Unit 3 Discussion 2

Name

University Name

Course

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Journal Article

Green et al.(2015) in an article titled, “Use of internal consistency coefficients for estimating the reliability of experimental task scores” argue that internal consistency estimates of reliability are underutilized. According to the author, reliability scores for different experimental tasks differ according to the type of study, type of individual performing the task and administrative conditions. In the article, the main purpose of the author is to present different methods of computing internal consistency estimate and the terms under which these estimates were found to be accurate.

The specific type of reliability discussed in the article is the internal consistency estimate of reliability, i.e., Cronbach’s alpha. Cronbach’s alpha is an easy method for measuring the reliability or consistency of the composite scores (Cripps, Hailstone & Spry, 2008). Based on the previous articles published in Psychonomic Bulletin and Review (PB&R), researchers found that reliability estimates are reported in less number for experimental test scores. These articles have relied on previous estimates of reliability coefficients for their findings which is not correct. Cronbach’s alpha was used to measure the internal consistency reliability. In order to calculate the internal consistency reliability coefficients, data were collected on second graders on typical development from Arizona, Nebraska, and Massachusetts. The objective was to assess children’s ability to learn the names of four novel sea monsters. Based on their collected data, different Cronbach’s alpha was calculated based on different splitting methods such as splitting by trial number, splitting by name and splitting by equivalence. The best split method was then chosen that yielded the most accurate measure of reliability. In other words, the methods to split task will be considered as best when it has the highest Cronbach’s alpha value.

The author did not specifically mention the sources of error of Cronbach’s alpha. According to the article, different tasks will have different reliability estimates, and hence it is not accurate to consider alpha value from past studies. Thus, it is desirable to calculate reliability coefficients for every experimental task. It is because the different task has different characteristics under which it is administered and the type of task. However, the major source of error in case of calculating the Cronbach’s alpha is because of sampling of content. In this items are drawn from different knowledge or skill domains ( such as English, science, history, maths, etc.) are included on the same test. Also, it may happen that the researcher overlooked significant content and skills in favor of minor content and skill sets.

Based on the analysis, the author found that collecting and analyzing data judiciously would offer a valid way in the computation of alpha. The calculated alpha will provide helpful knowledge in gaining knowledge about the reliability of test scores. Further, the study prohibits other researchers to utilize past reported reliability estimates. Since calculating the internal consistency reliability coefficients is easier,therefore, it would be wise to estimate reliability based on the same data which was used to reach conclusions.

References

Cripps, B., Hailstone, P., & Spry, D. (2008). *Psychometric testing*. Hants, U.K.: Management Pocketbooks.

Green, S., Yang, Y., Alt, M., Brinkley, S., Gray, S., Hogan, T., & Cowan, N. (2015). Use of internal consistency coefficients for estimating reliability of experimental task scores. *Psychonomic Bulletin & Review*, *23*(3), 750-763. doi: 10.3758/s13423-015-0968-3