Manuscript #2153, “Students’ Academic Motivations in Three Disciplines”

Revision

Reply to Reviewers

**Reviewer B**

As Reviewer B recommended a rejection, the comments the reviewer supplied appeared more focused on justifying the decision to reject than on helping us revise the manuscript. As a result, we reply to Reviewer B’s comments below primarily to indicate where and why we disagree and what steps we have taken in this revision to further address those issues.

**Comment**: Hypotheses are pointless because existing literature already addresses these questions.

**Reply**: Respectfully, as we discuss in more specific detail in response to other comments from this reviewer below, the existing literature does not address these questions. Discipline-specific versions of the AMS have not be created or used before so there is no literature on the connection between student scores on such measures and student attitudes, perceptions, and performance. There is some literature on other measures, mostly global measures, but that is not what this study is investigating.

**Comment**: Literature review was related, but narrow.

**Reply**: We have expanded the literature review.

**Comment**: Only 10 citations. Need more.

**Reply**: See previous comment.

**Comment**: When n differs so greatly between courses, it is problematic. Issue is mentioned, but not discussed in detail.

**Reply**: The primary issue with variation in the sample size across courses is the difference in statistical power to detect significant effects across those courses. We note this issue in the discussion explicitly as a limitation. Further discussion of this limitation seems unnecessary.

**Comment**: Unclear if self-reported GPA was ever reconciled with official university records.

**Reply**: We have clarified in the manuscript that obtaining official university records was beyond the scope of IRB approval for this project.

**Comment**: Some of the associations between variables seemed more coincidental than causal. If causal, should be able to find literature to support it.

**Reply**: We have expanded both the literature review and the discussion to address this issue to the extent possible. However, as this is the first investigation to explore discipline-specific academic motivations using the AMS, there is necessarily a limited literature from which to draw.

**Comment**: This is nothing new. These findings and this study do not contribute anything new to the literature.

**Reply**: On the contrary, the discipline-adapted AMS is new. The AMS has not previously been adapted to focus on specific disciplines, but only used in a general context. This approach to using the AMS is a significant departure from the existing literature.

**Comment**: Study does not contribute anything new. Many studies have already made conclusions on the proposed hypotheses.

**Reply**: As noted in the last reply, the discipline-specific AMS is new and represents a conceptually different approach to answering these questions on student motivation and performance. Just because the prior literature has already established a link between global student motivation and performance does not mean that new approaches to understanding more specific forms of motivation and their influence on performance are not worthwhile or valuable.

**Reviewer C**

**Comment**: The second hypothesis is rather weak. It should make a theory-based prediction that can be tested. The authors could have predicted that students would exhibit greater intrinsic motivation in courses closer to their major, and greater extrinsic motivation in courses further from their major.

**Reply**: While we agree with the reviewer’s prediction, operationalizing “closer to their major” would actually be quite problematic. For example, the Anatomy and Physiology courses were Kinesiology courses. Many students who take those courses are pre-nursing or pre-medicine majors, among others, but very few Kinesiology majors. Although pre-nursing majors are required to take these courses, these courses are not *nursing* courses, and our own anecdotal experience with these students suggests that they would not reach consensus about whether or not the course was “in their major.” If students in the same degree program cannot agree on whether or not a course is “in their major,” it is unlikely that any distinction we might make along those lines would be valid or have any predictive value. However, we have revised H2 based on additional literature to make specific theory-based predictions by discipline, and those predictions are partially validated by our data.

**Comment**: The third hypothesis could also have been strengthened by more detailed predictions as to what the influence of various motivations would be on specific study habits.

**Reply**: We have revised H3 to make more specific predictions by type of motivation.

**Comment**: Paper well-grounded in previous research.

**Reply**: We appreciate this comment, particularly as it stands in contrast to Reviewer B’s perspective. Although we have expanded the literature review considerably, we do believe that we have provided a sufficient overview of the related prior research.

**Comment**: Description of sample with respect to major needs to be improved. Were the majority of the physics students from one or two majors or widely distributed? Same for other classes.

**Reply**: We have added a new table (now Table 1) to provide this data.

**Comment**: Need a bit more information on how the AMS was adapted to the particular disciplines. A sample question before/after would have been helpful.

**Reply**: We have added more information on how we adapted the instructions and have given an example of a question before/after revision for each of the 3 disciplines.

**Comment**: The finding with respect to the first hypothesis were clear and well described. The other two fell considerably short.

**Reply**: We have edited and rearranged the text in the Results section to better describe findings for H2 and H3. Specific changes are explained in the replies to the next two comments.

**Comment**: Description of how to read Table 2 dribbles out in Section IV. State in IIIB the connection between maximum subscale mean and primary motivations of students in each class.

**Reply**: We have added a note to Table 2 to indicate the range for each subscale is 4-28. We have also clarified in the text that higher scores indicate higher levels of that type of motivation and that the midpoint for each subscale is 16. We have also added verbal descriptions of the differences found in Table 2 into the text immediately preceding it.

**Comment**: Discussion of H3 in IIIC needs to be rewritten. Organize info into tables/graphs.

**Reply**: The results of multivariate multiple regression are notoriously difficult to present, particularly in a manner accessible to those unfamiliar with the method. The key results, which depend on visual inspection of the means, are especially difficult to describe without including the many graphs themselves. Since including the graphs would be space prohibitive, we have attempted a new method for presenting the data in a summary tabular format focusing primarily on text-based presentation (new Table 4).

**Comment**: Consider presenting data on Human Anatomy and Physiology only and move other two courses to an appendix.

**Reply**: While we appreciate the suggestion, we believe part of the value of this manuscript is calling attention to the observed differences between the classes. Although there are significant limitations to doing so with the data we have, we note them in the Discussion. We hope that the addition of tabular presentations of the data will address the readability issue identified by the reviewer.

**Comment**: The authors have phrased their study as one that examines the differences among motivations of students “in different disciplines.” However, what they really studied is students in different courses. The authors realize that the differences they are finding may be more attributable to the “position” of the courses within the major than differences among disciplines. To settle that would require studying matched upper-level courses in several disciplines (a difficult study due to sample sizes). This should be reflected more strongly in the text. Perhaps title/some aspects of the introduction could be rephrased or the discussion could be strengthened.

**Reply**: We thank the reviewer for a very detailed and insightful perspective on our data and analyses. We largely agree. It is precisely because of the difficulty of doing what the reviewer suggests that this study was unable to attempt such an ambitious investigation. However, we are hopeful that given the questions established by this study, we have justified the need for future investigations (with greater resources) to try to address those very questions. In terms of this manuscript, we have elaborated on these points in the discussion.