by discrepancies in academic

performance, a scenario that is less conducive to immediate rationalization. To ensure that observed self-esteem shifts reflect pre-rationalization effects, measurements were conducted immediately after participants received their expected and actual performance scores, prior to any substantial rationalization efforts.
Second, a direct clarification was integrated into the *Procedure* subsection (*Section 3.4, middle of second paragraph*), explicitly stating the sequencing of self-esteem measurement. The revised text highlights that participants completed the *Academic Self-Esteem Scale* immediately upon receiving their scores. This intentional timing ensured that self-esteem assessment occurred directly after exposure to the dissonance-inducing event, thereby minimizing the potential influence of rationalization on responses.

2. you state "…….Students experiencing more cognitive dissonance report a more negative change in academic self-esteem……" does cognitive dissonance always mean actual score < student predicted score ? If yes, then fall in self esteem is logical. However, cognitive dissonance can also arise when actual score > predicted score. In this case, change in self esteem should be positive. Explain and discuss in the manuscript. I would mention and discuss "….underperformance-induced dissonance ….." before you state the hypothesis.
Response: To address the reviewer's concern regarding the conceptualization of cognitive dissonance beyond underperformance-induced effects, significant revisions were made to ensure theoretical and methodological consistency throughout the manuscript.
First, the theoretical framework was refined to exclusively focus on Aronson's Self-Consistency Theory. Initial consideration of both Aronson's and Steele's models revealed a critical limitation: while Aronson's theory accommodates both positive and negative discrepancies—allowing for a more comprehensive examination of cognitive dissonance—Steele's Self-Affirmation Theory primarily considers positive discrepancies. This discrepancy in theoretical scope would have necessitated an inconsistent operational definition of cognitive dissonance across the study, which could undermine interpretative clarity. Therefore, to ensure a robust and unified approach, Self-Affirmation Theory was removed from *Section 2.2.1: Self-Esteem and Dissonance* in the literature review, as well as *Section 5.2: Implications of Findings*, and clarifications were made within *Section 2.2.2: Self-Consistency Theory* to explicitly acknowledge how the model integrates both positive and negative discrepancies. Additionally, to maintain conceptual coherence, definitions of these discrepancy types were incorporated into *Chapter 1: Introduction (Second Paragraph)* to reinforce clarity across the manuscript.
Second, while the study's fundamental hypothesis (*H1*) remains semantically unchanged in its core premise—that cognitive dissonance predicts shifts in academic self-esteem—the hypothesis statement was refined to explicitly reflect both positive and negative discrepancies. This adjustment enhances the interpretive scope of the study without altering the theoretical relationship originally examined.
Lastly, these revisions influenced the approach to hypothesis testing (*see Question 5*), ensuring that statistical analyses appropriately captured the directionality of self-esteem changes concerning both individual discrepancy types. Also, because the focus now reflects both positive and negative discrepancies, I modified the calculation of cognitive dissonance. It is now actual minus expected scores, as this provides a more intuitive depiction of the integer amounts (I.E., within the regression analysis, positive discrepancies are represented by positive integers on the x-axis, and vice versa). This does nothing to the significance of the results; it simply changes the sign on the slope and flips the regression line to be positive, though the interpretation remains the exact same.

3. you state "…..underscoring that higher cognitive dissonance correlated with lower academic self-esteem….." you will need to change this language throughout the manuscript to replace "…..academic

self esteem…" with "……change in academic self esteem……" you are measuring the magnitude of the change in self esteem; not the self esteem. However, more below.
Response: To align with the reviewer's observation regarding the accurate representation of self-esteem measurement, I made careful modifications throughout the manuscript to reflect that the study specifically measures **changes** in academic self-esteem rather than absolute self-esteem levels.
First, I refined terminology across all relevant sections to ensure clarity. Phrasing such as *"academic self-esteem shifts"* and *"changes in academic self-esteem"* was consistently incorporated to reinforce the study's focus on measuring variations rather than static self-esteem. Additionally, wherever references pertained explicitly to this study's methodology, I ensured clarification of the study's focus on *academic self-esteem* rather than global self-esteem.

