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The local production of order in traditional science laboratories: A phenomenological analysis

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Abstract

There is a lack of studies that sharply focus on what students are actually doing in science laboratories. This study was designed to provide a fine-grained description of students' discursive and material actions in a traditional senior physics class. Over a 6-week period, an extensive data base was established which included video tapes, observations, interviews, tests and examinations, and responses to several instruments relating to students' views of classroom environment, epistemology and their own learning. From these data sources and from a phenomenological perspective, we construed the processes by which students brought order to their observations and material practices. The results show that the phenomena students constructed from their work in the laboratory arise from an intertwining of embodied practices (language and physical action), world, and social relations. The adequacy of any action was

determined through an interpretation of the outcomes and not through an assessment of the actions per se. Students frequently constructed phenomena that were not those of canonical science because they lacked the necessary competent embodied practices and because they brought different interpretive horizons to the task at hand. Strategies for dealing with students' non-canonical phenomena during laboratory instruction are proposed.



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