Commercialisation in Public Schooling

An Australian Study

FINAL REPORT SUMMARY

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This is only a summary of the more detailed analysis of the survey undertaken. As such, only minimal technical information is recorded here. For those wanting more detailed information about the analysis of the data, including factor analysis, Mann-Whitney tests and Structural Equation Modelling, this can be found in the final report. Contact the NSW Teachers Federation for copies.

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An Australian Study

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Prepared for the New South Wales Teachers Federation

Contributors

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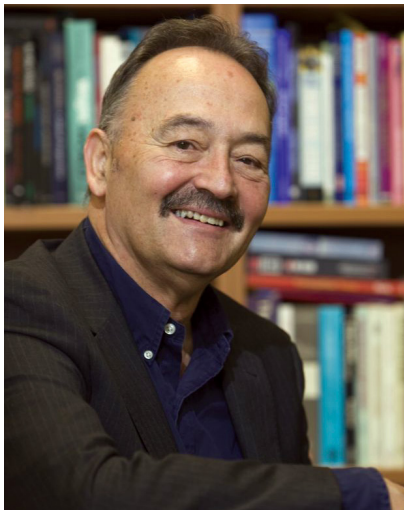

Dr Bob Lingard is a Professorial Research Fellow in the School of Education at The University of Queensland. He is a Fellow of the Academy of Social Sciences in Australia and also a Fellow of the Academy of Social Sciences in the UK. Bob has researched and published extensively in the domains of sociology of education and education policy, having published 24 books and more than 150 journal articles and book chapters. His latest co-authored book is *Globalizing educational accountabilities* (Routledge, 2016). His selected works were published by Routledge in 2014, *Politics, Policies and Pedagogies in Education*. He has directed large Research Council funded projects in Australia, the UK and in Europe, as well as directing large government commissioned research. Bob is Editor of the journal *Discourse: Studies in the Cultural Politics of Education.* He has worked with various governments and teacher unions over his career. He was the inaugural chair of the Queensland Studies Authority.

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Acknowledgements

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Chapter One
Introduction

There has been considerable academic research and literature on the privatisation of schooling (e.g. Ball, 2012, Burch, 2009, Rizvi and Lingard, 2010, Ravitch, 2012, 2014, Picciano and Spring, 2012, Au and Ferrare, 2015), set against the effects of globalisation following the end of the Cold War. Research now has moved to focus on commercialisation in schooling (Ball and Youdell, 2008) as an element of transition to a new phase of neoliberalism reflective of new state structures and relationships between the public and private spheres. The literature documents how commercialisation in schooling systems and schools in the Global South works largely in respect of low fee for-profit private schools (see Junemann and Ball, 2015), while in the Global North, commercialisation and increased involvement of large private corporations has worked largely in relation to what Sahlberg (2011) has called the Global Education Reform Movement (GERM). This has seen the introduction of top-down, test-based accountability, the introduction of market competition between schools, the use of private sector managerial practices, and an increasingly standardised curriculum that focuses on literacy and numeracy. We might speak more accurately of GERMs, as this largely Anglo-American derived educational reform movement has been taken up in vernacular ways in different societies. GERMs, with their focus on tests and related accountability infrastructures, have opened up the space for edu-businesses to offer a vast array of new products and services at all levels of education.

At the same time we are experiencing the datafication of the social world, which has been facilitated by enhanced computational capacities and new capabilities to translate various aspects of everyday life into quantitative data. Data infrastructures have become more important in the structuring and governance of schooling systems and enabled the growing involvement of private commercial interests (Ozga, 2009; Lawn, 2013; Anagnostopoulos et al., 2013). The move to big data in the work of schools and schooling systems will also open up further opportunities for edu-businesses, particularly in terms of computer-based assessments and adaptive learning technologies (Mayer-Schönberger and Cukier, 2013).

The reduced capacity of the state has opened up spaces and opportunities for edu-businesses to expand their role in schools and schooling systems, largely on a for-profit basis

The increased role of private companies and edu-businesses in respect of these various changes has resulted, to some extent, from the down-sizing and restructuring of the state bureaucracy, first under new public management (Hood, 1990) and more recently through network governance (Eggers, 2008, Ball and Junemann, 2012). The reduced capacity of the state

has opened up spaces and opportunities for edu-businesses to expand their role in schools and schooling systems, largely on a for-profit basis. Private corporations have also sought an enhanced role in all stages of the policy cycle in education (from agenda setting, research for policy, policy text production, policy implementation and evaluation, provision of related professional development and resources) in what has been referred to as the 'privatisation of the education policy community' (Mahony, Hextall and Menter, 2004). We have written about this in respect of Pearson (Hogan, 2016; Hogan et al., 2016) and News Corps (Hogan, 2015).

The Commercialisation in Public Schooling project explores the extent and character of commercialisation in Australian public schooling. The study also documents the structural conditions, as well as political values, which enable this.

Aims of the Commercialisation in Public Schooling Project

1. To understand the extent and nature or commercialisation in Australian public schooling
2. To understand the enablers of commercialisation in Australian public schooling
3. To consider the implications of commercialisation in Australian public schooling

This report consists of three component parts.

1. An account of the literature examining what is happening in education systems in relation to commercialisation in schooling.
2. A national survey of Australian Education Union (AEU) members that:
   a) asks their perceptions of the commercialisation of public education in Australia;
   b) gathers evidence of the types of activities that corporate interests are undertaking in Australian public schools;
   c) gathers evidence regarding the concerns that education professionals affiliated with the AEU have with the increased role of commercial interests in public education; and
   d) makes suggestions for further research.
3. A case study of the National Schools Interoperability Program.

Each section can be read in its own right; however, the report also sits as a coherent whole giving insights into the scale, complexity and activities of commercial providers in Australian public schooling.

Chapter Two
Literature Review

Since the turn of the 21st century and the rise of neoliberal governance, governments have become increasingly committed to marketised solutions to education problems because there is an underpinning logic that privatisation is best for increasing efficiency and effectiveness of public service delivery (Burch, 2009). This had led to a shift from top-down, hierarchical government to a more networked governance structure (Ball & Junemann, 2012). In this environment, Wanna (2009) suggests governments are redefining themselves as facilitators, whose key responsibility is managing contracts between the state and the various private sector organisations that now play a key role in steering education policy, developing curriculum and assessment, and even running schools. As Ball (2012, p.112) summarises:

> *In effect, to different extents in different countries, the private sector now occupies a range of roles and responsibilities with the state… as sponsors and benefactors, as well as working as contractors, consultants, advisers, researchers, service providers and so on… selling policy solutions and services to the state, sometimes in related ways.*

The amount of commercial services now required by the modern state has meant there are multiple profit opportunities in education; hence, the emergence of the Global Education Industry (GEI), now worth $4.3 trillion annually (see Verger, Lubienski & Steiner-Khamsi, 2016).

What has worked particularly well for the private sector is that policy has become globalised

The expansion of the GEI has been underpinned by various global trends. Verger and colleagues (2016, pp.6-11) identify six significant factors here, including: economic globalisation, the commodification of schooling as a positional good for families, the financialisation of the education sector, changes in the governance of education, the emergence of an evidence-based policy paradigm, and the intensification of the technology in learning relationship. Essentially, the expansion of the GEI is based on the idea that education is the key means to national economic competitiveness and individual success. This means national governments, systems, schools, teachers, parents and individuals are more willing to invest their money in education and education related products and services targeted at improved student outcomes (Burch, 2009).

