

# Using data to drive school improvement

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## Abstract

Driving school improvement or doing the work of the devil? Controversy continues to surround national student assessment in Australia. However, I argue in this paper that testing is neither good nor bad: the devil lies in what people – teachers, school, systems and even parents – do about the tests and the data they generate. The paper reports a small study of the experiences of principals, teachers and curriculum consultants in one educational authority, all of whom have engaged with large-scale assessment data for the past eight years. Narrative accounts are used to describe how responsibility for interrogating, interpreting and applying data has gradually shifted from an external top-down approach to an internal bottom-up model in a planned, sustained and

centrally supported manner during that time. Applying lessons learned from international research, this educational authority embraced assessment data as the medium to drive change and to lift expectations about students' learning. With persistence, patience and a modicum of pressure, principals, curriculum leaders and teachers are responding positively and with general optimism.

## Introduction

Driving school improvement or doing the work of the devil? There is no doubt that controversy continues to surround large-scale student assessment in Australia. In Western Australia, in the days leading up to the mid-May NAPLAN tests the media once again sought to arouse the debate, despite more than a decade of population testing of literacy and numeracy. However, I argue in this paper that testing is neither good nor bad; the devil lies in what people – teachers, school, systems and even parents – do about the tests and the data that they generate.

Sharing large-scale assessment data use by professional educators at classroom level, school level and system level can support improving student learning outcomes. However, although assessment data have been available to schools for more than a decade, the uptake of applications has not been as swift, and researchers worldwide are investigating the challenges facing educators. For example, international research groups, such as the ICSEI Data Use Network led by Schildkamp and colleagues at the University of Twente, share research findings among researchers in settings as diverse as the Netherlands, Belgium, Germany, the United Kingdom, Denmark, Cyprus, Slovenia, Canada, New Zealand, the United States of America, Australia, South Africa and Trinidad (<http://www.icsei.net/index.php?id=1302>). During this network's 2012 meeting in Sweden, papers were clustered into themes such as: Data use across educational levels – The interplay between system, city, school and class level; Data use by school leaders and teachers: From describing and explaining to impact; and Using data for improving school and student performance.

This paper presents ways large-scale assessment data are used by teachers, principals and education authorities to improve student learning. Large-scale assessment data referred to here are derived from Western Australian Literacy and Numeracy Assessments (WALNA), NAPLAN, Performance Indicators for Primary Schools Baseline Assessment (PIPS-BLA), and

exit assessments from Tertiary Entrance Examinations (TEE), now known as the Western Australian Certificate of Education (WACE).

## Background literature

For at least a decade, educators have recognised that assessment data can stimulate changes to generate improved learning (Aldersebaes, Potter & Hamilton, 2000). Indeed, a hallmark of successful schools today is the extent to which their principals and leaders are engaged with assessment data to identify where their students are doing well and where improvements are needed (Rothman, 2000). Data abounds, so the question is not whether to access data but how to integrate data in decision making (Protheroe, 2009).

Davenport and Prusak (1998) distinguish between data as ‘discrete, objective facts and events’ (p. 2), and information which is the outcome of contextualising, categorising and connecting data. This distinction between data and information is critical, because while schools increasingly have access to large-scale data sets, it is the decisions based on that information that guide strategies to improve learning. Critical to becoming assessment-literate (Stiggins, 2001) is the capacity to gather dependable data coupled with the skills to analyse them and link that information to classroom practice. Dedicated time that is embedded in the timetable together with well developed skills of collaboration are also key ingredients (Cromey & Hanson, 2000).

In their review of literature about data-informed curriculum reform, Schildkamp and Kuiper (2010) identify ways in which data are used by teachers: to move students between groups, to evaluate the impact of interventions, to shape professional development, to reflect on teaching practice and to support conversations with parents. Teachers sometimes use assessment data to encourage students to take ownership of their learning (Wayman & Stringfield, 2006). Leaders use data, too, to identify school-wide strengths and weaknesses, and to set priorities, as well as to meet externally imposed accountabilities. Schildkamp and Kuiper (2010) found evidence that data use increases if teachers devote frequent and substantial time to reviewing data and planning. Such collaboration, they report, reduces the isolation of teachers and enhances professional growth. Collaboration around data may impact positively on schools and students, through increasing teachers’ knowledge about teaching, strengthening connections with other educators and generating discussion on school-wide issues.

