



## Students' Perceptions of Physics Experimental Measurements

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**Abstract.** This study explored secondary Physics students' perceptions of measurement under the data collection, data processing and data set comparison phases of an experiment. The framework of the study was based on Allie *et al.* (1998) which classifies views of measurement as point paradigm or set paradigm. The point paradigm is characterized by a students' preference to merely choose a data point as representative value of a set of measurements. On the other hand, the set paradigm is exemplified by the computation of the average as the representative value of the set of measurements.

The most common perceptions of the students on measurement were probed using the modified Physics Measurement Questionnaire (PMQ). The extent of relationship between respondents' measurement perceptions across the three experimental phases with gender, and curriculum was explored using the Pearson r correlation.

It was found that the respondents were more likely to consistently favor the point paradigm when dealing with data collection and data processing tasks. Also, they manifested basic set views of measurement more than the deep set when comparing data sets. The respondents' perceptions of measurement under the three experimental phases were found to have low correlation between them, towards the respondents' gender and the curriculum.

The results of the study suggested a closer examination on how procedural knowledge is inculcated in the students' minds. It appeared that the students have vague understanding of how and why measurement should be performed in an experimental context. They need to learn to appreciate the significance of good measurements in science.

**Key word/s:** point paradigm; set paradigm; perception; Physics measurement; experimental phases