What has worked particularly well for the private sector organisations operating within the GEI is that policy has become globalised. Think here of the ways that policymakers look to other countries and systems for evidence of best practice, and how we have seen a proliferation of standardised testing and accountability infrastructures as a common way to drive national

educational reform (Sellar & Lingard, 2013). Setting global policy reforms and common standards has enabled private sector organisations to sell curriculum materials to a global market, where for instance, a product developed for American students will have equal validity for students in the United Kingdom (UK), Australia, Italy, France, South Africa, Brazil and so on. Thus, in the GEI we have networks of private actors offering an infinite amount of educational goods and services.

Public education is now seen as a source of private economic gain

Indeed, Burch (2009) points out that particular segments of the education market in the Global North are being reinvented around testing and accountability policies where schools and governments are now purchasing products and services from the private sector that are tied to test development and preparation, data analysis and management, and remedial services. She identifies that this is an industry worth $48 billion per year in the US alone, and is in fact far more when teacher professional development, digital capabilities and various education consultancy services are included (Au & Ferrare, 2015; Verger et al., 2016). It is important to note that education commercialisation is not constrained to the Global North and has also infiltrated countries of the Global South, particularly in sub-Saharan Africa, Brazil, India and parts of Asia. In these countries, services tend to focus on the provision of English language schools, curriculum and courseware, school management services and the provision of low-fee for-profit private schools and online universities (Junemann & Ball, 2015; Edwards et al., 2015; Riep, 2015).

Thus, while public education has historically been conceived as a 'common good' and necessary in securing a nation's future civic order and economic prosperity, it is now seen as a source of private economic gain. Both civil society and governments recognise the transformational value of education and they are increasingly looking to the private sector for 'solutions' to the 'problems' of raising standards and achieving educational improvement (Ball, 2012). This explains why private sector organisations are beginning to diversify, restructure and rebrand their businesses to take advantage of the rapidly growing and increasingly lucrative education market. For example, recent sales figures from the likes of Pearson, the world's largest edu-business, indicate that the company made over $5 billion in sales during 2015 and had an adjusted operating profit of over $1 billion (Pearson, 2016). This constitutes a blurring around the traditional ideology of education as a public and social good, and begins to reimagine it as a private commodity that can be bought and sold for commercial advantage.

A neoliberal imaginary and the changing role of the state

Private sector involvement in public education must be set against, and understood as part of, broader societal shifts that have occurred through processes of globalisation. As Harvey (2007) observes, since the end of the Cold War a pervasive neoliberal ideology now characterises the world. Neoliberalism is understood as a 'theory of political economic practices proposing that human wellbeing can best be advanced by the maximisation of entrepreneurial freedoms within an institutional framework characterised by private property rights, individual liberty, unencumbered markets, and free trade' (Harvey, 2007, p. 22). Here, the role of the state is to ensure that this institutional framework is preserved. This has transformed the state's historical role; in the past the development of a strong public realm was one of the defining characteristics of Western capitalist democracies (Clarke, 2004). However, in the post-Keynesian state, conceptions of the 'public' have been progressively challenged, broken down and reconfigured in ways that promote a new form of governance. Indeed, there has been a gradual shift in

the form and functioning of the state over recent years from traditional modes of hierarchical government to more contemporary modes of heterarchical governance (Jessop, 2002; Ball & Junemann, 2012).

In this movement from government to governance, Rhodes (1997) observes that central government is no longer solely responsible for public policy decisions. Instead, the relationship between the state and civil society is one of (inter)dependencies. Held and colleagues (1999) argue, 'effective power is shared, bartered and struggled over by diverse forces and agencies at national, regional and global levels' (p. 447). Castells (2010) defines this context of power-sharing and negotiated decision making as a complex web of network interactions. It is through this network or web of actors that public services are being delivered by an increasingly diverse mix of strategic alliances, joint working arrangements, partnerships and many other forms of collaboration across sectoral and organisational boundaries. This shift in the loci of political power, from central government to a multiplicity of independent actors who operate from within and beyond government, is framed by the principles of New Public Management. Here, the neoliberal ideals of corporatisation, commodification and privatisation are promoted as necessary policy configurations for national success within the competitive global marketplace of the twenty-first century.

These developments have led to the prevalence of what some have described as a 'neoliberal imaginary' (Rizvi & Lingard, 2010), in which social domains and practices are increasingly viewed through an economistic framework, leading to the 'economisation' of social life (Ball, 2012). In short, more market and less state; more individual responsibility and less welfare provision; and more focus on the individual and less on the common good. Shamir (2008) suggests these neoliberal epistemologies largely elide any distinction between society and the market, producing in turn a 'neo-social' (Rose, 1999), where corporate rationalities and logics are increasingly deployed to inform conduct beyond the market itself, in social relations and at the level of the individual.

Social domains and practices are increasingly viewed through an economistic framework

This shift to new modes of governance and the associated adoption of market-oriented management have been key means to reform the public sector. To this end, Harvey (2005) argues domains previously regarded off-limits to the calculus of profitability have been opened to capital accumulation, and public utilities of various kinds have now been privatised to some degree throughout the advanced capitalist world. The argument for the privatisation of public services derives from market theory, which Burch (2009, p. 3) explains in the following terms: 'the higher the competition across suppliers, the higher the quality product and the lower the production cost'. From this perspective, the outsourcing of public services previously performed by the state creates a competitive market for public services, putatively increasing the quality of those services and reducing costs for taxpayers (Burch, 2009).

Privatisation of schooling

Privatisation is seen as a legitimate and potentially lucrative means of increasing the efficiency and effectiveness of the state. The adoption of this approach has challenged the ideology of traditional, state-centred, public provision of schooling, opening it instead to market-based processes of reform (Plank & Sykes, 2003). In this context, we are witnessing increasing trends in schooling towards processes of devolution, accountability, competition and choice, and, subsequently, various degrees of privatisation (Ball, 2008).

Ball and Youdell (2008) suggest that privatisation in education can be understood as being either 'endogenous', in which ideas, techniques and practices are imported from the private sector in order to make the public sector more business-like; or 'exogenous', in which public services are opened to private sector participation and the private sector is used to design, manage or deliver aspects of public education (p. 9). The first form of privatisation is when the public sector behaves more like the private sector and is widespread and well established. Already in Australia we have performance management systems, accountability infrastructures, school choice rhetoric and debate about performance-based pay schemes for teachers. The second form, however, is when the private sector moves into public education, and this is a newer, emerging practice. This includes public-private partnerships such as the Australian Curriculum Assessment and Reporting Authority (ACARA) contracting Pearson and the Australian Council for Educational Research (ACER) to develop the National Assessment Program — Literacy and Numeracy (NAPLAN) tests (see Hogan, 2016), different forms of capital production and philanthropic giving. As Ball and Youdell (2008) observe, these forms of privatisation are not mutually exclusive and are often interrelated given that exogenous privatisation is regularly made possible by prior endogenous forms.

Regardless, the privatisation of education is a 'policy tool' that works to 'reflect, respond to and reinforce changes in the forms and modalities of the modern state' (p. 68), and includes a shift 'from the *government* of a unitary state to *governance* through goal-setting and monitoring and the use of diverse participants and providers to drive policy and deliver programmes and services' (p. 112). Ball and Youdell (2008) refer to this process as 'controlled decontrol', in which contracts, targets and performance monitoring can be used to steer policy systems from a distance. In fact, many of the different forms of privatisation being introduced to school systems around the world are the result of deliberate policy under the umbrella of 'educational reform'. Yet, as Ball and Youdell (2008) point out, the impact of these policies can be far reaching for the education of students, equity and the wellbeing of teachers.