However, the use of data to drive school improvement is far from being embedded in the routines of schools. For example, Shen and Cooley (2008) found that some principals do not use data for decision making because they lack confidence in interpreting data. When they do use data, according to these researchers, it is more likely to be used for marketing, promotion and reputational benefits to attract enrolments and greater funding, rather than for learning and school improvement. Further, teachers sometimes disassociate their own performance from the performance of their students and at times leaders neither systematically analyse assessment data nor apply their information to review school performance or to set priorities (Schildkamp & Kuiper, 2010). However, the Australian research team led by Dempster reporting on their Principals as Literacy Leaders (PALL) Pilot project (2012) comment on the positive impact on student literacy learning of dedicated time, uniform assessment across the school, collaborative planning and a holistic approach to professional development. Building on earlier work (Wildy, 2004, 2009), this paper reports a study of data use by teachers, school leaders and system-level personnel to drive improvement in student achievement in one educational authority in Western Australia.

## Method

Data were collected from teachers and principals (3 metropolitan, 2 rural; 3 primary schools, 2 secondary schools), and education authority ‘consultants’ from a cross-section of regions of the Catholic Education Office of WA (CEOWA). Participants were selected by the CEOWA’s senior consultant, to provide robust and varied examples of data use. During interviews participants were invited to describe the ways they used large-scale assessment data to improve student learning. They were asked to demonstrate their analyses, plans, strategies, and reviews of subsequent student achievement. Interviews lasting about one hour were conducted in May 2012 in the school/office setting and ranged over topics that were brought up by participants to supplement the semi-structured interview schedule.

## Data

Interview data were conceptualised thematically and reconstructed into a set of narrative accounts. Two of the narratives are included in this paper. The first narrative provides an account

of the shift in responsibility for data use, from principal through curriculum leaders to whole staff, described by one of the 15 CEOWA consultants.

### Using data system-wide

Since 2004 we have adopted a system-wide approach to using assessment data for school improvement. Responsibility for interrogating, interpreting and applying data has gradually shifted from an external top down approach to an internal bottom up model in a planned, sustained and centrally supported manner.

Initially, schools' Western Australian Literacy and Numeracy Assessment (WALNA) data from 2001 onwards were presented by university researchers in accessible formats. The researchers designed a program called NuLitdata showing school means over time, box and whisker plots of distributions, individual students' progress and schools' means as value added residuals. Every year principals and curriculum leaders participated in workshops before receiving their schools' data disks for that year.

Increasingly, curriculum consultants were appointed by the CEOWA, with responsibility for a group of schools to work one-to-one with principals, to ensure that data were interrogated rigorously and interpreted correctly. By this phase the workshops conducted by the university researchers had shifted in focus from data interpretation to linking data to school planning and priority setting and NAPLAN data and PIPS-BLA data were included in NAPNuLitdata disks. Workshops for consultants were conducted by the researchers.

The next phase involved consultants working closely with the Associate Principals and coordinators of professional learning (CPLs) in each of their schools. By this phase, principals were expected to be skilled and the aim was to deepen the school-level capacity. Consultants' work included linking data to current initiatives and making plans for the next year.

By now consultants had gained credibility among their schools and were confident to share their skills with the school CPLs. They conducted workshops with the whole school staff, interrogating data, delving deeply, identifying strengths and challenges and setting priorities for the following year. Most importantly, the collaborative process shared responsibility among the staff for articulating the focus for the next year, aligning that with strategies and resources, and defining what would count as success in making progress. By this phase Year 12 TEE/WACE data from Mathematics, English and Science subjects were included in the software, with links to relevant Year 9 data.

