6/28/2018

Dear Matthew Koehler, Jennifer Schmidt, Lisa Linnenbrink-Garcia, and Christina Schwarz,

I am writing with a memorandum of understanding regarding the required revisions to my dissertation. I outline my understanding of the specific revisions that are required. Thank you very much for this very valuable feedback and the opportunity to strengthen this work.

Sincerely,

Joshua Rosenberg

**Introduction**

1. Improve the argument for the need for this particular study. Include this powerful rationale for the study in the abstract and literature review as well as throughout the manuscript (i.e., in the need for study section).

**Literature Review**

1. Clarify from what sources the five aspects of work with data came from.
2. Re-order research questions #2 and #3 on p. 17.
   1. I re-ordered the research questions.
3. When the programs are described on p. 18, refer the reader to the appendix.
   1. I added the following sentence: “Add a coding frame for the STEM-PQA with the names, possible values (i.e., present or not present), description, and an example.”

**Method**

1. Add a coding frame for the STEM-PQA with the names of the variables, possible values (i.e., present or not present), descriptions and examples.
2. Add a coding frame for the open-ended, qualitative coding with the themes, descriptions, and examples.
3. Clarify how the STEM-PQA aligns with the aspects of work with data.
4. Report the reliability of the pre-interest measure.

**Results**

1. Provide more information about work with data and why it may be engaging to youth (in the abstract; on p. 38 with respect to the use of statistical and mathematical models versus the development of these models; and on p. 48 with respect to data modeling)
2. In the descriptive analysis, include the correlations between the aspects of work with data and the individual variables used to create the profiles.
3. Include Table 7.3 in the document instead of in the Appendix, but modify it to include only the AIC, BIC, SABIC & entropy, cell sizes, and BLRT.
4. Regarding *how* the six-profile solution as selected, move some of the discussion from the appendix. (See Lisa’s published work for example; mention I did analysis of six versus seven profiles in-text.)
5. Provide a richer description of the six profiles. Use a MANOVA to determine which variables differ across the profiles (and for which profiles). Use subscripts in a table with the mean values to indicate which differ.
6. In the descriptions of the six profiles, report the percentage of responses in each profile. Related, state that entropies are high, so it is reasonable to extract the most likely profile membership.
7. Improve Table 4.5, so that the betas and standard errors are labelled for each model; format the column (presently too wide) for the Engaged and Competent but not Challenged profile.
8. Mention that any of the aspects of work with data versus none of the aspects of work with data and the interactive effects of youth characteristics and the aspects of work with data were examined but not found to be statistically significant (but do not include these in a table).
9. Add a table for the frequencies of the themes from the qualitative coding.

**Discussion**

1. Discuss more broadly what it means that this is happening in the context of a summer program, specifically in the limitations section.
2. Speculate about why some of the anticipated findings were not found, particularly by discussing reasons for why the activity does not matter very much: methodological, summer context, under-represented youth and equity issues, and work with data just is not very engaging.

**Throughout the Manuscript or Overall**

1. Be careful about language use when discussing profiles; change any instances of profile membership to probability of profile membership at a particular moment.
2. Use the past verb tense throughout the methods, results, and discussion section. Use the first-person verb conjugation in these sections.
3. Carefully copy edit the manuscript or have the manuscript copy-edited.
4. Acknowledge that this is a secondary analysis of existing data, citing the STEM-IE NSF grant number (1421198).
5. Include NSF blurb relating to their independence from the findings of this research as an author’s note (“This material is based upon work supported by the National Science Foundation under Grant No. 1421198). Any opinions, findings, conclusions, or recommendations expressed in this material are those of the authors and do not reflect the views of the National Science Foundation.”