

Visualising educational data in an online dashboard



BBD partnered with a globally recognised foundation to enable schools to translate data into clear and actionable insights for use by education officials.

Objectives

- › Gather timely, standardised, quality data in a secure manner
- › View learner and school data in an online dashboard
- › Utilise insights to improve learner outcomes and accelerate learning
- › Enable improvement goals to be achieved across South Africa's school system

Benefits

- › Tool to better support instructional decision-making
- › Snapshot view of learner's performance across all subjects
- › Near real-time view of data, used to take months to collect data

Overview of the solution

Despite schools investing heavily in data collection, the data systems used have traditionally been manual one-way upward flows, with little benefit at school or district level. Hence, it became a key concern to ease the burden of collecting data off schools.

The foundation initiated this project in 2012 and asked BBD to develop an online dashboard to graphically view educational data, with the foundation believing that access to quality education improves education outcomes.

Data is extracted from the administration and management system of schools and consolidated and aggregated to provide insights at all levels within the education system. This ranges from circuit offices to national level. Visually displaying the data in a dashboard allows principals, circuit managers and district, provincial and national staff to identify meaningful insights to assist in improving learner outcomes.

The type of information shown on the dashboard ranges from how districts, circuits and schools are performing on learner achievements to promotions and attendance for both educators and learners. Educators can make data-driven decisions to facilitate targeted interventions and effectively improve the educational outcomes of all learners in the school system.

Potential problem areas can thus be highlighted, enabling education officials to better decide where to deploy their resource, very helpful given the shortage of resources in the education sector.

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| Approach

The dashboard provides data and information from country level right down to individual learner level. Active across seven of South Africa's provinces, training and support is also offered to education officials.

Not a simple process, the back-end uses C# and Microsoft SQL; with the front-end utilising HTML 5, JavaScript, Marionette and Backbone.

BBD also designed the stand-alone tool that extracts and validates data at school level across all school systems. The tool sanity checks that the data capture has been done correctly, as quality assurance is an integral part of the process to drive accurate insights.

Schools and district offices use the tool to extract the necessary data from the school system, with a functionality available to directly submit to the server. The data is then processed overnight and published the following day. Using the tool has eliminated the need for district officials to drive to schools to manually collect data and submit to a national level, a process which usually took months to complete.

| Impact of BBD's partnership

The project has collected data from over 20 000 schools and nearly ten and a half million learners. Over 5 000 of these schools are submitting updated data on a weekly basis. With close to 12 million learners, the reach and impact of this project is highly evident.

BBD built the solution across two phases:

- › Validation, extraction and submission of data at school level to the dashboard
- › Importing, normalising and aggregation of data overnight, for visualisation of data - the following day – at national level

The dashboard itself is separated into three processes: staging (importing), warehouse (normalising) and data management (aggregation). Data from every single test, across all subjects in every grade can be uploaded to the dashboard and provides educators with a comprehensive view of a learner's progress.