



**EXPLORING MATHEMATICS PARTICIPATION AND PERFORMANCE IN LOW-RESOURCE CONTEXTS**  
**TERMS OF REFERENCE: RESEARCHER**

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Type of Contract:	Consulting
Contract Cost:	R350,000
Duration of Contract:	7 months
Applicant Closing Date:	15 November 2024

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## **1. Introduction**

This is a call for a researcher or research agency to conduct a study to better understand the conditions under which some quintile 1-3 schools excel in Mathematics, both in terms of participation rates and performance, despite their under-resourced context. An amount of R350,000 is available to undertake this work, which must be completed by May 2025.

## **2. Background**

Zenex Foundation is a grant-making agency that focuses its efforts on improving teaching and learning outcomes in mathematics and language education in South Africa. Zenex believes in an evidence-based approach to improving performance in mathematics and languages.

To this effect, Zenex is issuing a call for a researcher to undertake a study to understand the reasons why some quintile 1-3 schools have high enrolments and/or pass rates in mathematics (excluding maths literacy) despite their disadvantaged contexts. The insights gained from this study are intended to inform the design and implementation of future support projects.

There is no doubt that mathematics is a gateway subject required for a range of scarce skills career pathways. It is also important to note that grade 12 enrolments and pass rates in mathematics are a cause for concern. In 2023, of the 715,719 full-time candidates who sat the November 2023 National Senior Certificate (NSC) examinations, 262,016 (37%) wrote mathematics, with 63.5% of these learners passing with 30% and above, and 3.4% who achieved a distinction. However, of these minimal achievements, low enrolment levels, and few distinctions, the available data does not provide insights into why some schools have

consistently excelled in mathematics participation over the years, while others have struggled. It does not capture the story of schools that are doing well in spite of their conditions.

Understanding best case scenarios in disadvantaged, under-resourced schools can provide invaluable lessons for improving enrolment and performance in mathematics. This study could provide useful information for replicating practices across schools and the system. Such studies can highlight causal mechanisms that can be codified to support all schools. It is on this basis that Zenex calls for a researcher/research agency to explore this matter further.

### 3. Research questions

The study seeks to answer the following research question: **What are the enabling mechanisms that result in high enrolment and high performance in mathematics in low-resource historically disadvantaged contexts?**

Further sub-questions which will guide the study:

- a. What are the enrolment trends in mathematics and mathematics literacy for the past 5 years, nationally, by district and quintile?
- b. What are the performance trends in mathematics and mathematics literacy for the past 5 years, nationally and by district, disaggregated by quintile?
- c. What are the trends gleaned from an analysis of performance and enrolment data of the 20 best performing quintile 1-3 schools in the country (proportion of learners that achieve a pass over 30%, 60%, distinctions).
- d. What contextual factors which impact mathematics participation and performance exist?
- e. What are causal mechanisms that enable increased enrolment and performance in mathematics in selected historically disadvantaged schools?
- f. What is the relationship between mathematics enrolment and pass rates?
- g. Which of the enabling factors can be replicated across more schools?

Lessons from these high-level trends will be borne out in practical terms through case studies of a select number of schools, which aim to understand mechanisms and modalities employed by a few schools showing high enrolment and performance in mathematics despite working in difficult circumstances.

### 3. Scope of work

The researcher(s) will be expected to conduct research with the following activities and deliverables as a guide:

- a. A literature review of research previously carried out in this field.
- b. An analysis of Umalusi and NSC reports and data.
- c. The development of data collection instruments.
- d. Detailed case studies of the best performing quintile 1-3 schools.
- e. A final report including the literature review, trends analysis and case study findings.
- f. Data collected, including datasets, recordings and transcriptions.

Periodic engagement with the Project Management Team on milestones will be expected,

which may be in person or virtual.

It is expected that the whole study will be completed by May 2025 at the latest.

## 5. Application process

### 5.1 Submissions

Interested service providers should submit a proposal of **not more than four A4 pages** that sets out how they will undertake this work. Applicants can also collaborate with other individuals and organisations where necessary. The proposal must include:

- A brief outline of your understanding of the task
- An outline of the process and methodology that you propose.
- A plan with high-level activities, period and budget (The budget should indicate costs for different activities with travel costs specified separately).
- Experience and expertise of the organisation and team that will undertake the study.
- List of team members (where applicable) - this includes brief CVs of the team leader and researchers.
- A sample of previous work conducted that is similar to the planned work - this may include reports or tools.
- A letter of recommendation from organisations where similar work was conducted.

### 5.2 Shortlisting Process

The shortlisted individuals/organisations will be required to do a virtual interview to a panel selected by Zenex Foundation.

All proposals and queries should be directed to Ms Catherine Langsford at [catherine@zenexfoundation.org.za](mailto:catherine@zenexfoundation.org.za) on or by 15 November 2024.

**CLOSING DATE: 15 NOVEMBER 2024**

**CLOSING TIME: 16H00**