Abstract
This critical ethnography focused on improving the teaching and learning of chemistry in a diverse, urban, tenth-grade classroom in a high-achieving magnet high school serving students of differing cultural, social, and historical backgrounds. Participants included all 26 students in the class, a university researcher (Sarah-Kate LaVan) and me as a teacher-researcher. Conducted within the methodological and theoretical frameworks of critical ethnography, this research employed collaborative research, autobiographical reflection, the sociology of emotions, and cogenerative dialogues as tools by which to examine the influence of structure and the social and historical contexts of lived experiences on teacher and student practices in the context of the science learning that took place in our classroom. The methods employed in this ethnography were designed to catalyze social transformation by identifying contradictions within structures and then finding ways to alter these structures to expand the agency of all those involved. Specifically, I asked the following questions: 1) How do practices and schemas gained by being within school
structures afford the structures of the classroom field? 2) How can the structures of the classroom be transformed to allow students and teachers greater exchange of capital (social, cultural, and symbolic)? 3) How does the exchange of capital afford agency for the participants? 4) How can participants’ actions transform the structures associated with school and the classroom to break cycles of reproduction? Using multiple data resources such as field notes, videotape, interviews and artifacts, our research team was able to elicit and support findings at micro-, meso-, and macroscopic levels to answer these questions.

This research provides evidence of the ways in which structure shapes and is shaped by the practices and beliefs of students and teachers in different fields and how those, in turn, structure fields and afford agency for both the individual and the collective. The major findings of the study reveal that students and teachers need to participate in structured conversations that explicitly define and negotiate roles and rules for successful classroom interactions. One way to accomplish this is via participation in overlapping fields of cogenerative dialogue, a feature of our research methodology that emerged as salient during our research. This study offers administrators, teachers, and students a means by which to evaluate the ways in which structures shape the learning environment. Coupled with cogenerative dialogue, participants are provided a pathway for expanding agency in the classroom and in the school.

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