Chapter 6
Investment in Mathematics Education and Curriculum Reform in South Africa:
Addressing Inequities and Bridging the Achievement Gap

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ABSTRACT

This chapter investigates investment in mathematics education and curriculum reforms in South Africa, with a focus on addressing the disparities and exclusions rooted in historical injustices. The aim is to bridge the gap in mathematics achievement between privileged and underprivileged communities, particularly those previously advantaged and disadvantaged under apartheid. While various funding mechanisms support mathematics education in developed countries, access to financial and human resources remains a significant barrier to improving mathematics learning in developing countries like South Africa (Reddy, 2005). The chapter explores key issues including educational inequities, curriculum reform, investment strategies, and challenges in mathematics education. It also reviews interventions aimed at improving mathematics achievement. The chapter concludes by recommending a comprehensive strategy that incorporates inclusive practices, equitable resource allocation, and policy reform to address persistent inequalities in mathematics education.

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INTRODUCTION

South Africa has historically faced challenges in mathematics education, with learners often performing below international averages (UNESCO, 2021). In the 2019 Trends in International Mathematics and Science Study (TIMSS), South African Grade 9 learners ranked second lowest out of 39 countries (Reddy et al., 2022). However, despite these challenges, South Africa has shown notable progress over time. Between 2003 and 2019, the country recorded the largest improvement among participating nations in TIMSS, with an 87-point increase in mathematics and a 90-point increase in science (Kelly et al., 2020). This progress may be attributed to several factors, including increased investment in mathematics education and curriculum reforms. The South African government has demonstrated a strong commitment to enhancing the quality of mathematics education. Improving educational outcomes is crucial to the National Development Plan's 2030 goal of eradicating poverty and reducing inequality (National Planning Commission, 2023; Naidoo & Maré, 2015). The National Development Plan has established high standards and placed a high priority on bolstering the basic education system to enhance critical thinking, reading, and numeracy while guaranteeing that learner[1]s acquires the fundamentals of lifelong learning (Commission on National Planning, 2023). Additionally, the plan seeks to reduce income inequality by lowering the Gini coefficient from 0.69 to 0.60 by 2030 (Ibid). To achieve these objectives, the government has implemented initiatives like the National Mathematics Improvement Plan, which aims to address persistently poor performance and low participation rates among learners across all levels of schooling (DBE, 2024a). Additionally, the Department of Basic Education (DBE) has developed a ten-year mathematics improvement strategy planned for implementation in 2025 to comprehensively and systematically address these challenges (DBE, 2024b).

The South African government has also implemented several initiatives to improve mathematics performance, such as the Accelerated Schools Program and the National Mathematics Support Program. The Accelerated Schools Program is an intervention program that aims to improve the mathematics achievement of learners in disadvantaged communities (Tsanwani et al., 2013). At the same time, the National Mathematics Support Program provides teachers with additional support in teaching mathematics. In addition to these initiatives, the South African government has established the Mathematics Center of Excellence, a research and training center to improve the quality of mathematics education in South Africa. The Mathematics Center of Excellence also supports mathematics teachers through professional development and mentoring (James et al., 2015). The Annual National Assessments was another initiative that was carried out from 2011 to 2014, focused on primary school learning outcomes, and identified areas where mathematics in-

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