

National Maths and Science Learner Support Community of Practice

Meeting Highlights of the Monitoring and Evaluation Action Group

The Evaluation of the Mathematics Challenge Programme of the Epoch and Optima Trusts

18 February 2015 at Sci Bono Discovery Centre



Setting the scene

The Monitoring and Evaluation action group of the Maths and Science Learner Community hosted Eric Schollar of Eric Schollar and Associates as he presented the findings of the much anticipated evaluation of the public schools Mathematics Challenge Programme of the Epoch and Optima Trusts. A range of organisations were present, including programme coordinators of maths interventions, evaluation specialists and donors working in Maths and Science education. This evaluation was a dual venture between Eric Schollar and Associates and Johann Mouton of ERA (Evaluation Research Agency).



Overview of presentation by Eric Schollar



The public schools Mathematics Challenge Programme (MCP) is just one of the interventions supported by the Epoch and Optima Trusts developed to improve the quantity and quality of mathematics passes around the country. Established in 2008, 64 high performing schools were selected to receive funding for various interventions designed by their own school subject heads and SMTs. A quasi-experimental design using a control group informed the methodology of the evaluation. This included key informant interviews alongside school visits and a performance data analysis at different learner levels.

Strategic objectives underpinning the Maths Challenge Programme

The strategic objectives underpinning the theory of change for the programme are:

1. The programme specifically targets high performing ‘top-end’ schools after research showed that even this section of the system is experiencing decline in terms of mathematics outcomes.
2. The programme does away with the traditional notion of a ‘one size fits all’ single intervention dosed out uniformly. The approach used is one of voluntarism, where it is assumed that high functioning schools are best placed to determine their own needs and subsequently design their own ‘treatments’.

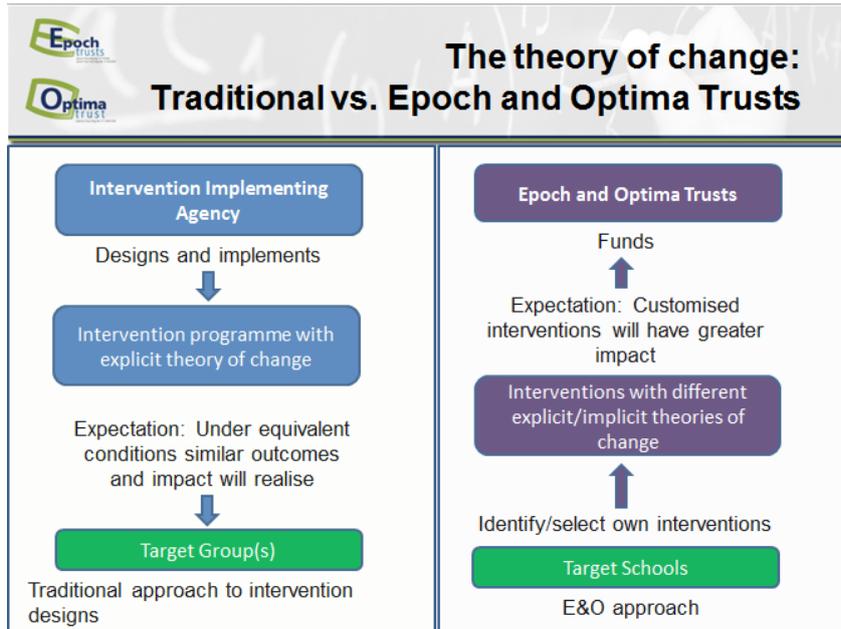


Follow the [link](#) to view the MCP project team share more on the programme

Because of such differing treatments, key evaluation questions were linked to effects. Examples:

‘Have different intervention modalities produced different effects?’

‘Which configuration of intervention modalities, dosage and sequence produced the greatest effects?’



