

TEACHERS' COLLABORATION AS AN EMERGING MATHEMATICS TEACHING STRATEGY IN SOUTH AFRICA: A MODEL FOR PROFESSIONAL DEVELOPMENT

Dr Vusani Ngwenya
University of South Africa
South Africa
drngwenyav74@gmail.com

Glorious Samkelisiwe Mqadi
University of South Africa
Republic of Ireland
smotho.motho@yahoo.com

ABSTRACT

This study proposes a Collaborative Professional Development Model to address the persistent underperformance in secondary school mathematics in South Africa. Despite significant financial investment, the education system remains characterised by stark inequalities, inadequate infrastructure, underqualified educators, and poor learner outcomes, particularly in mathematics. The research, situated within a social constructivist paradigm, employed a concurrent triangulation mixed-methods design within a case study of the Centocow cluster in KwaZulu-Natal. Data from 5 educators, 2 subject advisors, and 20 Grade 10 learners were collected via diagnostic tests, questionnaires, semi-structured interviews, focus groups, and classroom observations. Findings confirm critical deficiencies in educators' Pedagogical Content Knowledge (PCK), prevalent negative attitudes towards mathematics ("mathophobia"), and a reliance on traditional, teacher-centred pedagogies. In response, the study designed and refined a context-sensitive Collaborative Model. This model advocates for structured, ongoing professional learning communities where educators, supported by subject advisors and school management, engage in co-planning, team teaching, resource sharing, and reflective practice. The model positions collaboration not as an optional add-on but as a fundamental strategy for building collective capacity, demystifying mathematics, and improving instructional quality. The article concludes that systemic adoption of such collaborative networks, aligned with the National Development Plan's vision, is essential for transforming mathematics education and achieving equitable, quality outcomes in South African secondary schools.

Keywords: Mathematics Education; Teacher Collaboration; Professional Development; South Africa; Pedagogical Content Knowledge; Social Constructivism; Underperformance.