Matthew Quist post to Week 2 discussion 1

**Introduction**

In this discussion on this scenario, the scientific method will be utilized to develop a null and research hypothesis based on it. After that is accomplished, an experimental research design will be chosen and discussed from week-2. After that is completed, the threats to internal validity will be identified and discussed, including mitigating these risks.

**Null Hypothesis**

The null hypothesis in this study or any study indicates that the results in this research will be no greater than what would be expected to occur normal variance (Skidmore, 2008). The null hypothesis suggests that there is virtually no difference between the two data sets (Skidmore, 2008). In other words, the difference between the two data sets would be no greater than chance.

**Experimental Hypothesis**

 In this study, the experimental hypothesis’ the independent variable will be the experimental condition. In this case, the experimental hypothesis states the independent variable (IV) will result in a statistically significant result as it relates to the dependent variable (DV) at a confidence level of Alpha =.05.  In this case, the independent variable will be the digital badges given out or instructional intervention involving changing the instructions for the guided response larger than two lines of text. The DV will be the number of responses (not initial) posts per student that exceed two lines of text.

**Research Design**

There are many types of research designs in clinical or experimental psychology. Concerning the ones that have been presented so far, the most appropriate one seems to be the Posttest Control Group Design. As it states in the scenario, the data will be collected and analyzed at the end. This would not be a pretest-posttest control group design. In that type of design, the number of responses would be measured at the beginning of the experiment and again at the end, which is not the case in the investigation.

**Internal Threats to Validity**

Researchers have defined internal validity threats as those “experimental procedures, treatments, or experiences of the participants that threaten the researchers‟ ability to draw correct inferences from the data in an experiment” (Creswell, 2003, p. 171, as cited in Skidmore, 2008). There have been as many as eight or more threats to internal validity identified in research (Skidmore, 2008).  These threats are as follows:

* Ambiguous temporal preference
* Experimental mortality or attrition
* History
* Instrumentation
* Maturation
* Selection bias
* Statistical regression
* Testing (Skidmore, 2008)

In this experiment, there are several threats to internal validity. The two most significant ones were observed. The first one is selection bias. The second one is testing.

Regarding selection bias, it seems that there is not proper randomization in this study. Randomly assigning preassigned groups (i.e., the classes) is not proper randomization. This might sound like it was random and have been convenient, but it is not. Proper randomization would be compiling a master list of all the members of all the classes and then randomly assigning them to the control or experimental groups by some random formula. That is what would be done for mitigation in this case. There could be better students in one class versus another that would throw off the results in this scenario.

The next threat to internal validity is testing. Testing threats are “the concern that a testing event will impact scores of a subsequent testing event” (Skidmore, 2008, p. 14). In this case, the event that I see that is a problem is that there are two different experimental conditions, #1 the giving out of digital badges and #2 the use of the instructional intervention. The students that get the digital badges may outperform the ones getting the instructional intervention or vice versa. Because of the posttest control group research design likely will not even be appropriate in this case. This case probably requires a much more complex research design. Given careful consideration likely, it will require a two-way analysis of variance (related) (ANOVA) because there is more than one type of independent variable (Greene & D'Oliveira, 2000). Use of the two-way ANOVA (related) design would be used to mitigate this threat.

**Ethical Considerations**

In this scenario, it does not describe the students or their parents having to sign informed consent. Informed consent is a critical part of any study. It is required by the American Psychological Association in the Ethical Principles of Psychologists and Code of Conduct, especially with those that involve children or minors (American Psychological Association, 2017).

**Cultural Considerations**

Cultural competency and considerations are essential to any psychological study. This study seems to be another example of WEIRD (Henrich et al., 2010). WEIRD refers to western, educated, industrialized, rich, and democratic. This refers to the fact that 96% of research participants come from WEIRD countries when they only make up 12% of the world’s population (Henrich et al., 2010). It has been found that results from WEIRD countries are not always the same as for other demographics for various reasons (Henrich et al., 2010). Therefore, it should not be assumed that this study would be valid for non-WEIRD countries.

**Concluding Remarks**

This concludes this discussion posting regarding the week-2 scenario. Your comments, impressions, thoughts are welcomed.

**References**

American Psychological Association. (, 2017). Ethical principles of psychologists and code of conduct: Including 2010 and 2016 amendments (Links to an external site.). Retrieved from http://www.apa.org/ethics/code/index.aspx

Greene, J., & D'Oliveira, M. (2000). *Learning to use statistical tests in psychology* (2nd ed.). Buckingham, PA: Open University Press.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature, 466*(7302), 29. DOI: 10.1038/466029a

Martin, W. E., & Bridgmon, K. D. (2012). Research methods for the social sciences, Volume 42: Quantitative and statistical research methods: From hypothesis to results*.* Somerset, NJ: John Wiley & Sons.

Murphy, P. (2014). PSY635 Week two discussion scenario [PDF]. Ashford University: San Diego, CA.

Skidmore, S. (2008). Experimental design and some threats to experimental validity: A primer. Paper presented at the Annual Meeting of the Southwest Educational Research Association (New Orleans, LA, February 6, 2008). Retrieved from the ERIC database in the Ashford University Library.