Week 3 Discussion

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The researcher needs to follow different steps in conducting hypothesis testing such as stating the null and alternative hypothesis, collecting data, conducting a statistical test, constructing rejection and drawing conclusion. The type of statistical test is decided on thee basis of research design. Parametric tests are used when the data is normally distributed.

The conventional way used by the researcher is to set level of significance at 0.05. The other levels commonly used by researchers include 0.01 and 0.10. The level of significance is decided according to the sample size and expected losses from the Type I and Type II errors. The statistical approach suggests that the level of significance must be selected as a decreasing function of the sample size. This means that a lower sample size with have low significance level (Davis & Mukamal, 2006).

The common software that are used for computing the t-test include Statistical Package for Social Sciences (SPSS). This software allow comparing means through a statistical technique ANOVA that gives the value of t-test. The purpose of using such tools is to compute mean and determine the level of significance. Critical values is found on test distribution compared to the test statistics. Minitab is also used for computing t-test (Banerjee, Chitnis, S. L. Jadhav, & Chaudhury, 2009).

If the p-value is equal to or less than the level of significance the null hypothesis is rejected.

The engineer in a construction business makes hypothesis that the hardness of iron is greater than 180. He formulates hypothesis,

H0 : μ = 180  
HA: μ > 180

After entering data on Minitab he finds that mean for 25 pieces of iron is 184.52. The p-value is also identified as 184.52. The null hypothesis is rejected because the p-value is less than or equal to the level of significance.

References

Banerjee, A., Chitnis, U. B., S. L. Jadhav, J. S., & Chaudhury, S. (2009). Hypothesis testing, type I and type II errors . *Ind Psychiatry Jourrnal, 18* (2), 127–131.

Davis, R. B., & Mukamal, K. J. (2006). Hypothesis Testing. *AHA Journals, 114* (10).