

# EFFECTIVENESS OF STESTMAP ON FACILITATING SIGNIFICANCE TEST SELECTION

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## ABSTRACT

*In the hypothesis testing process, one of the difficult steps was in determining the appropriate significance test to use. Any misstep in the selection process could cause the users to come to the wrong conclusion. This study aimed to evaluate the effectiveness of STestMAP to help in the selection of the significance test. The study was quantitative in nature. Three instruments, which consisted of prior knowledge test, pre-test and post-test were adopted and administered. Data collection was carried out through paper-and-pencil tests. Quantitative (descriptive and inferential analysis) data analysis techniques were utilized. In Malaysia, a random sample of 49 respondents from two public universities in Sarawak was chosen. The Wilcoxon Signed Rank Test showed that there was a statistically significant difference in pre-test and post-test for the control group,  $Z=-3.978$ ,  $p=0.001$  as well as for the experimental group,  $Z=-4.275$ ,  $p=0.001$ . In comparing the scores between the experimental and control group, however, the test indicated insignificant difference,  $Z=-0.142$ ,  $p=0.887$ . In Singapore, 29 respondents were selected on a voluntary basis from one of the public universities. Paired t-Test showed that there was a significant gain in the pre and post-tests ( $t=7.678$ ,  $p=0.001$ ). For both Malaysia and Singapore, the analysis on the Cumulative Grade Point Average (CGPA) revealed statistical significant differences for certain group comparisons.*

## INTRODUCTION

Creswell (2005) commented that in the hypothesis testing process, the difficult part was in determining what statistical test to use so that he or she can calculate the test statistics. Studies have shown that this selection problem is rather common among university students (Gardner & Hudson, 1999; Schau & Mattern, 1997; Chance, 2002). Anderson-Cook and Dorai Raj (2003) reiterated that "hypothesis testing is a conceptually rich topic in statistics" but students often found difficulties in "choice of tests, identification of the correct procedures and calculation, interpretation of a critical value or p-value."

In selecting a particular significance test, the normal recommendation from textbooks included examining the following: purpose of the study, identifying the variables (independent and dependent), number of variables involved, covariates, measurement of variables and normality of the scores of the variables (Creswell, 2005; Rudestam & Newton, 1992). These selection criteria as explained