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INTRODUCTION

Teachers in Australia are increasingly being told that student data is important. The Melbourne Declaration on Educational Goals for Young Australians (2008), Australian Curriculum (2014) and Australian Professional Standards for Teachers (2011) all direct teachers to use student data in their teaching, planning and feedback. Australian media perpetuate the notion that student data is the most important measure of school and teacher success (Klenowski 2013), and recent research discusses the importance of data literacy for teachers. But sometimes teachers are unsure which data to collect, how to analyse it, and where and when to use it, and so a question they regularly ask is “How do I use data in my classroom?”

I have worked in a number of roles in my career where I have had conversations with senior and middle leaders, teachers, students and parents about student and school data. The recurring theme, that I have heard from colleagues at all levels, is a desire to learn more and do more, but that they are unsure of where to start. The use of data in schools has developed throughout many teachers’ careers, and so most teachers did not undergo formal training in how to use data at university or college. Understandably, many find it challenging. University degrees are not yet up to date, and many undergraduate programs do not teach students how to use data in a useful and practical manner. To make matters worse, the Australian media regularly reaffirm the importance of student data and external testing by comparing states and individual schools, and reporting on NAPLAN testing results and tertiary entrance ranks.

Using and Analysing Data in Australian Schools: Why, How and What

I have taught in schools in Brisbane, Australia and in London, England for the last 15 years. In that time, I have developed my understanding of how data can be used, trialled different approaches with teachers and students, and implemented whole-school tracking and monitoring processes. I also completed a thesis that focused on students' perceptions of feedback, which taught me a lot about the power of feedback, and the impact that data and feedback can have on a learner. I believe that teachers inherently want to do the best for their students, and students want to know their data, but developing new skills takes time. Teachers' workloads are increasing, as they are being asked to do more and more planning, data collection, analysis and differentiation than ever before. In my experience, teachers also regularly walk out of professional development sessions and judge the effectiveness of the training on whether they have learned any new skills that they can translate into practice. Therefore, this book aims to explain the why and how of data, and provide some specific examples of the what (Sinek 2009; 2017), while giving you tangible data skills to use in the classroom.

Chapter 1 explores the “why” of data and discusses some key research and contextual factors that are impacting on the use of data in Australian schools. Chapter 2 investigates the impact of feedback in schools, and particularly focuses on the use of sharing information and data with students to improve outcomes. Chapter 3 covers three elements that are key to embracing a data-informed culture: growth mindset, positive psychology and grit. Chapter 4 discusses the types of data available, and that are most commonly used in our schools, such as NAPLAN bands, stanines and GPAs. This chapter also discusses the significance of triangulation in assisting with data use and analysis.

Chapters 5 and 6 explore the ways in which data can be used in classrooms and in schools, respectively, and they provide a series of cheat sheets with step-by-step guidance on how to implement different data strategies. Each of the examples also contains tips for implementation, examples of the use of the data with students, and the ways in which the type of data could be used. The examples offered in Chapters 5 and 6 are strategies that have worked for me at different times and in different contexts – the list is certainly not exhaustive, and not all the examples will be relevant at all times. But the data strategies are sure to be helpful if you look for opportunities to use them. Given the focus on positive psychology, mindset and feedback earlier in the book, Chapter 7 explores ways that data can be used in feedback to students, and to celebrate success, and includes a discussion of the development of data protocols and data-informed conversations for teams. Chapter 7 also includes templates for data reviews that could be used by classroom teachers, middle leaders or senior leaders.

I hope that you find this book useful and engaging, and that it encourages you to develop your own ideas and adapt mine where possible. These are not the be-all and end-all of data strategies for schools and classrooms, but they do offer a contribution for teachers and school leaders who are looking for ideas on how to develop their skills and use of data. I am excited to share these ideas with you, and hope you enjoy the data as much as I do! Have fun with it!

CHAPTER 1

... the human population has generated more data in the last three years than throughout all of human history.

—John Kotter (2017)

WHY DATA?

