

Abstract

Professional learning communities (PLCs) are investigated as an approach to in-service professional development of teachers. The common argument for professional learning communities is that they are long-term, sustainable, and involve collaborative processes. This study explored how mathematics teachers learned as a professional learning community as they engaged with various activities, and how their engagement contributed to their knowledge base and shifts in their teaching practices. The teachers' learning happened under the guidance of a university-based facilitator, who is the author of this thesis and the researcher of both the PLC and his facilitation.

This study was part of a bigger project, the Data Informed Practice Improvement Project (DIPIP) based at the University of the Witwatersrand. The study was influenced by a situated perspective and data-informed practice. The case study involved a total of seven mathematics teachers from four schools in Gauteng, South Africa and the researcher working together as a professional learning community for a period of two years. Data was generated over a period of two years and comprised classroom observation of four mathematics teachers and community data of all the seven mathematics teachers' participation in the PLC. Analysis focused on the shifts in the teachers' practices, how they talked about the learners' errors and their practices, the kind of knowledge created during their conversations, and how the facilitator guided the process.

The results show changes in the teachers' practices and their participation for all the teachers. Two teachers managed to sustain the shifts in their teaching practices over time and the other two did not. The teachers' participation in the PLC show that their conversations in the community raised opportunities to contribute to their PCK in various ways over time. The development of PCK was mostly enhanced by disagreements among the teachers; the community taking up a teacher's input to create a rigorous conversation; and probing opportunities that emerged in the community. The results also show that there was less focus on the misconceptions underlying the learners' errors. The analysis details the kind of support that facilitation gave to the teachers, and reflects on the missed opportunities during facilitation, which occurred as a result of the facilitator's dominance in the community due to his enthusiasm in wanting to see the project succeeding. These missed opportunities afforded the

facilitator the space to reflect on and think deeply about how else he might have supported and guided the teachers.

The analysis results have shown that participation of the teachers in the PLC enhanced teacher ownership through reflective practice. As teachers inquired into their classroom data, they developed ways of taking ownership of artefacts of practice and the community. This study has also shown the importance of good facilitation moves, which analysis has shown that they can provide important guidelines on PLC facilitation.