

Public Abstract

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Title:INVESTIGATING SCIENCE TEACHER KNOWLEDGE OF LEARNERS AND SEQUENCE OF INSTRUCTION IN AN ALTERNATIVE CERTIFICATION PROGRAM

Alternative certification programs (ACPs) have been designed to address the teacher shortage and still meet the goals of science literacy by creating highly qualified teachers. However, science education researchers know little about the development of teacher knowledge during an ACP. The purpose of this study was to investigate how science teacher knowledge of learners and lesson structure develops in an ACP. Data sources included a lesson planning task at the beginning of the program, interviews after the first summer of ACP coursework, and an interview-observation cycle during the teacher's first semester teaching. I constructed profiles of four individuals and generated a set of assertions from a cross-case analysis. The four prospective teachers developed knowledge of learners from their experiences in the Secondary Science Methods courses, from their mentor teacher, and from working with students. Their ideas about the requirements for learning science and areas of student difficulties expanded from teaching and experiences in the Science Methods courses. The teachers consistently gave priority to using lectures and teacher-led discussions to transmit knowledge to students. For the teachers, the integration of knowledge of instructional sequences and learners meant that they purposefully added "practice" types of activities to help students learn terms and concepts. Three of the teachers embraced experiences and knowledge that aligned with their incoming views that were traditional, and teacher-centered in nature. The other participant drew from multiple experiences and began to restructure his knowledge of teaching to better meet the needs of his students.