Key findings of the evaluation

In the learner performance analysis four performance measurements were used: the number of matric passes at 30%, 50%, 60% and on the average weighted score. The findings of this analysis showed:

- MCP has had a positive and sustained impact on learner performance. Using the most stringent measurement of a 60% pass rate, programme schools benefitted up to 19% more than the control schools in 2010.
- This performance was achieved while maintaining a slight increase of learners taking up mathematics.
- A positive impact on previously disadvantaged learners was noted, increasing from 37% in 2008 to 40% in 2012.
- The evaluation noted value for money in this programme in that the differential gains measured to 15% more learners of the MCP passing their matric exams at 60%, higher than those in the control schools.
- Differences in learner performance between urban and rural schools showed that intervention schools outperformed control schools irrespective of the urban/rural distinction.
- A major finding for the evaluation team was that despite the influence of external conditions, the MCP schools have succeeded in significantly slowing the rate of decline in mathematics outcomes, and in some instances arresting it.

For the full presentation shared link [here](#), to view the video on Eric Schollar describing the background to the Maths Challenge Programme click [here](#)



Discussion



Members at the CoP engaged in discussion

KEY THEME

The production function analysis uses the variables of 'opportunity to learn' and 'school functionality' as indicators to measure high performing schools, but cannot explain why even these schools are experiencing declining maths outcomes.

- Different schools chose and designed different interventions for their own schools. The interventions that were most successful, as seen by MCP project team, were those that were initiated and implemented collaboratively with teachers, SMTs and school principals.
- Two factors are identified as having contributed to the low output of good maths teachers. The first is the demand for teachers to change their attitudes without listening to their needs: this has left many teachers frustrated and contributed to the mass exodus of teachers. Secondly, the current low status of teaching as a profession means that qualified maths graduates are being snapped up by big corporations rather than considering careers in education.
- A member of the CoP reflected on the long standing relationship between parents who themselves have some form of tertiary education and the link to parental involvement in their children's education. A parent who is engaged and participatory in their child's learning can positively influence their child's performance. But this is not the reality of many South Africans and we need to consider ways of changing this.
- This evaluation has highlighted some important work that needs to be done for the sector. If we can fill in those missing variables explaining the decline of high performing schools in maths, that would also explain and help answer a lot of other questions about general systemic improvement of maths and science education.

"It's clear from this presentation that sound foundational provision and even ECD contribute positively to learner outcomes later on in schooling."

Key lessons and recommendations

- The average time period before we can start seeing real return on investment is usually 5 years or more. We should also take into account 'the Hawthorne effect', which leads teachers (and learners) to alter behaviour while under observation during the intervention, but return to previous behaviours once interveners have left. The importance of post-testing after interventions can help us identify impact more precisely.
- There needs to be continued support for high performing schools, with targeted focus on HR and professional development for teachers if one is looking for long term effects.
- Class size makes a difference.
- The system appears to have collapsed in terms of producing good maths educators. We need to go back to basics and focus on INSET and teacher training.

▶▶ The CoP cycle: input, reflection and action

The CoP concluded with a reflection by the facilitator on the work shared for the day.

- The MCP project team indicated they were in the process of drafting a consolidated report on lessons learned to be shared with the sector at large, informed by the evaluation findings.
- The facilitator briefly alluded to the benefit of engaging members in a larger fishbowl activity on lessons learned on methodology and process of evaluations.
- The discussion related to finding common indicators for project evaluations was again raised.



Reflection and discussion at the CoP meeting



ANNEXURE: Contact List

Name	Organisation
Amira Elibiary	Tshikululu Social Investments
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Bev Johnson	St Stithians Foundation & Thandulwazi
Cara Waller	enke:Make Your Mark
Catherine Rogers	Khulisa Management Services
Craig Johnson	BRIDGE
Cynthia Xoli Malinga	Sasol Inzalo Foundation
Dolly Lebakeng	Tshikululu Social Investments
Eric Schollar	Presenter
Gail Wrogemann	Infundo Consulting
Ingrid Harris	Sci- Bono
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Melissa King	BRIDGE
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