Commercialisation of schooling

While there has been much debate around the privatisation of public education, the increased prevalence of commercialisation in public education, both in Australia and around the world, has attracted less scrutiny. Commercialisation is the creation, marketing and sale of education goods and services to schools by for-profit providers (Hogan & Thompson, 2017). Commercialisation is something that happens *in* schools, as opposed to privatisation which is something that happens *to* schools (Hogan & Thompson, 2017). As previously suggested, the creation of national systems creates the opportunity or environment for private providers to become major suppliers to school systems in local education markets. Commercial providers can offer ready-made 'solutions' to the various education 'problems' schools are facing in improving student outcomes at scale (Ball, 2012; Hogan, Sellar & Lingard, 2016). As Burch (2009) notes, these services complement and supplement basic education facilities often in a context where bureaucratic or central support is being withdrawn. These services often include the provision of curriculum content, assessment services, data infrastructures, digital learning, remedial instruction, professional development for staff and school administration support. Beyond these activities, some schools are also 'outsourcing' subject delivery to private providers, particularly in non-core learning areas such as Health and Physical Education, Music and Drama (Williams, Hay & MacDonald, 2013).

The interesting distinction between the commercialisation of schooling and the privatisation of schooling is that private providers are working with and within public schools to support schooling processes, rather than taking over the delivery and running of schools on their own (e.g. privatised school models such as low-fee for-profit schools, United States of America Charter

Schools, United Kingdom Academies and Swedish Free Schools). Thus in the commercialised school, public monies (federal, state and local dollars) intended for public schooling are being used to fund the operation of commercial businesses. Yet, as Burch (2009) highlights, the scope of commercial activities in schools remains largely invisible to taxpayers, as commercialisation has crept into schools as a seemingly necessary way to deliver education in the 21st century.

On this point it is worth noting that commercialisation has had a long (and relatively uncontroversial) history in schools, as evidenced by the commercially produced textbook in classrooms since the early 20th century (Callaghan, 1964). Similarly, schools have tended to involve the private sector for transportation services, food supply and specialised instruction and facilities (Burch, 2009). However, since the 1990s many have become interested, and concerned, about the scale and scope of commercialisation. Yet, there has been as yet little empirical research around commercialisation in schooling. One emerging area of research around commercialisation has been focused on large international corporations such as Pearson (Hogan, Sellar & Lingard, 2015, 2016; Riep, 2017). Pearson has a significant involvement in the production of standardised tests in national systems and also the development of textbooks and materials that help students perform better on these tests, and given they have a monopoly on this market globally, they are able to sell these products at scale with little variation needed for individual contexts (Hogan, 2016). This research, while useful, does not provide evidence about the scope and scale of commercialisation happening in schools. The aim of the Commercialisation in Public Schooling project was to generate understanding about the nature of commercialisation in Australian public schools, particularly in terms of teaching and learning materials, curriculum delivery, Information and Communications Technologies (ICTs), professional learning and school administration.

Chapter Three
National Survey of Australian Education Union Members

About the survey

This part of the report presents research into teacher and school leader perceptions and experiences of commercialisation. All participants were Australian Education Union (AEU) members working as teachers and school leaders in public schools across Australia.

Aims of the survey

1. To survey education professionals affiliated with the AEU across Australia regarding their perceptions of the privatisation of public education in Australia
2. To gather evidence of the types of activities that corporate interests are undertaking in Australia public schools
3. To gather evidence regarding the concerns that education professionals affiliated with the AEU have with the increased role of corporate interests in public education
4. To use the survey data to suggest subsequent research.

The survey consisted of seven sections. The sections were designed to enable both qualitative and quantitative analysis to determine similarities and differences across responses.

1. A section asking where the participants work, the demographics of their school (perceived socio-economic status etc), as well as their personal characteristics, including age, gender, years of experience and role within the school (this is where the branch question is located) (8 questions).
2. A section comparing commercial provision with department provision of products/services in the areas of curriculum, assessment, instruction, behaviour management, professional learning and data analysis.
3. A section on values/worldviews in regard to public education (24 questions).
4. A section asking participants questions about their use of commercial products over the past 12 months in their schools (12 questions).
5. A section on principals' administration work asking participants about the types of commercial activity their school has recently undertaken or is undertaking (6 questions).

6. A teacher's or principal's administration concerns inventory, which asks participants to discuss their major concerns about commercialisation and why (10 questions).
7. An extended answer question asking opinions and concerns regarding commercialisation in public schools (1 question).

Cognitive piloting

The survey was designed by members of the research team. After design, cognitive piloting was used on members of the AEU in order to check that the questions were understood as intended. Cognitive piloting proceeded via four focus groups of five AEU members. These were conducted at the New South Wales Teachers Federation headquarters in Sydney. As a result of this piloting, some questions were removed or reworded to avoid confusion. [1]

Limitations

There is a very significant note of caution that must be recognised from the outset. First, unionism in Australia is voluntary, therefore the views of union members should not be assumed to be representative of all teachers and school leaders. Second, the AEU represents public, or government, school teachers and leaders. Private, or non-government, teachers are represented by a different union not included in this survey. Third, while significant attempts were made to promote this as a national survey of AEU members, the returns from some states were very low, such that we would be reluctant to support the claim that these findings were of a national nature. As the participant demographics show, 82% of the respondents came from either New South Wales (NSW) or Queensland. States/territories with large populations like Victoria and Western Australia, or small populations like Tasmania, the Australian Capital Territory (ACT) and the Northern Territory (NT) were under-represented in these findings. For example, Tasmania (n=7) contributed so little data to the survey that we could not support a claim that anything meaningful could be concluded about perceptions of commercial activity in public education in that state. Further, given the self-selection bias evident in a volunteer sample, we would also caution against generalising about perceptions of influence and concerns to the wider population. That said, as an exploratory study this survey presents many findings of interest that should be the focus of more research to enable more generalisable insights.

Key Findings

Key Finding 1: Evidence of significant commercial activity in public schools

As an exploratory study, the participants who responded to the survey reported significant commercial activity in their schools. However, participant responses suggest that while there was significant commercial activity in many schools, schools remained more likely to utilise products, services and support provided by the central department administering public education in each state. So while there was significant commercial activity, participants were more likely to have accessed central support than commercial support. This evidence was gathered using a

1 This is only a summary of the more detailed analysis of the survey undertaken. As such, only minimal technical information is recorded here. For those wanting more detailed information about the analysis of the data, including factor analysis, Mann-Whitney tests and Structural Equation Modelling, this can be found in the Final Report; Lingard, Bob; Sellar, Sam; Hogan, Anna; and Thompson, Greg; (2017). *Commercialisation in Public Schooling (CIPS).* New South Wales Teachers Federation: Sydney, NSW.

'paired question' technique in Q 12 and Q 13 and in a series of 10 questions where participants reported use of commercial resources in the past 12 months.

Qs 12 and 13 were designed to match responses about department and commercial support in the areas of curriculum, assessment, instruction, behaviour management, professional learning for accreditation and data analysis. These six areas were chosen because we argue they best represent the range of services that schools access and encapsulate the key 'message systems' of schooling in our current times. As the responses to Qs 12 and 13 demonstrate, in the areas of curriculum, assessment, instruction, behaviour management, professional learning for accreditation and data analysis, respondents reported accessing more support from their respective departments than commercial providers (and this was statistically significant, however, all effect sizes were small). However, while frequency of use of commercial provision in the past 12 months was lower, there was still considerable commercial activity in these areas.

