Professional Development of Teachers for Computer-Supported Collaborative Learning: A Knowledge-Building Approach

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Background: This study was situated in Singapore, which aims to achieve engaged learning in P–12 schools with the use of educational technology. One of the foci of study among Singaporean educational researchers is a computer-supported collaborative learning (CSCL) environment that emphasizes collaboration among learners for the coconstruction of knowledge. Although there is some evidence that CSCL enhances students' learning, an identified gap in the field of CSCL is documented accounts of how knowledge building happens. Knowledge of how to facilitate sustained and in-depth knowledge-building discourse among teachers has also been identified as a gap in understanding in teacher education.

Purpose: This case study aims to gain insights into how negotiation and coconstruction of knowledge occurs among participating teachers during their participation in a knowledge-building community.

Participants: It involves 7 Singaporean teachers who enrolled in an 18-month Advanced Diploma program.

Intervention: Three consecutive modules were conducted to develop the participants' competencies in and dispositions toward facilitating student-centered learning in a computer-supported collaborative learning (CSCL) environment. The modules engaged the teachers as coconstructors of knowledge in a knowledge-building community.

Research Design: This is a case study in which the first author, as a participant observer, acted as the facilitator for the modules.

Data Analysis: The main source of data was the teachers' notes in Knowledge Forum, a CSCL environment. The teachers' patterns of online interactions were analyzed through social network analysis and the interaction analysis model (IAM).

Findings: Our findings indicate that the teachers formed a socially cohesive community and participated rather actively, writing an average of 3.7 notes and averaging up to 425 words written per week. Further analysis of the notes using IAM shows a healthy distribution of notes at various phases of knowledge construction.

Conclusion: We conclude that the teacher knowledge-building community was successful in engaging the teachers in collaborative knowledge building, leading to a deep understanding among them about learning in a CSCL environment. We suggest the following factors as

contributors to this advancement: (1) having a group of committed teachers as participants, (2) engaging the teachers to work on authentic problems faced in schools, (3) empowering the teachers with the agency to solve problems and reflect on their learning, (4) allocating adequate time for teachers to link theories to practice and to reflect on their implementation, and (5) having a facilitator who is experienced in facilitating this form of learning and in using a pedagogical model that is built on appropriate learning theories.