

**IMPACT OF SECONDARY LEVEL MATHEMATICS TEACHERS' PEDAGOGICAL
CONTENT KNOWLEDGE IN GRADE SIX ALGEBRA:
A CASE STUDY IN THE GALLE EDUCATION ZONE**

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Secondary-level mathematics teachers' pedagogical content knowledge (PCK) in Algebra is a crucial factor of teachers' knowledge that influences the quality of the students' meaningful learning. This mixed methods research aimed to investigate the influences of mathematics teachers' PCK on sixth-grade students' comprehension of algebra. National-level statistics indicate that the students' mathematics achievement in the GCE (O/L) examination is low, and algebra is identified as the most critical subject component contributing to this. Literature suggests that the mathematics teachers' PCK is poor, so it is crucial to investigate to address students' low achievement. This study was carried out in the Galle Education Zone (n=292) to investigate the mathematics teachers' PCK in depth through the explanatory sequential research design. The mathematics teachers' PCK in algebra was quantitatively measured with the help of a validated and reliable questionnaire. The results showed that teachers possess a medium level of PCK (43.33 ± 6.99). The qualitative data collected from classroom observations and the post-lesson interviews were analysed from reflexive thematic analysis. In the second phase, a sample (n=8) was selected using the stratified sampling method, and each teacher taught the sixth Graders one algebraic lesson on algebraic symbols. The qualitative data reflected three themes such as building algebraic concepts in students' minds, addressing students' misconceptions and students' understanding. Moreover, the mathematics teachers were unsuccessful in concept-building and addressing the students' misconceptions. They demonstrated a lack of content knowledge in basic algebraic concepts. They use neither appropriate teaching strategies nor creative activities to develop students' thinking processes. Thus, it is suggested to offer professional development programmes for mathematics teachers to uplift the status of Science Education in Sri Lanka.

Keywords: Algebra, Algebraic misconceptions, Algebraic thinking, Pedagogical content knowledge, Secondary level mathematics teachers