In the movie *Good Will Hunting* (1997), the main character of Will, a cleaner at the Massachusetts Institute of Technology (MIT), is an undiscovered genius. After Professor Gerald Lambeau puts a challenging maths problem on a blackboard in the corridor, Will completes the puzzle and his genius is identified. Professor Lambeau tries to find work for Will, but Will is not sure which career path to take. When Will is in the discernment phase, another MIT professor says to him, “Most people never get to see how brilliant they can be. They don’t find teachers that believe in them. They get convinced they’re stupid.” I believe that data gives teachers the opportunity to see how brilliant their students can be, which in turn means that students get to see their inherent worth.

Data are increasingly being used to orient school improvement efforts in Australia and around the world, and data are now seen to be driving educational change (Bishop & Bishop 2017). There are a number of reasons why this is the case, including international comparisons such as the Programme for International Student Assessment (PISA), internal influences such as the Melbourne Declaration on Educational Goals for Young Australians, the Australian Institute of Teaching and School Leadership (AITSL) standards, the Australian Curriculum, the National School Improvement Tool (NSIT), the National Assessment Program – Literacy and Numeracy (NAPLAN), the My School website and the age of technology, the age of accountability, globalisation and international mobility. Australian teachers are expected to use data to inform programs, differentiate instruction and modify practice. No matter what the reasoning, the reality is that data use and analysis are here, our schools are measured by it and our students are compared using it. There is no escaping the data.

But data get a bit of negative attention in the media and some of the existing literature. We regularly hear that data should not drive what we do, that data are impersonal and that students are much more than numbers. But then quotes such as “you can’t manage what you can’t measure”, attributed to the physicist William Thomson, the first Baron Kelvin, are thrown around. Some authors compare schools to systems, where there are inputs and outputs that we can discuss and measure (Desautels & McKnight 2016), but my view is that data use in schools should always be about more than the numbers, as I don’t agree that we can ever reduce our students to statistics or column graphs. I believe that data actually have incredible potential in

our schools, and that using data actually can help us to know and cater for our students better. Much like in *Good Will Hunting*, data can show us how brilliant our students can be; sometimes what the data tell us might even differ to a student's perception of themselves or our perception of them. Using data to learn about our students and help them succeed is the number one priority – any improvements in NAPLAN and other standardised test scores as a result are just a bonus.

In her book *Grit: The Power of Passion and Perseverance* (2016), Angela Duckworth talks about developing a theory. Quite eloquently, she states,

A theory is an explanation. A theory takes a blizzard of facts and observations and explains, in the most basic terms, what the heck is going on. By necessity, a theory is incomplete. It oversimplifies. But in doing so, it helps us understand. (p. 41)

This book is exactly that. I have taken a blizzard of facts and observations about data in Australian schools, and I am going to explain what the heck is going on. I acknowledge that I am going to simplify the data story in a way that is incomplete, but I have done so in order to help you understand the why, how and what. It is incomplete because data do not always tell us everything about a student or a class. Every educator knows that teacher judgement, combined with data, provides a fuller picture. I use data, but I believe in people. Those two things are not mutually exclusive. This book is about that overlap.

Thought leader Simon Sinek (2009; 2017) states that effective leaders and organisations need to harness the power of “why” in the golden circle rule when leading change, rather than relying on the “what” or the “how” only. Sinek states that while every organisation knows “what” they do, only some organisations can articulate “how” they do it, and very few can articulate “why” they do what they do. In the golden circle, the “why” sits in the centre of the circle deliberately, as it is the core purpose or reason that the organisation exists. He also postulates that if you do not start with the why, leaders and organisations are less likely to succeed, and less likely to have people get on board with the change agenda. So, what is my reason, or “why”, for using data in schools? My why is the young people that are affected positively by our understanding and use of their data. I am motivated and driven by the learnings that I can generate from data about students, classes, cohorts and schools because I have experienced the positive impact that data can have hundreds of times in my career. I have seen data improve individual student performance in classrooms

Chapter 1: Why Data?

and standardised tests, cohort achievement in school learning areas and standardised tests, and overall school achievement. I love “catching out” students who have unidentified potential. I love the data-informed conversations I have with students and parents to tell them what I have found. I love proving that students are better than what they say and believe they are.

