

Some Aspects of Statistical Significance in Statistics Education

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Statistical significance in the null hypothesis testing is the primary objective method for representing scientific data as evidence and for measuring strength of that evidence. Statistical significance is measured by calculating the probability value (P-value) generated by the null hypothesis test of significance. Several interpretations of P-value are possible. For example, P-value is interpreted as the probability that the results were obtained due to chance. A small P-value would recommend that the null hypothesis is not supported by the sample data and the research hypothesis is strongly favored by data. Alternatively, effect size can be considered as a measure of the extent to which the research hypothesis is true or to the degree to which the findings have practical significance in context of the study population. Effect size measures seem to have advantages over statistical significance because they are not affected by the sample size and are scale-free. The effect size measures can be uniquely interpreted in different studies regardless of the sample size and the original scales of the variables. In this paper we will present some aspects of statistical significance, practical significance and their computations. We will consider statistical significance measures which can be employed for many important statistical parameters. Some empirical results will be discussed.

Key Words: Statistical evidence, likelihood paradigm, tests of significance, practical significance