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Probing students perceptions of first year physics labs: a focus on learning and enjoyment aspects

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**Abstract content (Max 300 words)Formatting &
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As part of a broader initiative to probe students' experience of first year physics laboratories, a written instrument, Perceptions of Physics Labs Questionnaire (PPLQ) was developed. The PPLQ comprises 5 questions probing the following: expectations, enjoyment, learning, perceived correlation of theory done in lectures and lab work, and notions of the relationship between theory and experiments in physics. Each question on the PPLQ was constructed around a debate offering various opinions, followed by: (1) a Forced Choice Responses (FCR) in which a particular opinion has to be chosen and (2), a Free Writing Response (FWR) in which the reasons for the choice are explained. In a previous talk the analysis of the FCR's was presented for the 5 probes. In this talk the emphasis will be on the analysis of the FWR's for two of the key probes, namely, Enjoyment and Learning. The data were analyzed using the approach suggested by Grounded Theory. Based on a sample of written responses, a coding scheme was developed. Thus, starting with a fine-grained level of coding, a number of categories emerged that were then used to analyze the full data set. The results from the exercise will be discussed in detail. Further exploration of the data suggests that the detailed responses can be viewed as either positive or negative manifestations of two underlying constructs, Socio-Emotional and Knowledge-Skills, that can be used to characterize the overall lab experience.

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