



data
driven
districts

The use of Data Driven Districts (DDD) Data

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basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

How SA-SAMS data is collected, managed and deployed by the Data Driven Districts (DDD) Programme to support decisions and interventions within basic education



Jef Jacobs

- DDD Insights & Innovations Manager
- 9+ years at NLF working on DDD
- Product research and innovation, data analytics



Khodani Makatu

- DDD Provincial Lead
- 8+ years at NLF working on DDD
- Manages all provincial managers, converts programme strategy into on-the-ground outcomes

Overview of the Data Driven District (DDD) Programme

The programme continues to thrive due to technology best-practices, strong partnerships, committed funding and extensive support services to users



Description

Technical Product

The DDD Programme **aggregates and visualises key SA-SAMS data** (collected from schools) on an **online dashboard**.

Implementation support

The DDD programme team provides **end-to-end implementation support to drive adoption** of dashboard insights by **education department officials**.

Objective

To put near real-time, **quality data in the hands of education officials** so that they can make **transformative decisions every day**.

Key Partners



basic education
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Michael & Susan Dell
FOUNDATION



SA-SAMS



Data flows



Note: *Only SA-SAMS modules 1, 2, 3 and 12

Key education data processed on the DDD Dashboard School – Learner – Educator

School information available on DDD



School

- 20,463 out of 22,492 schools on DDD = 91% school coverage (excludes Western Cape and Free State schools)
- Currently only processes x4 term schools following CAPS
- Aggregated school data displayed 4+ years
- Derived from masterlists and SA-SAMS databases

General Information

- > Name
- > EMIS no.
- > Physical address
- > Contact details
- > GIS (Lat. & Long.)
- > Quintile
- > School type
- > Promotional Language
- > Learner Count
- > Educator Count
- > Attrition rates*

Example of school level analysis: School GIS data illustrating provincial borders vs. largest official HL or FAL subject enrolment

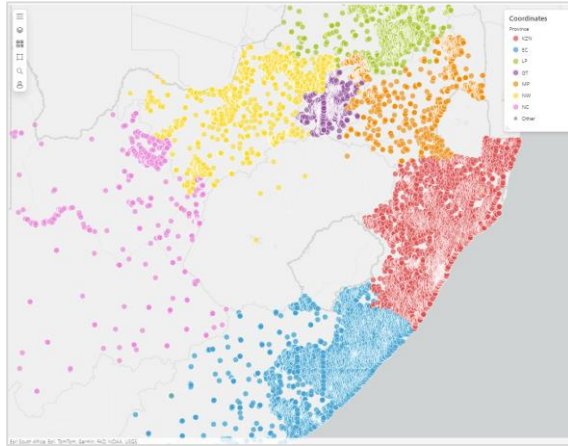


Fig 1: by province

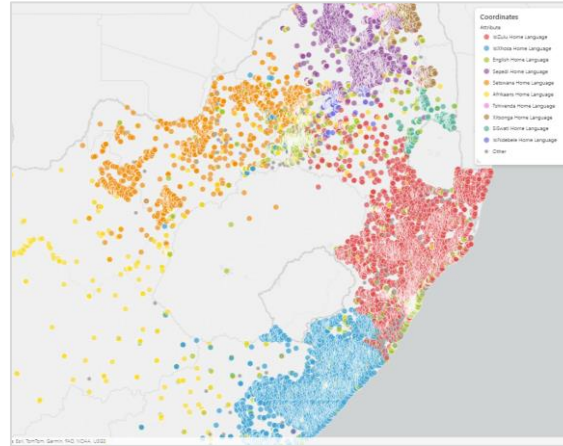


Fig 2: by highest enrolled HL

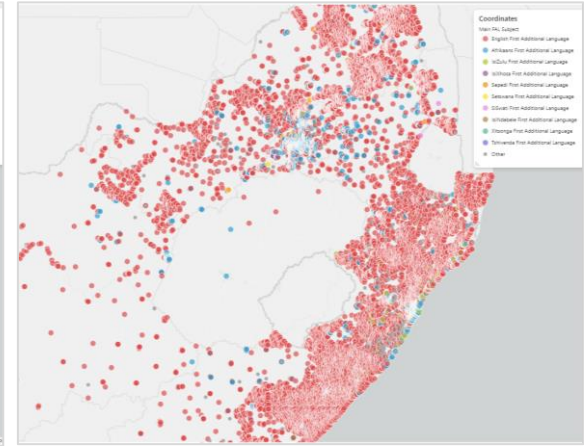


Fig 3: by highest enrolled FAL

Other possibilities

- Additional GIS maps based on subject performance, attendance, school size, grades, quintiles, etc.
- Section 58B (underperforming) schools
- HL and FAL subject combinations (and other subject combinations)
- Learner or Educator migration patterns
- Twinning, closures, new builds, etc. using more than location data (e.g., HL and FAL combinations)
- Location specific impact studies e.g., natural disasters, interventions or socioeconomic factors

