# CONTEXTUAL FEATURES OF EUCLIDEAN GEOMETRY QUESTIONS IN SOUTH AFRICAN MATHEMATICS TEXTBOOKS

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**Abstract**

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Abstract

Euclidean geometry is a branch of mathematics that deals with the physical forms of the real world. In textbooks, Euclidean geometry task is likely to visualise mathematics ideas, thus Euclidean geometry problems may or may not have practical applications in everyday life. In the textbooks, students will find various forms of tasks, both in the form of worked examples and exercises questions such including representation forms of questions, the forms of answers, and contextual features and several other aspects such as cognitive demand in questions. This study focuses on contextual features. Contextualizing mathematical problems provides relevance, meaning, and application to mathematical concepts, making them more accessible and engaging for students. In the textbooks, students should find balanced type of problems related to contextual features in terms of application and non-application context. This study investigated the contextual features of Euclidean geometry questions in three South African mathematics textbooks series. The study was conducted within the interpretative qualitative research paradigm using Glasnovic Gracin's mathematical activity types framework as the analytical lens. Nine approved Grades 10-12 textbooks from 3 different well known textbook series (Classroom, Platinum, and Mind action series mathematics) were analysed. The aim of the study was to examine how the contextual features were used to promote opportunity to learn Euclidean geometry. The analysis encompassed 2338 tasks from the three textbook series.

The findings of the study indicate that the majority of Euclidean geometry tasks, 875 (100%) tasks in CM textbook series, 701 (100%) in PM textbook series and 762(100%) task in MA textbook series belong to non-application context that is questions not related to real life. The study revealed that the textbooks do not provide sufficient learning opportunities for

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students to learn Euclidean geometry. Consequently, it can be inferred that the absence of contextual question on the topic of Euclidean geometry in the textbooks hinder their users from solving authentic problems and appreciating the application of Euclidean geometry in real life.
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