Significant concerns about the impact that commercial activity is having in public education

The subsequent section in the survey that asked participants to report on the range of activities of commercial provision (pp.46-55) further supports this thesis. Participants reported that the commercial provision of lesson plans (x=4.16), being contacted at work via email by commercial providers offering products and services (x=3.37) and the personal cost of professional learning for accreditation (x=3.67) were the most frequent in their experience. However, participants reported that they were less likely to have used commercially sourced assessment support activities for NAPLAN and/or Year 12 examinations (x=2.30), software packages that recorded student data (x=2.53) and phonics packages (x=2.67). This still supports the argument that there is commercial activity in these areas. Participants employed in administrative or management roles (e.g. principals, assistant principals, heads of learning areas) reported relatively low commercial involvement in data analysis services, and curriculum support services. However, in the past 12 months there was a much higher likelihood that a) they had accessed commercial support and b) accessed it more frequently in the areas of behaviour and attendance tracking software sourced from commercial providers, software support and services for generating student reports and purchasing assessment and diagnostic packages from commercial providers. Once again, even though some of these figures look small, the fact that 6% of school leaders report paying for curriculum areas, or portions of those curriculum areas, to be conducted by commercial providers remains significant.

Key Finding 2: Participants are concerned about commercial activity in public schools

The members who completed the survey do evidence concern about the commercialisation of public education in Australia. This is not a universal concern, but focused on specific issues and areas of commercialisation. Analysis of questions in the Concerns Inventory (pp.62-85) using high/low analysis based on the 7-point Likert scale reveals that the participants, broadly speaking, have significant concerns about the impact that commercial activity is having in public education, both within schools and in regards to policy direction in general.

Key Finding 3: The relationship between commercial and state provision of services is different than expected

There is a relationship between commercial provision and Department provision (Q12 and Q13), but it is not what we expected. Our hypothesis was that commercial provision 'fills the

void' left by the rollback of bureaucratic services and support. Instead, we found that the commercial providers were augmenting the interventions and directions that departments were setting and/or signalling as vitally important to schools and school leaders. This would seem to indicate that commercial provision is responsive to the ways that state and national education departments set agendas and try to augment, rather than replace, what is already out there. This is an interesting finding, particularly given the tendency in much of the sociology literature to see systems as losing their coordinating role as they promote autonomy and choice agendas in the interests of fiscal prudence. It seems that the relationship between commercial providers and departments is more complex than is often given credit.

Key Finding 4: Participants have very similar views on the purpose/role of public education with the exception of a few key questions

On the questions that asked members about their beliefs or values regarding public education, the majority of participants indicated broad consensus in many areas. While we may not be surprised given that choosing to join a union most likely indicates a particular orientation to many of these questions, and if we place in parentheses the problems of the sample discussed above, out of the 24 questions that were asked, response patterns indicate a broad consensus. These questions elicited responses with very little divergence in opinion. These included questions regarding the role of public education for democracy, the need for strong centralised public education systems and the importance of multicultural education. Overall, the majority of questions (15/24) were in this category.

However, there were some questions where more diverse responses were evident. These questions elicited a range of responses, showing that the membership have different opinions regarding these issues and their relationship to the ideal of public education. Overall 9/24 questions were in this category. Examples include questions that addressed whether or not school autonomy was a good thing, whether or not innate ability explained student achievement, whether failing students should be required to repeat the school year and whether behaviour problems in schools were caused by not having tougher policies. It is these questions that are interesting because they perhaps indicate different experiences among the membership of the AEU. However, generally we would say that on most issues the participants tended towards agreement with the public position of the AEU leadership.

Key Finding 5: No significant difference based on demographics (note caution about the sample expressed above)

There was no significant difference to responses based on demographic indicators. This demonstrates that commercial provision is systemwide and fairly homogeneous, regardless of whether a school is rural or remote, or whether it is a primary school or a senior campus. While statistical analyses indicate that there were some significant differences based on demographics, in nearly all cases the effect sizes were small, which seems to indicate that physical location and structural conditions were not particularly important in explaining the type, frequency and concerns about commercial provision.

Key Finding 6: Extended response

The open-ended question asked members for their opinions about the role of education businesses, consultants and corporations in public schools. The responses revealed a diverse range of concerns about commercialisation in schooling. Almost 60% of responses

expressed concern about increasing commercialisation in schools and how this was working to de-professionalise teachers by narrowing curriculum and shifting the focus of teaching and learning to assessment, data and prescriptive student outcomes. Similarly, many responses argued their school had adopted the logics of business management. For example, principals discussed having to adopt an entrepreneurial or enterprising mindset to ensure their schools remained 'competitive' and appealing to prospective 'clientele'.

Almost 40% of responses argued that there are some benefits to commercialisation. This was especially evident when talking about resources that support teaching and learning because of the pressure faced by teachers due to an overcrowded curriculum, limited planning time and the absence or inability to access central support. Interestingly, the need for high-quality ICT hardware and software was commonly cited as an example of why commercial products and services are better than department alternatives.

It is worth noting that a majority of the responses that argued for some level of commercialisation in public schools tended to offer a caveat that commercial providers should not be able to influence school, state or national decisions about curriculum, pedagogy or assessment. Respondents agreed that this level of influence would continue to de-professionalise teaching. A high percentage of responses wanted governments and departments to learn from the failed models of commercialised and privatised schooling in the United States of America (USA) and United Kingdom (UK), and even the recent reforms made to the Technical and Further Education (TAFE) sector in Australia, so stricter regulations could be implemented in relation to commercial provision in public schooling.

Key Finding 7: National and sub-national system comparisons

There is much to be gained from comparing national and sub-national systems (see Appendices 2 and 3 in full report). The various relationships between commercial products/providers and public education are not limited to Australia, therefore there is much to be learnt about the Australian experience through these comparisons. In this instance, comparisons of school leader perceptions in Canada and Australia have been generated. More specific comparisons of the sub-samples of Alberta and New South Wales were also generated.

The concerns inventory shows that Australian school administrators report much more concern than their Canadian counterparts in regards to commercial interests in public education. However, in some of the questions (3, 7, 9, 10) the effect sizes were small so we should be cautious about over-interpreting the Canadian/Australian differences. However, the questions that generated medium effect sizes are worthy of comment. These are represented in Table 5 below.

Survey Analysis

Sample demographics

There were 2193 participants who completed the survey. All participants were members of the Australian Education Union. 51.2% of the participants came from New South Wales (NSW), while a further 30.8% came from Queensland. Only 1.1% of the participants came from the Australian Capital Territory (ACT) with the least participants (0.3%) coming from Tasmania. The conduct of the survey depended upon the state-based organisations that make up the AEU contacting their members and recruiting them to the survey. The uneven participation across these state-based organisations reflects the realities of working with a federated organisation. For whatever reason, it appears that some state-based organisations were more successful in recruiting

participants than others, most likely a reflection of strategies employed, overall interest and competing surveys being conducted within individual organisations. It must be stressed that this is a limitation of this survey. While significant attempts were made to promote this as a national survey of AEU members, the returns from many states were very low, such that we would be very reluctant to support the claim that these findings were of a national nature. As the participant demographics show, 82% of the respondents came from either NSW or Queensland. States/territories with large populations like Victoria and Western Australia, small populations like Tasmania, the ACT and Northern Territory were under-represented in these findings. Some of these like Tasmania (n=7) contributed so little data to the survey that inferences drawn are so weak it is better to claim that we know nothing about perceptions of commercial activity in public education in that state. Further, given the self-selection bias evident in a volunteer sample, we would also caution against causal generalising about perceptions of influence and concerns to the wider population. That said, as an exploratory study this survey presents many findings of interest that should be the focus of further research.

