

Teacher learning as boundary crossing: A study of interdisciplinary teacher design teams

Presenter: Edith Koh (University of Groningen, Netherlands)

Rationale

The implementation of interdisciplinary curriculum in schools is often adversely affected by inadequate teacher professional development. One way of addressing this issue is to have teachers engage in collaborative design of interdisciplinary curriculum. Collaborative groups of teachers who are focused on the (re)design of curriculum materials are known as teacher design teams (TDTs). While there is substantial literature describing the professional learning opportunities for teachers who engage in collaborative curriculum design, the examination of such opportunities for teachers collaborating on the design of interdisciplinary curriculum is relatively limited. Therefore, this study seeks to address this gap by examining the learning potential of interdisciplinary teacher design teams.

Theoretical framework and research design

The interdisciplinary focus chosen for the TDTs is to teach students to critically read science-based articles in the news. In a researcher-initiated intervention carried out in three secondary schools in Singapore, an English teacher and a science teacher from each school formed a TDT to plan and teach an interdisciplinary lesson that engages students in the critical reading of science-based news. Lesson plans and teaching resources were collaboratively created by the TDTs, and the lessons were carried out within or outside curriculum time. The researcher took on the role of the facilitator in each of the teams.

As working across disciplines necessarily entails the negotiation of differences between disciplines, boundary crossing was adopted as the theoretical approach to examine teacher learning. With each TDT considered a case, a qualitative case study approach was used to analyse teacher learning from the perspective of the boundaries that they encountered during their collaboration in the TDTs. As the teachers negotiated the boundaries encountered, their attempts at sense-making would give rise to learning opportunities. This process of teacher learning is understood and described using four distinct learning mechanisms of boundary crossing -- identification, coordination, reflection and transformation. For each case study, qualitative content analysis of teacher reflection logs, meeting transcripts and interviews identified the types of boundaries and the learning mechanisms that individual teachers went through.

Results

It was found that the teachers in the TDTs encountered boundaries caused by epistemological differences between subjects, differences in curricular practices of English and science in the classroom, contrasts in collaborative styles and in their expectations of students. The identification, reflection and coordination mechanisms were evident in all three TDTs, and the transformation mechanism was evident in two of the three TDTs. Cross-case analysis revealed that the key boundary objects that facilitated boundary crossing of the teachers were the news articles, the model and framework for critical reading of science-based news, and the lesson plan created by the teachers.

Conclusion

Implications of these findings on the practice of designing interdisciplinary collaboration as a source of teacher professional development are discussed. These include the importance of having these conditions in place: an interdisciplinary topic, interdisciplinary curriculum material, co-design and co-teaching opportunities for teachers, and an external facilitator.