CHEMISTRY TEACHERS’ SENSE-MAKING OF COMMUNITY-BASED INQUIRY

LESSONS: A TEACHER INQUIRY PROJECT USING THE VIDEO ANALYSIS TOOL

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ABSTRACT

The purpose of this study was to investigate how chemistry teachers made sense of their students’ learning and their own teaching practices when participating in a teacher inquiry project using the Video Analysis Tool (VAT) within the context of Community-Based Inquiry Lessons (CBIL). While empirical studies have reported what science teachers learned from the experiences of teacher inquiry, not enough attention has focused on *how* science teachers learn about their own students through inquiry. This research used a qualitative case study with multiple sources of data such as videos, classroom observations, in-depth interviews, and documents. Three research questions guided the study: (1) How do chemistry teachers make sense of students’ learning of science?; (2) How do chemistry teachers make sense of their approaches to instructional tasks with regard to student learning?; and (3) How do chemistry teachers adapt and use teacher inquiry practices through VAT?

The findings demonstrate that the teacher inquiry project, joined with the VAT, provided the chemistry teachers with a window to experience their students’ thinking and reasoning that is normally unobserved. Analysis shows that teachers were able to pinpoint specific student’s misconceptions and to tailor their instruction accordingly. In addition, teachers made sense of how their students cognitively engaged in the CBIL by examining the ways students applied, transferred, and expanded their experiences and knowledge. Besides the cognitive aspects, the teachers became more aware of how students’ social interactions in the learning community were related to students’ learning. The research findings also illustrate that these chemistry teachers came to think about new ways to implement the CBIL while participating in the teacher inquiry project. Examining students’ interactions served as a catalyst for the teachers to revisit and expand their own science content knowledge. The teachers used their reflection using videos of their teaching to modify teaching practices and became better able to recognize their orientations to teaching and learning. The successes and challenges that teachers perceived in terms of using VAT are examined as a component of the results. Implications for teacher education programs with regard to potential outcomes from embracing teacher inquiry are also described.

INDEX WORDS: In-service science teaching, chemistry teaching, teacher inquiry, teacher research, science teacher education, teacher learning, knowledge for teaching, student learning, student inquiry, qualitative research, video technology