Learner information available on DDD



Learner

- 10,8 million learner records (excl. FS)
- Only process learner records with attendance and task mark data
- Learner level data displayed for latest 3 years only
- Majority of measures and visuals on DDD are calculated from learner level data

Personal Information

- > Name & surname
- > ID number
- > Gender
- > Ethnicity
- > Birth date / Age
- > Age vs. Grade*
- > Home language
- > LearnerKey* for anonymised views

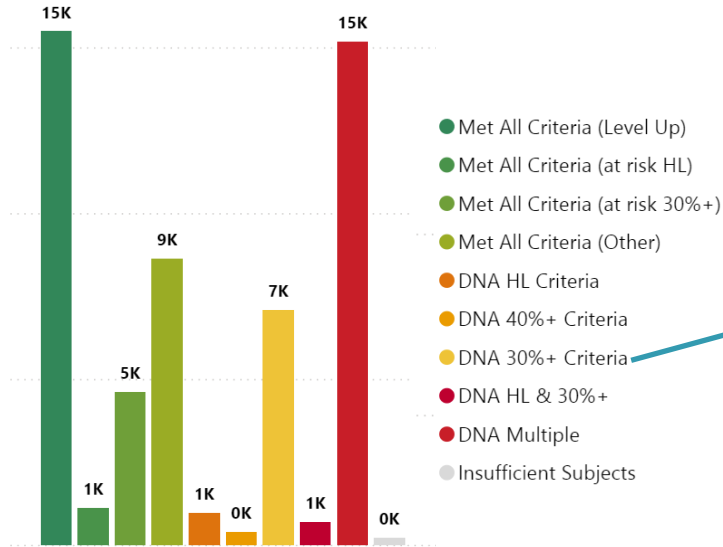
General Year-Term Information

- > Registered school
- > Full entity hierarchy
- > Attendance (by term, week)
- > Dates absent
- > Reason for absenteeism
- > Grade
- > Promotion status (year or term)
- > Registered subjects
- > Previous Year promotion status*

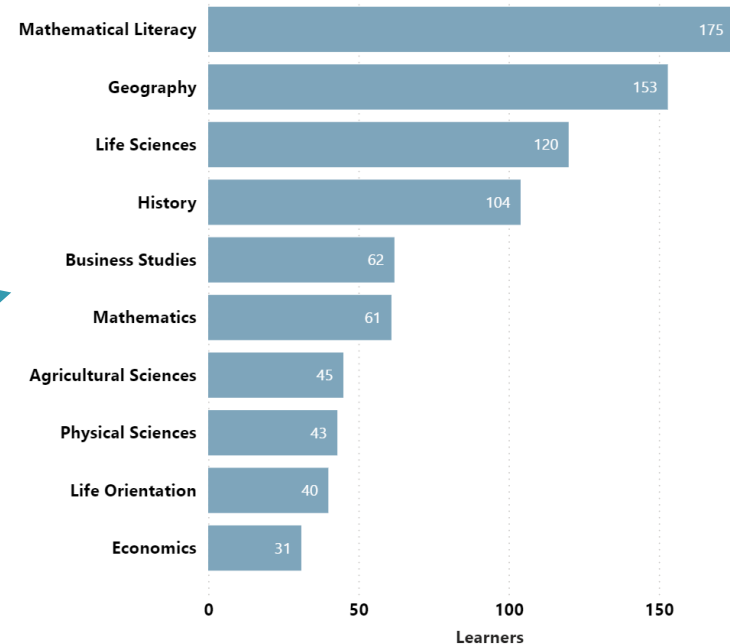
Subject Performance Information

- > Term report mark
- > Exam/Test mark or Common Mark
- > Marks per task (not topic or item)
- > Subjects failed (as per NPPPPR thresholds)*
- > Distinctions
- > FET Pass Level, e.g., Diploma (FET grades only)
- > FET Promotion Profile*
- > NSC results* (not displayed at learner level yet)