On other indicators, we are more confident that the sample represents a diverse range of respondents. On demographic indicators such as school socio-economic status (SES), type of school, type of school enrolment, years of teaching, gender and school role the sample of respondents indicates that the survey attracted views from education professionals working in a range of schools and school contexts. This diversity of respondents is important in understanding whether or not commercialisation is experienced unevenly across the sector.

Participant Demographics Frequency Tables

Table 1 State/territory location

	Frequency	Per cent	Valid Per cent	Cumulative Per cent
ACT	24	1.1	1.1	1.1
New South Wales	1122	51.2	51.2	52.3
Northern Territory	81	3.7	3.7	56.0
Queensland	676	30.8	30.8	86.8
South Australia	55	2.5	2.5	89.3
Tasmania	7	.3	.3	89.6
Victoria	116	5.3	5.3	94.9
Western Australia	112	5.1	5.1	100.0
Total	2193	100.0	100.0	

Table 2 The socio-economic context of participant school

	Frequency	Per cent	Valid Per cent	Cumulative Per cent
Average	758	34.6	34.6	34.6
Disadvantaged	736	33.6	33.6	68.1
Advantaged	336	15.3	15.3	83.4
Very disadvantaged	276	12.6	12.6	96.0
Very advantaged	87	4.0	4.0	100.0
Total	2193	100.0	100.0	

Table 3 Gender of participants

	Frequency	Per cent	Valid Per cent	Cumulative Per cent
Female	1539	70.2	70.2	70.2
Male	650	29.6	29.6	99.8
Neither male or female	4	.2	.2	100.0
Total	2193	100.0	100.0	

Table 4 Type of school where participants were employed

	Frequency	Per cent	Valid Percent	Cumulative Per cent
Primary school K-6 (or R-7 in South Australia)	1006	45.9	45.9	45.9
High school 7-12 (or 8-12 in South Australia)	843	38.4	38.4	84.3
Other	173	7.9	7.9	92.2
K-12 school	127	5.8	5.8	98.0
High school K-10 (such as district high schools)	42	1.9	1.9	99.9
Early learning school (K-2)	2	.1	.1	100.0
Total	2193	100.0	100.0	

Table 5 Enrolment policy at participant school

	Frequency	Per cent	Valid Per cent	Cumulative Per cent
Comprehensive	2004	91.4	91.4	91.4
Specialist	102	4.7	4.7	96.0
Selective	87	4.0	4.0	100.0
Total	2193	100.0	100.0	

Table 6 Participant role at their school

	Frequency	Per cent	Valid Per cent	Cumulative Per cent
Classroom/subject teacher	1317	60.1	60.1	60.1
Head of learning area	195	8.9	8.9	68.9
Principal	177	8.1	8.1	77.0
Deputy/assistant principal	170	7.8	7.8	84.8
Other	102	4.7	4.7	89.4
Student support teacher	99	4.5	4.5	93.9
Teacher-librarian	70	3.2	3.2	97.1
Primary school subject specialist/coordinator	63	2.9	2.9	100.0
Total	2193	100.0	100.0	

Commercial/Department Comparison

Q12 answered immediately after the demographic section asked the respondents to report their perceptions of support in the past 12 months from their state/territory education department in the areas of curriculum, assessment, instruction, behaviour, professional learning and data analysis services. Q13 asked respondents to report their perceptions of support in the past 12 months from a commercial provider in the areas of curriculum, assessment, instruction, behaviour, professional learning and data analysis services. These six areas represent the most common aspects of involvement in the day-to-day operations of a school and that all members of a school staff (from the classroom teacher up to the school principal) would have insight into. It is argued that these six areas are where individual schools and teachers place much emphasis and traditionally have attracted support from education departments. It follows that these would be likely areas for commercial providers to offer products and services to teachers and principals.

The hypothesis was that as department support decreases commercial provision would become more likely. This hypothesis is informed by sociological notions of what happens when education bureaucracies devolve their previous responsibilities, and create a vacuum that commercial providers fill (Robinson, 2015). This logic argues that as state (in this context, education departments) becomes increasingly decentralised and engages in outsourcing work previously being done within its bureaucratic structure, commercial providers step in to the void. This would imply that an inverse relationship between the level of department involvement and commercial involvement across the six areas. However, analysis showed that while there was a statistically significant difference in the relationship between department involvement and commercial involvement, the effect size overall was small (0.26) indicating a weak positive correlation between perceived department involvement and perceived commercial involvement.

Figure 1 Department support

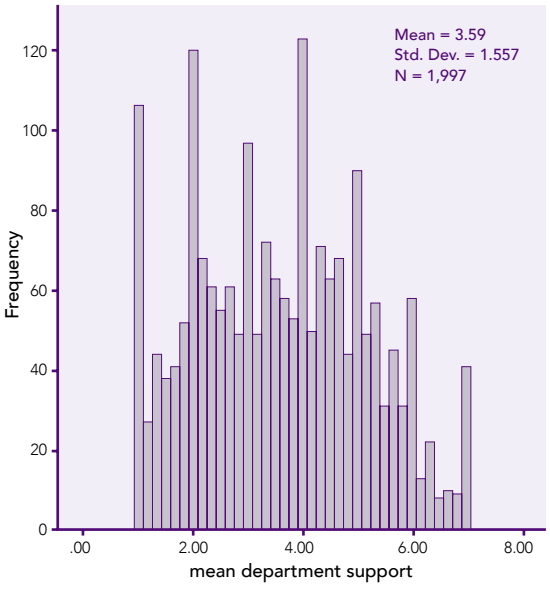

Figure 2 Commercial support

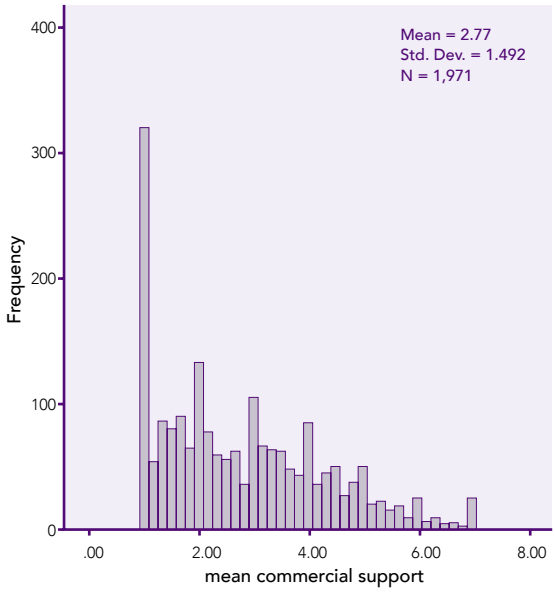

Table 7 Department/commercial support comparison

Statistics

		Mean department support	Mean commercial support
N	Valid	1997	1971
	Missing	196	222
Mean		3.5942	2.7694
Median		3.5000	2.5000
Standard deviation		1.55738	1.49191

A Mann-Whitney test indicated that schools accessed more support with respect to provision of resources across the six categories (curriculum, assessment, instruction, behaviour, professional learning and data analysis services) from the state department (Mdn= 3.5) than from commercial providers (Mdn = 2.5). The difference was statistically significant, p <.001 but the effect size was small r =.26.

