Towards Scientific Modeling Practice in Korean Science Classrooms

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Abstract

Scientific modeling has received much attention in science education. With this perspective, science learning can be understood as students' gradual constructions of explanation by participating social practices. However, teachers in East Asian countries seem to meet many challenges related to culture and educational context in addition to introducing modeling in their classrooms. Instructional strategies for co-construction of modeling in East Asian science classrooms were developed, executed and analyzed. The participating teachers joined collaborative workshop on co-construction of scientific models and co-developed lesson plans with the researchers. Data were collected from Korean middle school science classrooms by video-tape recordings and participant interview. Concepts of situation definition and inter-subjectivity were used to describe and understand the classroom interaction. Discourse analysis was also used to capture the dynamic process of co-construction. Heterogeneity and fluctuation of situation definition were identified. Understanding the characteristics of cultural and educational context and exploring measures to meet the challenges have been attempted.