It is important to point out at this stage that I advocate for a focus on being *data-informed*, not *data-driven*, even though this term is used occasionally by key organisations in Australia (ACER 2017a). The term *data-driven* has the potential to instil the notion of checking, fear and accountability for the people involved. I do not believe that is how data should be used. On the other hand, being *data-informed* is based on an “understanding that data will inform rather than drive decision making because there are rational, political, and moral elements in decision making and data is only one important element in the process” (Shen, et al. 2012, p. 3). Being data-informed provides us with new possibilities “to attain a deeper level of understanding about the complexities of teaching and learning, and to learn how to maximise educators’ efforts to meet students’ needs” (Knapp, et al. 2006, p. 2). It means that data informs what we do – along with our own personal ethics, the understanding and knowledge of teachers and students, and individual contexts. We are not driven by numbers or blinkered into being unable to see anything else.

Despite my own personal position on using data, I am aware that there is a lot of criticism from around the world about the use of data and statistics in schools, and I do not want to shy away from it here. In his book, *Who’s Afraid of the Big Bad Dragon?* (2014), Yong Zhao discusses the Chinese education system, and warns the United States of America and other Western countries against following the Chinese lead too closely in their efforts to achieve higher educational outcomes. Early on in the book, Zhao discusses the introduction of the “No Child Left Behind” policy in the United States, instigated by US President George W. Bush in 2001. A part of this new policy was the use of standardised testing, which Zhao likened to a Trojan horse – full of authoritarianism, similar expectations and a “sameness” for all students. His perception is that the standardised testing currently in place in China limits creativity and innovation, and forces students into being test-savvy as their number one priority. Zhao reports that students and parents are driven only by a desire to succeed in these tests, and states that this is not something Western nations should aspire to, warning that other countries will fall into the same trap if they try to replicate China’s processes. In saying this, Zhao’s interpretation of the Chinese system appears very different to the way I see standardised testing functioning in Australia.

Further, when providing an historical context for the current testing regime and excellent PISA scores in China, Zhao discusses the success of leader Deng Xiaoping who came to power in 1978. Zhao reports that under Deng’s leadership, the Chinese were granted new economic freedom and opportunity. When discussing the achievement of people in rural areas over the three decades of Deng’s leadership, Zhao states,

It was not foresight or wise planning by the central government that led to China's global rise. On the contrary, it was gradual withdrawal of government planning and regulation to create an environment that allowed people to exercise their autonomy. As Deng said, if the government deserved any credit, it was for leaving people alone and letting them be – which had been the fundamental principle of good governance in ancient times. (2014, p. 60)

Although talking about economic freedom, Zhao uses this story to argue his point about data and standardised testing – that government control limits freedom, creativity and innovation. He applies this perspective to the education system in China, wildly criticising the government and culture for having unfair expectations on students around academic performance and upward social mobility, and a system and culture that limits students' freedom, creativity and innovation. His key message for Western countries is to not aspire to be Shanghai, because it is a broken system driven by test scores that prioritises test success over anything else.

Recently, a thought leader that I have so much respect for – John Kotter – wrote an article titled “The Problem with Data” (2017). Now, I fangirl over this man, but the title of his article just hurt my data-informed heart! Although he is talking more broadly about organisations, not educational institutions specifically, Kotter states,

data is essential to running organisations: putting together any rational plan; knowing whether you are operating on-plan or off; keeping things under control; finding and responding to immediate problems... Data has also emerged as a great potential asset in inventing the future – especially going beyond traditional numeric strategy exercises. We are told it can help us speculate intelligently about customer needs in new ways, even inventing entirely new ways of serving those needs. Then it might guide the allocation of resources to create a prospering future. (2017, p. 6)