

Public Abstract

First Name:Ellen

Middle Name:

Last Name:Barnett

Adviser's First Name:Patricia

Adviser's Last Name:Friedrichsen

Co-Adviser's First Name:

Co-Adviser's Last Name:

Graduation Term:SS 2016

Department:Learning, Teaching and Curriculum

Degree:PhD

Title:

How teachers negotiated the meaning of Next Generation Science Standards(NGSS) through participation in a professional learning community

NGSS provide a new vision for K-12 science education. Teachers need time and opportunities to collaborate with their peers in order to make changes to their views and practice. PLCs are a potential support structure for reform. However, there are few studies of mature, effective science teacher PLCs working without external support and few studies of teachers' efforts to negotiate the meaning of new standards and revise their curriculum. This instrumental case study framed by communities of practice investigated how secondary biology teachers within a mature, effective PLC negotiated the meaning of NGSS as they revised their curriculum. The study was guided by the following sub-research questions: 1) how do the Biology PLC's interactions with other communities influence how the biology teachers negotiate the meaning of NGSS as they revise their curriculum, 2) how do the biology teachers participate in their PLC as they negotiate the meaning of NGSS and revise their curriculum, and 3) how do the biology teachers describe their experience of negotiating the meaning of NGSS and revising their curriculum. The PLC was comprised of six secondary biology teachers at Cross View High, one of three high schools in the district. The state had not adopted NGSS at the time of the study, but the school district had. During the 2013-2014 school year, the following data sources were collected: 1) audio-recordings and observations of the PLC's weekly meetings, the PLC's pre-NGSS and revised curriculum, the PLC's professional email, one 90-minute focus group interview, and two 60-minute, semi-structured individual interviews with each teacher. Interpretative data analysis revealed the following themes: 1) the Biology PLC's historic participation with the World Studies and Language Arts PLC, and in particular their use of a revised World Studies Skills Rubric to assess students' science writing, influenced the biology teachers' prioritization of two science and engineering practices, 2) each biology teacher filled a unique, previously negotiated, clearly defined, and mutually agreed upon role within the PLC, 3) the teachers developed a road map – a year-long plan of action that reified their meaning-making and became an enduring tool that guided their curriculum reform efforts, 4) the teachers revised each unit around a similar design structure, and 5) the teachers described their experience of negotiating the meaning of NGSS and revising their curriculum as stressful and exhausting, and marked by a central tension between content details and skills. They persevered because they valued the revisions they were making to their curriculum. This study provides implications for science teacher education, professional development, and future research.