Summary

The comparison of responses is represented in the Table below. This shows that while there were statistically significant differences, the effects were either small or very small. The one exception was data analysis which had a medium effect size. This may indicate that departments are paying extra attention to supporting schools with data analysis at the moment, perhaps not surprising give the importance placed on NAPLAN and Year 12 examinations, so that schools feel less need to utilise commercial support for data analysis.

Table 8 Department/commercial support effect size

Area	Department/ Commercial	Mean	SD	Significance	Effect Size
Curriculum	Department	4.02	1.88	p <.001	r =.24 (small)
	Commercial	3.07	1.94		
Assessment	Department	3.67	1.88	p <.001	r =.24 (small)
	Commercial	2.75	1.86		
Instruction	Department	3.34	1.81	p <.001	r =.1 (very small)
	Commercial	2.95	1.86		
Behaviour management	Department	3.14	1.79	p <.001	r =.18 (small)
	Commercial	2.51	1.72		
Professional learning	Department	3.75	1.86	p <.001	r =.19 (small)
	Commercial	3.02	1.92		
Data analysis	Department	3.73	1.90	p <.001	r =.33 (medium)
	Commercial	2.45	1.74		

The responses indicate that participants remain more likely to access support from state departments than commercial providers in the areas of curriculum, assessment, instruction, behaviour, professional learning and data analysis services. While it also appears that there are a large number of teachers who report almost no support from either department or commercial providers, this was higher for commercial providers than departments. Qs 12

and 13 were designed to match responses about department and commercial support in the areas of curriculum, assessment, instruction, behaviour management, professional learning for accreditation and data analysis. These six areas were chosen because we would argue that they best represent the range of services that schools access and encapsulate the key 'message systems' of schooling in our current times. As the responses to Qs 12 and 13 demonstrate, in the areas of curriculum, assessment, instruction, behaviour management, professional learning for accreditation and data analysis, respondents perceive that they have accessed more support from their respective departments than commercial providers (and this was statistically significant).

However, while frequency of use of commercial provision in the past 12 months was lower, there was still considerable commercial activity in these areas. The plotting of aggregated means to Qs 12 and 13 (aggregated because we added the responses to department provision of curriculum assessment, instruction, behaviour management, professional learning to accreditation and data analyses means as on pp.38-45 before doing the same to commercial provision) shows that while there was greater support from the department, commercial provision was not far behind. However, this should not be surprising, as we would expect that departments would offer support to schools in these areas, it is, after all, their reason for existing. This would support the premise that commercial provision is widespread in the areas of curriculum assessment, instruction, behaviour management, professional learning for accreditation and data analyses. We do note that these responses were not uniform, for example there appeared to be more commercial involvement in professional learning for accreditation than in curriculum services.

One possibility that deserves further scrutiny is that commercial providers conduct their business in response to the aims and policy objectives that education departments are focusing their attention on, but perhaps do not have the expertise or workforce to adequately support. Thus, the relationship is not one of replacement but of support; commercial products and services are designed to complement strategic and policy directions that education systems have already implemented. If we think historically, the logical antecedent to this is textbook publishers responding to curriculum change by trying to get ahead of the game by producing textbooks for curriculum in advance. As policy in Australia has turned to national curriculum, standardised assessments and datafied accountability it is little wonder that commercial products have been developed to support schools and departments in their delivery. This may explain the positive relationship between commercial and department provision.

Worldviews

The first section after demographics was a series of questions designed to explore the worldviews, or values orientations, of participants. The focus of these questions was education issues that tend to generate much debate such as orientations to curriculum, school funding and school accountability. The worldview schedule consisted of 24 questions that were grouped into constructs identified in previous research by Doherty, Patton and Shield (2015). The hypothesis being tested here was that members of teacher unions are likely to share similar views about many of these issues. However, while there may be much consensus in responses to the questions on worldview and/or values, our other interest was in which questions would this consensus not materialise. This is an important point in that it gives teacher unions valuable information in regards to the beliefs/values of their members.

Social democratic worldview

The following questions were used to map the level of social democratic worldview (SDWV) teachers hold with respect to specific policy, teaching and operational issues. The level of SDWV

is plumbed via a 7-point Likert like scale where 1 represents "not at all" and 7 represents "to a great extent".

A score of 6 or 7 is interpreted as that respondent having significant levels of SDWV with respect to the topic and a score of 1 or 2 indicating none or little SDWV. A score of 4 is taken to indicate moderate SDWV. The median value is the 50th percentile and is interpreted as 50% of respondents registering at or above this value and 50% registering at or below this value.

Table 9 Worldview descriptive statistics

	N	Minimum	Maximum	Mean	Standard deviation
Education as a public good	2185	1	7	6.46	1.097
Democracy	2168	1	7	5.30	1.690
Importance of student-centred pedagogy	2170	1	7	5.73	1.400
Importance of central system	2171	1	7	6.34	1.154
Tests measure teacher proficiency	2186	1	7	2.34	1.369
Lower SES — funded higher	2171	1	7	6.15	1.249
Importance of social development	2170	1	7	5.13	1.281
Diverse cultures	2157	1	7	6.00	1.242
Valid N (listwise)	2045				

Factor structure SDWV

Given the high level of response skewness in many of the SDWV items and the small to very small inter-item correlations (only two above the minimum requirement of 0.4), it was deemed inappropriate to attempt to fit a factor structure across the SDWV items.

Table 10 Correlations SDWV

	SDWV1	SDWV2	SDWV3	SDWV4	SDWV5	SDWV6	SDWV7	SDWV8
SDWV1	1							
SDWV2	**.410****	1						
SDWV3	.344**	.341**	1					
SDWV4	**.442****	.312**	.248**	1				
SDWV5	.042	.106**	.153**	.049*	1			
SDWV6	.220**	.169**	.134**	.284**	.023	1		
SDWV7	.058**	.090**	.164**	.047*	-.059**	.165**	1	**
SDWV8	.246**	.286**	.273**	.218**	.014	.278**	.284**	1

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Summary

The lack of a factor for the SDWV is because there is too much skewness, or not enough range in the responses, indicating that there is a widespread consensus amongst participants in relation to the questions. This tentatively suggests that the AEU participants tend to view current education issues in similar ways. This is perhaps to be expected in most forms of unionism where the commitment to the ideal of unionism in general translates to common beliefs about problems/issues.

Neoliberal Worldview Inventory

The following questions attempt to map the level of neoliberal worldview (NLWV) participants hold with respect to specific policy, teaching and operational issues. The level of NLWV is plumbed via a 7-point Likert like scale where 1 represents "not at all" and 7 represents "to a great extent".

A score of 6 or 7 is interpreted as that respondent having significant levels of NLWV with respect to the topic and a score of 1 or 2 indicating none or little NLWV. A score of 4 is taken to indicate moderate NLWV. The median value is the 50th percentile and is interpreted as 50% of respondents registering at or above this value and 50% registering at or below this value.

