LEARNING BRIEF

"Learning from what we've done and how we did it"

Addressing Barriers to Learning through Innovative Learning Environments

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References

Department of Basic Education (2015) *2014 Education for All Progress Report*. Pretoria. DBE.

Abstract

MIET Africa's Innovative Learning Environments project, implemented in three schools in KZN, South Africa, devised and trialled a range of innovative strategies to improve learning outcomes of seriously underachieving learners. The use of electronic devices proved to be a particularly powerful strategy for learning mathematics, especially when their use was paired with tuition and support by mentor learners.

MIET Africa's learning briefs are developed to **share** new ideas, best practices and learnings arising from our specific **experience** in implementing a project or through some other activity, so as to **grow knowledge and share learning**, with the **ultimate aim** of *improving the lives of children and youth.*

CONTEXT

At 5% of GDP, public education was the second largest item of South Africa's 2016/2017 budget, comprising approximate 24% of the total budget of R297bn. Since 1994, there have been significant gains in increasing access to affordable basic education for the majority of the country's learners. For example

- In 2013, enrolment rates stood at 99.3%.[1]

- Gender parity has been achieved, with equal numbers of boys and girls enrolled at both primary and secondary levels.[2]

- Of the country's 14 million learners, approximately 12.5 million (90%) are in publicly funded or government schools, many of which do not charge school fees.[3]

- Equity in school funding has improved to address the legacy of inequality.

Despite these gains, quality education remains frustratingly elusive for the vast majority of children and young people. Indeed, improving the quality of education is one of the most pressing challenges in post-apartheid South Africa.

Surveys, matric pass rates and numerous assessments—among them the international TIMMS[*] and Progress in Reading Literacy Study (PIRLS), regional SACMEQ[†] and national Annual National Assessment (ANA)—indicate that the majority of learners perform extremely poorly in the critical areas of numeracy and literacy. For instance, in the 2014 ANA tests, only 48% of Grade 9 learners achieved 50% or more in Home Language Literacy, while in First Additional Language (which is English for most South African learners), only 48% of Grade 6 learners and 18% of Grade 9 learners achieved more than 50%.[4] The 2011 PIRLS's results showed that 58% of Grade 4 learners were functionally illiterate, and that almost 30% were completely illiterate. In Grade 5, approximately 80% of African-language learners, along with nearly 50% of their English- and Afrikaans-speaking peers, had not mastered basic reading skills.

High rates of failure and dropout offer further testimony to the poor quality of teaching and learning in South Africa. About half of the 1.3 million learners who started school in 2004 dropped out before reaching Grade 12 in 2015, and, of these, only about 70% passed their matriculation examinations; if one considers the large proportion of learners who drop out over the twelve years of schooling, the real pass rate is closer to 35%.

INNOVATIVE LEARNING ENVIRONMENTS PROJECT

Against this background, MIET Africa implemented the Innovative Learning Environments (ILE) project, an international study led by the Organisation for Economic Co-operation and Development (OECD) focusing on innovative ways of organizing learning for young people and helping to influence the 21st century education reform agenda. Three primary schools were selected to be "learning laboratories of change" (LLCs): Edendale, Esigodini and Nichols, which are three of eight schools participating in the First National Bank-funded barriers to learning programme in the KwaZulu-Natal Department of Education's Umgungundlovu District. The ILE project set out to devise and trial a range of innovative strategies to improve learning outcomes of learners identified by their teachers as seriously underachieving.

MIET Africa partnered with the Durban University of Technology's Adult and Community Education Unit as a research partner in exploring innovative strategies for this project.

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[*] Trends in International Mathematics and Science Study

[†] Southern and Eastern African Consortium for Monitoring and Education Quality

ACTION RESEARCH PLAN

An action research approach was selected as the most appropriate, since participants would then be automatically involved in exploring possible strategies for improving their situations, and would provide feedback to shape the project as it progressed.

- Teachers identified learners who were experiencing severe learning problems in one grade per school.

- All the learners in that grade were asked to divide a piece of paper into quarters, and draw four pictures to show what they did at different stages of the day. This provided information on their life contexts.

- Research was conducted on the views of teachers on their learners' circumstances and difficulties, and their suggestions relating to what could be done to improve their learning.

- Researchers observed lessons, and viewed learners' workbooks, and both of these were discussed with teachers.

- As an outreach project, learners in the senior phase at Maritzburg College, a high-performing boys' schools in Pietermaritzburg, spent a week travelling to all three schools, working with the selected learners to assist them with their English skills and to improve their conceptual understanding in maths.

- iSchoolAfrica, a service provider with expertise in technology-based teaching and learning, supplied a set of iPads loaded with maths and language games for use at Edendale and Nichols. (Esigodini Primary was already equipped with laptops.) Training on using the iPads was also provided to teachers in the three schools, as well as to the Maritzburg College learners doing the outreach.

- Teachers at the three schools attended a course in the methodology of the teaching of reading (Reading to Learn).

KEY LEARNINGS

Learnings emanating from the project are discussed under the following headings:

1. The problems faced by those learners identified as seriously poor achievers

2. Attitudes of principals and teachers in schools

3. Challenges experienced in the implementation of Inclusive Education White Paper 6

4. The use of ICT in classrooms

5. The potential of intensive teacher training

6. The potential of learning from other young people

1. PROBLEMS FACED BY LEARNERS

Problems experienced by learners were identified through the drawing activity. While many of the learners who were identified as experiencing learning disabilities showed positive factors in their drawings, negative factors that emerged included:

- Learning difficulties that no one could help them with

- Being bullied, and fearing further victimization if help was sought

- Fear of sexual molestation

- Corporal punishment, which is common at home and at school

- Stressed family structure and poverty

These factors are embedded in the community or the learners' own families and require intensive, long-term intervention to adequately address their impact on learning.

