

## **Abstract**

This study investigates the approaches and key features that Grade 10 learners used to interpret graphical representations of linear and quadratic functions. Data was collected with Grade 10 learners at a high school in the inner city of Johannesburg by means of two written tests and task-based interviews. The first test was used to select four learners to participate in the interviews and to guide the design of the interview tasks. A combination of approaches from Even (1998) and Thompson and Carlson (2017) was used as the lens to analyse the interview data. Findings revealed that learners reasoned visually, analytically or used combination of the two to interpret graphical representation tasks. Visual reasoning typically resulted in learners reading the graph as a picture labelled with numbers, with no attention to coordinating the  $x$ - and  $y$ -coordinates of points. However, as learners moved towards a pointwise approach, their analytical reasoning got stronger. Findings also revealed that intercepts was a dominant feature that learners used to interpret graphical representations of functions.

**Key words:** interpretation, reasoning, functions, approaches, graphical features