Table 11 Neoliberal Worldview Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard deviation
Competition improves quality	2188	1	7	2.08	1.368
Schools need autonomy	2162	1	7	3.81	1.696
Reward test/ATAR performance	2172	1	7	1.62	1.068
Teachers on contracts	2163	1	7	1.56	1.115
Not enough accountability	2154	1	7	4.61	1.636
More commerical provision	2166	1	7	2.33	1.360
Schools run as businesses	2170	1	7	1.32	.882
Businesses need more say	2185	1	7	1.78	1.147
Valid N (listwise)	2036				

Factor structure NLWV

Given the high level of response skewness in many of the NLWV items and the small to very small inter-item correlations (none above the minimum requirement of 0.4), it was deemed inappropriate to attempt to fit a factor structure across the NLWV items.

Table 12 Correlations NLWV

	NLWV1	NLWV2	NLWV3	NLWV4	NLWV5	NLWV6	NLWV7	NLWV8
NLWV1	1							
NLWV2	.152	1						
NLWV3	.361	.120	1					
NLWV4	.292	.115	.391	1				
NLWV5	-.093	.029	-.053	-.071	1			
NLWV6	.231	.149	.201	.243	.006	1		
NLWV7	.312	.121	.204	.240	-.094	.353	1	
NLWV8	.275	.118	.196	.227	-.035	.326	.371	1

Summary

The NLWV similarly failed to generate a construct due to the skewness of the responses. As can be seen by the responses, the NLWV tended to focus on issues of funding, markets and accountability in education, key concerns for teacher unions and their members. Once again, this seems to confirm the hypothesis that there is a general consensus around these debates. However, unlike the SDWV, there were two questions where this consensus was not apparent, namely 'To what extent do you think that schools are sufficiently accountable for student results?' and 'To what extent do you think that public schools should have complete autonomy in their day-to-day operations?'. This is interesting. As notions of autonomy and accountability have become central to policy agendas, it may be that these remain poorly defined terms that are used in different contexts in different ways. Given these responses, it would be very useful for teacher unions to understand how their members understand autonomy and accountability, and use this to promote a nuanced understanding of these concepts amongst its membership. Clearly the AEU participants see accountability and autonomy in more nuanced ways than what the policy debates often seem to indicate.

Conservative Worldview Inventory

The following questions attempt to map the level of conservative worldview (CWV) teachers hold with respect to specific policy, teaching and operational issues. The level of CWV is plumbed via a 7-point Likert like scale where 1 represents "not at all" and 7 represents "to a great extent".

Table 13 Conservative Worldview Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard deviation
Celebrate British Empire	2164	1	7	3.55	1.500
Teach multiculturalism	2160	1	7	5.42	1.443
Scripted instruction effectiveness	2165	1	7	1.91	1.216
Focus on employable skills	2184	1	7	5.36	1.326
Stricter behaviour	2186	1	7	3.61	1.871
Students repeating grade	2179	1	7	3.29	1.919
Innate ability predicts success	2174	1	7	3.73	1.437
Schools as meritocracies	2181	1	7	3.39	1.929
Valid N (listwise)	2064				

Factor structure CWV

Given the high level of response skewness in many of the CWV items and the small to very small inter-item correlations (one above the minimum requirement of 0.4), it was deemed inappropriate to attempt to fit a factor structure across the CWV items.

Table 14 Correlations CWV

	CWV1	CWV2	CWV3	CWV4	CWV5	CWV6	CWV7	CWV8
CWV1	1.000							
CWV2	-.090	1.000						
CWV3	.159	-.135	1.000					
CWV4	.127	.048	.165	1.000				
CWV5	.240	-.204	.255	.172	1.000			
CWV6	.145	-.153	.164	.137	.482	1.000		
CWV7	.132	-.109	.169	.130	.313	.241	1.000	
CWV8	.108	-.039	.115	.143	.162	.118	.163	1.000

Summary

Perhaps the most interesting pattern of responses in regards to participant beliefs about public education is found in the 'Conservative Worldview'. Unlike the SDWV and the NLWV the 8 Qs in the CWV median responses between 3.00-4.00, indicating that many of the respondents were either not sure or they agreed with the proposition to a small extent. This is particularly true for Qs 5-8 that asked participants about behaviour, innate ability, opportunity for success and whether or not students should repeat grades based on their levels of achievement. While these did not produce a factor (in other words responses to individual items could not be explained by how participants responded to other items), there may be a case that the answers to these

questions are also worth further exploration to understand why it is that participants believe as they do, and what they base these beliefs on.

Commercial Activity Inventory

The following questions attempt to map the frequency or level of activity (ACT) teachers report with respect to commercially supplied resources. The level of ACT is plumbed via a 7-point Likert like scale where 1 represents "never" and 7 represents "very often".

A score of 6 or 7 is interpreted as that respondent being significant users of ACT with respect to the topic and a score of 1 or 2 indicating none or little use. A score of 4 is taken to indicate moderate use. The median value is the 50th percentile and is interpreted as 50% of respondents registering at or above this value and 50% registering at or below this value.

Table 15 Commercial Activity Inventory

	N	Minimum	Maximum	Mean	Standard deviation
Lesson plans	1646	1	7	4.16	1.865
Curriculum materials	1632	1	7	2.66	1.735
Online learning programs	1633	1	7	3.18	2.030
Commercial professional development	1635	1	7	3.06	1.753
Commercial reading programs	1614	1	7	2.67	2.063
Commercial standardised tests	1609	1	7	2.68	2.051
Student data packages	1604	1	7	2.53	2.049
Email or phone 'spruiking'	1616	1	7	3.37	2.181
NAPLAN/exam preparation materials	1611	1	7	2.30	1.740
Personally paying for mandated professional development	1648	1	7	3.67	2.042
Valid N (listwise)	1462				

Summary

The responses to these items suggest that some participants perceived low levels of commercial activity. Generally the modal response was either 7 or 6 indicating that many teachers had not accessed commercial support in the last 12 months. This was true for all questions except for Q ACT1: *In the last 12 months, how often have you used lesson materials (i.e. textbooks, worksheets, resources) purchased from commercial providers?* It appears that participants were much more likely to have purchased lesson materials in the past 12 months than they were to have accessed other commercial products and services.

Of course, the question remains as to what percentage of commercial goods and services teachers judged as being acceptable, or if, indeed, teachers should be trusted to make those

decisions themselves. As the table below indicates, the percentages of teachers who reported low levels, medium levels and high levels of use was fairly consistent across the questions.

Table 16 Use of Commercial Activities

Question	High/significant use in last 12 months	Moderate use in last 12 months	Low/non-significant use in last 12 months
Q1 Lesson plans	28%	49%	23%
Q2 Curriculum materials	8%	33%	59%
Q3 Online learning programs	17%	35%	48%
Q4 Commercial professional development	10%	43%	47%
Q5 Commercial reading programs	14%	25%	61%
Q6 Commercial standardised tests	15%	25%	60%
Q7 Student data packages	14%	21%	65%
Q8 Email or phone 'spruiking'	22%	33%	45%
Q9 NAPLAN/Exam preparation materials	8%	23%	68%
Q10 Personally paying for mandated professional development	23%	40%	37%

With the exceptions of Q1 (lesson plans) and Q10 (paying for mandated professional development) roughly 50-60% recorded low use, while 40-50% reported moderate or high use in the past 12 months. Interestingly, Q9 which asked teachers about commercial preparation materials for NAPLAN had the highest 'Low/Non-significant use in past 12 months' (68%) of all the questions.

Overall, this section suggests that there is significant use of a variety of commercial goods and services reported by the participants over the past 12 months. However, while moderate to high use accounted for 40-50% of the responses, low use was still the more likely position for respondents to report.