4. To directly address the reviewer's inquiry regarding the potential dependence of academic self-esteem shifts on initial self-esteem levels, a dedicated section was incorporated into the *Chapter 4 - Results* section, titled *4.5. The Role of Initial Academic Self-Esteem in Academic Self-Esteem Shifts.* This section presents Figure 3, a graph that illustrates the relationship between initial academic self-esteem and subsequent changes in self-esteem following the cognitive dissonance-inducing event. Statistical analysis revealed no significant correlation between initial academic self-esteem and self-esteem shifts, with no p-value falling below 0.05. This finding substantiates the conclusion that changes in academic self-esteem did not systematically depend on baseline self-esteem levels.

5. In Table 1, present the self esteem average and SD before the test as well as the self esteem average and SD after the test. Run a t-test on the two and provide evidence that the self esteem after the test is significantly lower ($p < 0.05$) then the self esteem before the test.

Response: To reflect the revised focus on both positive and negative discrepancies, as discussed in the response to Question 2, paired t-tests were integrated into the study's analytical framework. These revisions were made across multiple sections to ensure consistency and transparency:

1. Section 3.5: Data Analysis – Expanded to explicitly outline the rationale for conducting separate paired t-tests, ensuring alignment with the study's refined approach.
2. Introduction Section 1.1: Study Overview (Second Paragraph) – Clarified to establish the methodological significance of examining both discrepancy types.

Purpose and Justification of Paired T-Tests: Two paired t-tests were conducted—one for positive discrepancies, predicting increasing academic self-esteem, and one for negative discrepancies, predicting decreasing academic self-esteem. This adjustment ensures the analysis directly reflects the conceptual framework refined in response to Question 2, addressing the reviewer's point that both types of discrepancies influence self-esteem shifts.
Paired t-tests were selected because they assess dependent measurements, allowing for a direct comparison of self-esteem within the same individuals over two time points—before and after exposure to the dissonance-inducing event. Given that the study examines within-subject changes rather than between-group differences, paired t-tests provide the most appropriate statistical approach for determining whether self-esteem changed significantly as a result of cognitive dissonance.
New Section 4.3: Paired T-Test (Chapter 4 - Results) An entire section—4.3 Paired T-Test—was added to systematically present the purpose, assumptions, and results of the paired t-tests. Additionally, this section establishes a logical progression to regression analysis, which follows next, as the individual relationships revealed through the paired t-tests necessitate further exploration of predictive relationships.

6. Provide a sample of all the test questions as well as the survey questions as an appendix or in a supplementary file(s).

Response: I included both (pre- and post-assessment) surveys as presented to the participants, as well as the assessment questions as supplementary files.
I look forward to your second review. Thank you for your patience!

Thank you for addressing my comments. I have some formatting and language concerns.
1.Use past perfect tense where-ever appropriate. Instead of stating "…The researcher did this…..", state that "… This was done…."
2.You will need to incorporate actual tables instead of drawing marker lines. All table content should be 10 font Times Roman.
3.Eliminate Table 7 and any other tables that have only one row.
4.References should be manually numbered. Do not use the software's option to number them.
5.Remove all indents and make all fonts 12 font Times Roman. Line spacing should be 1.15.

Past Perfect Tense Adjustments – Instances of *"The researcher did this…"* were revised to *"This was done…"* where appropriate (primarily in the methodology and results sections) to ensure consistency in academic tone.

3. Table Formatting – Marker lines were replaced with actual tables, ensuring all table content is presented in 10-point Times New Roman for uniformity.

4. Table Removal – Table 7 was eliminated to maintain relevance and avoid redundancy.

5. Reference Numbering – References were manually numbered, removing any automated numbering formats.

6. Font and Formatting Adjustments – All text was standardized to 12-point Times New Roman with 1.15 line spacing, and indentation was removed for a clean and consistent layout.

Thank you for addressing my comments. I have added a paragraph in section 5.2. Please make sure you agree with it. In addition, you cannot reference the same author and work in multiple numbered references, hence I have changed duplicate or triplicate references to the same work to other similar different references. Please make sure they align with your work.
Accept.