2. ATTITUDES OF PRINCIPALS AND TEACHERS IN SCHOOLS

A common perception is that principals and teachers in schools with less than satisfactory ANA results are not committed to their work and do not care about the performance and welfare of the learners in their care. Interaction with staff and principals in this project demonstrated very clearly that this perception is unwarranted, and that:

- The attitude, work ethic and expectations of staff by the principal are key factors in the functioning of schools.

- Most of the teachers are very concerned about the welfare and performance of the learners in their classes and go to considerable lengths to support and help individual learners whose adverse circumstances come to their attention.

- Classes of 50 or more learners and crowded conditions in these schools make it extremely difficult for teachers to provide adequate educational care to learners. As a result, able learners are held back, and struggling learners are alienated and fall behind.

3. CHALLENGES IN THE IMPLEMENTATION OF INCLUSIVE EDUCATION WHITE PAPER 6

Esigodini is a "full service school", and as such, is the designated resource school expected to provide support to surrounding schools in coping with learners with learning problems. It has a new, well-equipped support and computer centre supplied by the Department of Education. Two Grade 12 graduates were hired to staff this centre and render support to learners with learning problems. These learning problems tend to be severe: for example, learners who have reached Grade 5 and cannot read or write at all. Learners with these challenges require specialized assistance and support, which should be rendered from the full service school. Unfortunately, at the time of the project, trained staff were unavailable, and the two members who staffed the support centre were not trained teachers nor equipped to provide remedial support.

To derive optimal benefit from resources such as support centres it is necessary to ensure that they are staffed with appropriately trained personnel. Furthermore, the strategy of

employing teacher aides—which may work well for learners with learning problems in uncrowded classrooms—may even exacerbate problems in crowded classrooms.

4.   ICT A USEFUL TOOL TO ADDRESS LEARNING PROBLEMS

The use of electronic devices (whether laptops or iPads) proved to be a powerful strategy, particularly for learning Mathematics, especially when paired with tuition and support by able older learners. The learners with learning problems quickly mastered the technology.[*] Initially, those using iPads followed instructions haphazardly, but as their understanding of the equipment and games increased, they all rapidly moved to systematic playing of the number games. Even learners who struggled with paper-and-pen exercises in Mathematics classes were observed successfully applying maths' principles in number games on the iPads.

Learnings here include:

•   Allowing learners to "escape" from paper-and-pen exercises and tests (in which they have learnt that they are not successful and have low expectations of themselves) to a completely different medium of learning can bring positive change.

•   iPads give immediate feedback on each attempt to complete a maths' operation or part thereof, with the opportunity to immediately correct an error and continue. This allows learners to keep a thread of thought and logic and to learn from their mistakes, so that they can successfully complete an operation. This is impossible with traditional paper-and-pen exercises, in which a learner might only receive feedback from a teacher long after attempting an exercise.

•   The privacy of the feedback releases learners from the shame of failure, and encourages repeated attempts at a problem. In a class situation, repeated failure is likely to result in a child quickly ceasing to attempt the problem, and to save face by becoming disruptive.

•   It is imperative that the apps or games used be well-matched with the learning needs of learners.

•   The "coolness" of working with technology (computers and iPads) lends glamour and associated prestige to learning and appears to support extended attention and learning attempts. Similarly, the amusement value built into the games keeps the learners' attention and facilitates their enjoyment of learning.

•   Learning how to operate technology will stand the learners in good stead in an increasingly computerized world. It also provides a massive boost to their self-esteem.

•   Incidental learning broadens learners' knowledge of the world. Crucially, it stimulates their curiosity, which is inevitably dulled in overcrowded classes characterized by repetition rather than discovery.

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[*] Laptops at Esigodini, and iPads at Edendale and Nichols

5. THE POTENTIAL OF INTENSIVE TEACHER TRAINING

After a week-long course in the Reading to Learn methodology, it is clear that:

• Teachers know that there are strategies that they could learn that would improve their teaching, and they are prepared to give up holiday time to learn them.

• It is worthwhile investing time and resources in a well-taught course that demands participation and is followed up with on-site (in-classroom) support, rather than delivering watered down talks and half-day workshops.

• With sufficient support, teachers readily use new strategies and technology in their classrooms, and when they experience their effectiveness, they teach with new confidence and renewed enthusiasm.

• Having learners enjoy lessons and respond with enthusiasm was a new experience for some teachers.

• Other teachers, seeing the success of a strategy, asked for it to be shared.

6. POTENTIAL OF LEARNING FROM OTHER YOUNG PEOPLE

Communication between the learners from Maritzburg College and the learners at the three learning laboratories of change schools showed that with simple strategies to start the communication, learning from other young people can be powerfully beneficial.

• Given a practical starting point, learners can establish supportive communication fairly quickly. An excellent starting point is playing games on iPads or laptops. Once rapport has been established, it is useful to pair an older learner who can provide support with a younger child in need of support. The pair are left to work through the latter's homework or workbook, and discuss areas of success and difficulty.

• This obviously benefits the child receiving support. However, it may also foster protective attitudes in older learners, which may serve to lessen bullying in a school.

REFERENCES

[1] Department of Basic Education (2015) *2014 Education for All Progress Report*. Pretoria. DBE.

[2] Ibid.

[3] Ibid.

[4] Ibid.