In the last phase, CPLs carry out the interrogation, interpretation and priority setting with their staff. The transition to this final phase involves mentoring of CPLs by the consultants as they prepare for their work with whole school staff. During the handover, the consultant and CPL co-present the planning workshop for the whole staff. By this final phase, schools examine their 2001–2012 performance through interrogation of PIPS (prior to Year 1), through Years 3, 5, 7, 9 WALNA/NAPLAN, to Year 12 TEE/WACE data, through a new online program, Appraise.

The university researchers' role was to educate system executives, principals and consultants. Consultants now support school-based leaders by mentoring and then letting go. Now each school staff interrogates and interprets its data and plans its school improvement.

The second narrative, from the perspective of another of the CEOWA consultants, describes the process within CEOWA schools during which whole school staffs engage with data to set their priorities.

### Professional Learning Communities

Professional Learning Communities (PLCs), now a mandated feature of each CEOWA school, drive school improvement. Consultants help coordinators of professional learning (CPLs) to run the PLCs to focus their work and target their achievements. PLCs vary across schools but generally last one hour, after school, and are attended by all staff including the principal. But they are run by the CPL or, at their best, by teachers who take turns as leaders.

At the heart of the PLC is professional reading. An article, such as *Teaching students Math problem-solving through graphic representations*, is selected to fit with the priority area (for example, problem solving in Mathematics, middle primary years). The article is circulated in advance with a structured response protocol, such as *Brainstorm and Vote* or *Four A's Text Protocol*. During the PLC, a strategy such as jigsaw is used to facilitate sharing of responses to the reading. As a whole group, implications for practice are drawn together and linked to a small piece of action research, for example, or a further reading.

The agenda for a PLC would normally include these items: a review of notes about the previous PLC; a small group activity based on the set reading and an articulated outcome; sharing of a teaching strategy; and exploration of data. One example of exploring data is moderation of work samples. This is done in clusters of teachers according to level, with the aim of developing a shared understanding of what counts as high, medium and low quality outcomes from students across all subjects and across all year groups. A group examining Year 2 and Year 3 work samples might be joined by teachers of Year 1 and Year 4 to provide continuity of experience and standards.

The most important sessions are those that examine the large-scale data in preparation for setting the priority for the next year. With the support of the consultant, the CPL presents trends over time across all subjects, and on the basis of the overview and in reference to previous choice of focus, a broad area is identified. Then the data are scrutinised in increasing depth to identify the particular aspect of the area. For example, the distributions are examined for weak and strong subgroups' or individuals' performance; individual items are reviewed to identify strengths and gaps. Then information about the current year's data is examined in relation to data from earlier years. The CPL collates the findings from this session and presents them to the next PLC. Teachers are encouraged to bring relevant school-based data to support or challenge the findings during subsequent PLCs. In this iterative manner, analyses are honed, and skills are developed. And the priority for the next year is set.

Taken together these two narratives give an overview of the general approach to data use by the CEOWA since 2004. Other narratives not included in this paper demonstrate data use to inform decisions about streaming; use of school-wide data other than NAPLAN; use of large-scale data to track individual student progress in a very small rural school; integrating primary and secondary data; use of PIPS-BLA data to stimulate pedagogical change in the early years; and supporting teachers in widely dispersed rural settings.

## Conclusion

Participants in this study do not think they are doing the work of the devil. To a person, they are embracing the opportunities afforded by large amounts of data that are systematically collected, linked over time, presented in accessible formats, and relevant to their everyday work. With extensive support from credible curriculum consultants, whose expertise they respect, teachers in these schools are routinely engaging in talk about their teaching (Warren-Little, 1982), using data to focus on what is done well and what can be improved. They spend regular time together to challenge assumptions about how well their students are achieving. Instead of stating: 'That is all we can expect from students like ours', principals and teachers set high expectations and ask each other: 'Is this all we can expect from our students?' (Wildy & Clarke, 2012). Senior personnel in this education authority would not claim that every school is using their data to drive school improvement. Indeed, they would argue that the journey for some schools is only beginning. However, it is clear that the journey is considered worth undertaking.

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