

Review of: "Assessing students' attitudes and perceptions towards statistical literacy in a university system in a developing African country"

Abdallah Al-Ani¹

¹ King Hussein Cancer Center

Potential competing interests: No potential competing interests to declare.

The authors of this paper discuss and explore an extremely important topic, that is, attitudes to statistical literacy, among higher education students.

Despite the importance of this paper, a number of issues arise and are of concern:

Introduction:

- 1- Authors should refrain from referring to data analysis as "data manipulation."
- 2- The authors claim that there is a "persistent general statistics anxiety" while only providing one reference to back their broad claim.
- 3- Authors indicate that attitudes to statistics influence statistical behavior. While this is true, at least from a personal perspective, the authors should strive to provide a theoretical framework that attempts to include all factors which may affect statistical behavior as derived from the literature.
- 4- "Research methods....are compulsory for all degree programmes" — please be specific. Do you mean undergraduate, postgraduate, or both?
- 5- You cannot claim that there is an on-going debate on the importance of statistical education among students while citing literature as old as 1995. Please use more recent references (if any exist).
- 6- "Chinhoyi University of Technology (the case study institution)" → what's in the brackets is redundant. It's already mentioned later within the aims at the final paragraph.
- 7- The authors mention high failure rates of the strategies promoting statistical knowledge. Please provide numbers, percentages to showcase such failure rate and help the reader visualize the extent of the problem at hand.
- 8- Please define your acronyms at the first instance of usage. For example, "Chinhoyi University of Technology (CUT)." You define CUT later in the methodology but use its acronym in the problem statement (aims) of the introduction.

Methods

My concern with the methods is that they are not well-organized, making it extremely hard to make sense of the results or replicate the study.

9- The study should explicitly indicate a “mixed methods” design.

10- Results concerning instructors and stakeholders are not found.

11- For the quantitative aspect of the study, the authors primarily use the SATS for their analysis. Since the SATS is already psychometrically validated, why did the authors employ some form of exploratory factor analysis on each and every single factor of SATS? Shouldn't you first report the response percentage to each item?

12- Since you conducted the factor analysis, shouldn't you provide the loadings of factors so that we can interpret the appropriateness of items comprising said factor?

13- Why did you create a regression model then keep it despite noting yourself that it is invalid?

14- What is the reference for the 0.70 - 0.75 cut-off point?

15- For the qualitative analysis, you do not report the results of such analysis in an appropriate way nor specify what kind of qualitative analysis you've done?

16- What was your sampling strategy, and how do you justify the under-representativeness of your sample size?

17- How can the authors change the wording of the questions without conducting an entire new exploratory factor analysis of the entire questionnaire? What justifies that?

Results

17- It's not necessary to write “chi test” next to every p-value of chi-square tests. Either remove it or report chi-square test results in APA format.

18- Please explain the levels of formal education in Zimbabwe, as the included levels might not make sense to all readers.

19- The manuscript does NOT follow the IMRAD format. Why is there no distinction between the results and discussion sections? It's easier for readers to internalize the results, then assess whatever you see as important throughout the discussion.

20- Please reference your tables in order. Don't reference table 2, then table 7, then back to table 3, then again to table 7.

21- How were the items in table 6 formulated (from a methodological perspective)?