Example of learner level analysis: FET promotion criteria profiling



Top 10 Subjects Producing "DNA 30%+ Criteria" Learners



Educator information available on DDD



Educator

- 336,000 educator records
- Excludes support staff and SGB members
- Educator level data displayed for latest 3 years only

Personal Information

- > Name & surname
- > Gender
- > Ethnicity
- > Birth date / Age
- > Registered school
- > Full hierarchy
- > Qualifications
- > REQV level
- > Attendance
- > Reasons for absenteeism

Teaching Information

- > Years teaching
- > Primary subject taught
- > Subjects teaching
- > Learner performance of subjects taught

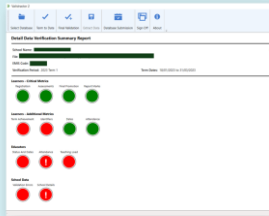
Managing data quality

While quality data from source is preferred, automatic mechanisms to drive improved data quality are implemented across the entire data flow journey



Valistractor (at school) → **Azure (before the dashboard)** → **On the Dashboard**

- Valistractor runs various checks on SA-SAMS data **at the school**
- It examines the **completeness and consistency** of databases*
- The app highlights identified issues so users can **immediately correct** them

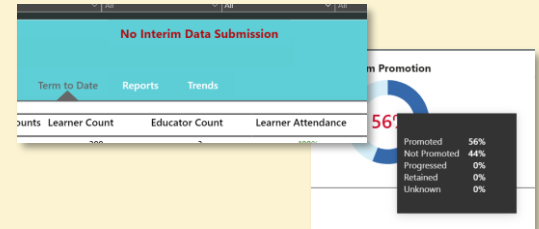


- Users can upload their validated database to DDD once the required **thresholds per check are met**

- A school **must offer one or more grades between R - 12**. Special needs schools and some IEB schools may be filtered out
- A learner **must have assessment activity** within the school (e.g., tasks completed). They will not be counted if they only have attendance data
- A school won't be processed to the Dashboard if its **EMIS number is not in the latest provincial masterlist**
- **Submission dates must align with expected dates**
- **Only with EMIS approval can a school resubmit data for the same term**

- Various dashboard visuals highlight data related issue. This helps users identify which records or schools may require help with SA-SAMS or submissions to DDD. These include:

- Data processing errors
- Missing values
- Unknown values
- Outstanding databases



Data quality challenges and other mechanisms driving improved data quality



We do not (or cannot)

1. Verify that any learner, educator or school record is accurate and that it represents a real entity
 2. Audit or verify learner assessment data (e.g., this learner did indeed get 95% for Accounting)
 3. Audit or verify attendance data (e.g., this educator was indeed at school)
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However

1. Numerous insights do not require strict auditing of data. E.g., subject participation trends
2. Transparency enabled by unrestricted access by senior or peer department officials drives improved data quality (and oversight) – the benefits of *collective adoption*
3. The value offered by DDD solutions motivate school officials to populate more complete and accurate data

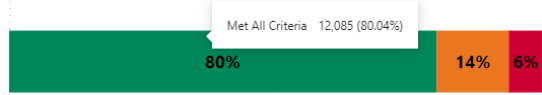
Impact of DDD Programme insights and solutions

The DDD Dashboard provides insights that drive action



FET Promotion Profiles

District Grade 12 T1 2024



● Met All Criteria

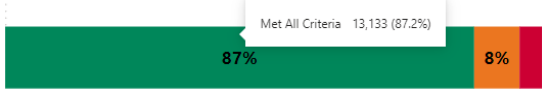
● Only Missed One Criteria

● Missed Multiple Criteria

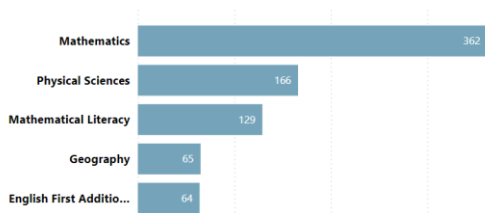
● Other

Learners failing because of missing only one criteria (DNA HL, 30% or 40%)

District Grade 12 T2 2024



Top 10 Subjects Producing "DNA 30%+ Criteria" Learners



Learner and Educator Attendance Early Warning

Weekly Attendance Insights

Week Ending	School Counts	Learner Count	Educator Count	Learner Attendance	Educator Attendance	Task Marks Captured
12 July, 2024	164 / 195	167,882	6,042	93%	96%	1%
19 July, 2024	159 / 195	163,462	5,854	94%	95%	1%
26 July, 2024	151 / 195	154,713	5,588	94%	94%	1%

Learners Absent 3+ Consecutive Days

Schools Meeting Learner Attendance Goal

2,842

78

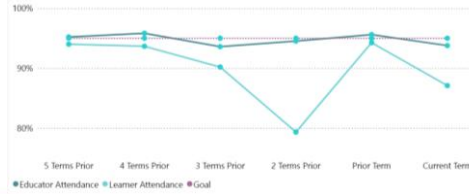
Educators Absent 4+ Days

Schools Meeting Educator Attendance Goal

162

73

Quarterly Attendance Trends



Learner Attrition Insights

School Attrition Insights: T2 2024

CY Expected Learners

2,199

Learners Lost/Gained

-71

CY Learners with Assessments

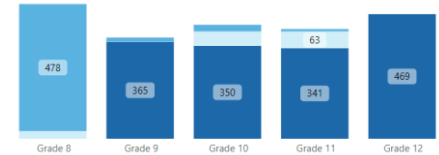
2,128

Attrition Rate

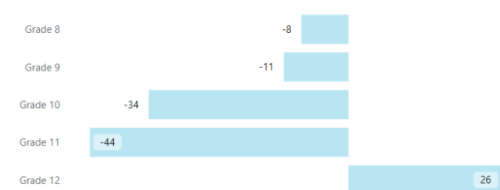
-3.23%

Learners Expected for the Current Year (CY Expected Learners)

● PY Promoted Learners Prior Grade ● PY Not Promoted Learners ● CY New Learners



Learners Lost/Gained by Grade



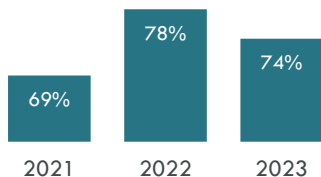
District Impact Stories



1

Achieved a ~10% increase in 2022 NSC results by boosting DDD usage, with a focus on improving educator attendance

Matric Pass Rate (%)

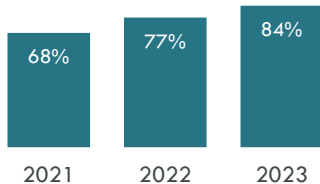


“DDD data has been used to **profile and support learners’ needs, effectively tackling absenteeism and improving accountability and contact time.** DDD has supported the district and mentorship program with **data literacy training,** further enhancing their ability to utilize data effectively” ~ Mr Freddy Silengile – Pixley Ka Seme District Director

2

Converted from an underperforming to a top-performing district by using DDD insights to prioritize and support high-enrollment schools

Matric Pass Rate (%)

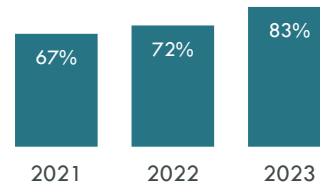


“The district has seen significant improvements in the **quality of data analysis,** which has been instrumental in **understanding learner enrollment trends,** providing more targeted support, and **centering the school and learner** in the district’s support strategy” ~ Ms Phillipine Modika – Mopani West District Director

3

Improved data practices, leveraged DDD for school profiling and performance analysis, and rigorously monitored outcomes

Matric Pass Rate (%)



“DDD helped enhance the Mogalakwena Curriculum Team’s skills in using **DDD for informed interventions.** This initiative empowered the team to **analyze schools and subjects, profile learners,** and pinpoint **high-impact areas** for targeted support” ~ Ms Manakedi Matsepe – CES Curriculum

The use of DDD data – looking forward

Enhancements to the DDD programme have direct implications for decision making, access to data and sector research



Data

1. Improve learner matching (across years) to unlock insights using **longitudinal data** (e.g., throughput rates)
 2. Implement predictions or forecasts using machine learning techniques to support **proactive interventions**
 3. **Additional data from SA-SAMS** (e.g., reasons for absenteeism) to **enhance existing DDD solutions**
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Programme

1. **Increase programme sustainability and adoption** through stronger integration with department processes
2. **Sustain product/programme innovation** by seeking input from or partnering with other sector stakeholders
3. **Enhance data-rich thought leadership** by collaborating with key players (incl. DBE, universities, other NGOs)



Thank you