Administration Activities Inventory

The following questions attempt to map the frequency or level of activity (AdminACT) school administrators report with respect to commercially supplied resources in use in their school. For the purposes of this survey, administrators were defined as participants who identified as principals, deputy principals, assistant principals or heads of department. The level of AdminACT is plumbed via a 7-point Likert like scale where 1 represents "never" and 7 represents "very often".

Table 17 Commercial Administration Activities Inventory

	N	Minimum	Maximum	Mean	Standard Deviation
Data analysis	534	1	7	2.51	1.874
Curriculum provision	540	1	7	2.40	1.554
Commercial behaviour/ attendance programs	539	1	7	4.39	2.732
Reporting software	539	1	7	4.06	2.695
Assessment packages	537	1	7	2.99	1.828
Professional development	541	1	7	3.25	1.652
Valid N (listwise)	520				

Summary

The purpose of this section was to see if there were differences between school leader perceptions of commercial activity and that of classroom teachers. As the analysis showed, there was no statistically significant difference between leader responses and teacher responses.

Table 18 Use of Commercial Administration Activities

Question	High/significant use in last 12 months	Moderate use in last 12 months	Low/non-significant use in last 12 months
Q1 Data analysis	12%	23%	65%
Q2 Curriculum provision	6%	27%	67%
Q3 Commercial behaviour/ attendance programs	51%	11%	38%
Q4 Reporting software	44%	12%	44%
Q5 Assessment packages	12%	37%	51%
Q6 Professional development	12%	47%	41%

In respect of the specific items, 'Low/Non-significant use in last 12 months' was the modal response for school leaders for the questions on data analysis (Q1), curriculum provision (Q2) and assessment packages (Q5). This was particularly true for Q1 (65%) and Q2 (67%). Leaders reported 'High/Significant use in last 12 months' for Q3 on Commercial/behaviour attendance programs (51%). They reported moderate to high use on Q4 Reporting software (56%) and Q6 School PD (59%).

It would appear that the school leaders surveyed reported moderate to significant impact in a number of areas. Like the overall inventory, there is evidence here of commercial activity, albeit it seems restricted to specific areas. There are a number of hypotheses that could be advanced here, and deserve further attention. Given that despite the decentralisation of services, the various state and federal authorities offer support in a number of targeted areas such as curriculum and school data analysis, indicating that there is limited need for commercial services in these areas. However, technical products such as reporting and behaviour packages seem to be where most commercial activity is from the perspectives of school leaders. It remains to be seen whether or not these commercial relationships are encouraged, accepted or not known/ cared about in the bureaucracies.

Commercialisation Concerns Inventory

The following questions attempt to map the level of concern teachers and school administrators hold with respect to specific policy, teaching and operational issues. The level of concern is plumbed via a 7-point Likert like scale where 1 represents "not at all" and 7 represents "to a great extent".

Table 19 Commercialisation Concerns Inventory

	N	Minimum	Maximum	Mean	Standard deviation
Businesses dictating education policy	2175	1	7	4.92	1.862
Teacher activities being outsourced	2167	1	7	4.38	2.032
Lack of support from department	2174	1	7	5.41	1.721
Concerns around ethics of student data in commercial hands	2172	1	7	5.92	1.649
Concern re: privatisation of public education	2162	1	7	5.79	1.649
Paying for services departments should provide	2163	1	7	5.52	1.678
Concerns re: cost of technology	2152	1	7	5.50	1.765
Concern re: private tutoring	2146	1	7	3.57	1.993
Concern re: public schools running as businesses	2173	1	7	5.94	1.560
Concerns re: the quality of commercial products	2158	1	7	4.02	1.528

Summary

The members who completed the survey do evidence concern about the commercialisation of public schooling in Australia. This is not a universal concern, but focused on specific issues and areas of commercialisation. Analysis of questions in the Concerns Inventory (pp.62-85 of the full report) using high/low analysis based on the 7-point Likert scale reveals the following:

Table 20 Concern of Commercial Activitity

Question	High/ significant concern	Moderate concern	Low concern
Q1 Businesses dictating education policy	45%	40%	15%
Q2 Teacher activities being outsourced	36%	39%	25%
Q3 Lack of support from department	57%	66%	7%
Q4 Concerns around ethics of student data in commercial hands	74%	19%	7%
Q5 Concern re: privatisation of public education	68%	25%	7%

Question	High/ significant concern	Moderate concern	Low concern
Q6 Paying for services deparmtnents should provide	60%	32%	8%
Q7 Concerns re: cost of technology	61%	29%	10%
Q8 Concern re: private tutoring	20%	42%	38%
Q9 Concern re: public schools running as businesses	72%	22%	6%
Q10 Concerns re: the quality of commercial products	16%	66%	18%

This indicates that the participants, broadly speaking, have significant concerns about the impact that commercial activity is having in public schooling, both within the schools and in regard to policy direction in general. Structural Equation Modeling (SEM) was used to build a model that indicated which items in particular were tended to be linked in the responses (and by extension the perceptions) of the participants.

One interesting facet worth considering is that there appears to be a discrepancy between reported experiences of commercialisation (as evidenced in those survey questions which asked participants to report on commercial products and services accessed in the past 12 months) compared to the strength of concern expressed in regards to commercialisation. This is an interesting phenomenon to consider and there are likely to be many factors at work here. At the very least it is worthy of further research.

Comparative Analysis

In order to enable some element of international comparison to better understand the Australian perceptions of commercial activity, Canada was chosen as a site for comparison. Canada was chosen because of a number of structural and historical points of similarity to enable the most meaningful international comparison. As Perry and McConney (2013, p.128) argue:

> *The educational systems of Australia and Canada, however, are very similar. Both countries have a comprehensive system of secondary education wherein the great majority of students attend the same type of secondary school, such as "high school" or "senior high school." Common among many English-speaking countries in the OECD, the educational philosophy of both the Australian and Canadian systems is based predominantly on the pedagogical paradigms of progressivism and constructivism. The states and provinces of each country have the main control over educational funding and decision making, although Australia has adopted national standardised assessment since 2009 and is in the process of implementing a national curriculum.*

Historically, both Canada and Australia were initially colonised by the British, and this colonisation usurped the position of Indigenous groups who had lived on the land for many millennia. They were both granted independence peacefully. There is a similar government structure. Both are large countries that must deal with the logistical challenges of remote and rural communities. Both education systems are federal, with constitutional authority granted to the states/provinces to conduct public education. State/provincial teacher unions are also federated within a national representative body. As the Canadian Teachers Federation (CTF) regularly surveys its school leaders, the section regarding the Administration Activities Inventory and the Commercial Concerns Inventory were sent out to school principals in August 2016.

The Canadian principal responses are compared with the Australian school leaders (principals, deputy principals, head of learning areas) below.

Sample

There were 542 Australian school administrators (who self-reported as principals, deputy principals and head of learning areas) who completed the survey. There were 920 Canadian school administrators (who self-reported as principals). It is important to note the difference in these two samples as the Australian participants include deputy principals and head of learning areas. Both Australian and Canadian participants were recruited using a volunteer sample. The premise behind a volunteer sample was that as this survey was exploratory, and given the intense workloads of school administrators reported in both Canada and Australia, this was the parsimonious approach to recruitment. Within the sample, the state/province with the largest number of participants was New South Wales and Alberta respectively. These jurisdictions have also been analysed.

Participants were recruited via their respective teacher unions that may explain the somewhat uneven participation across both countries according to state or province representation. While these limitations are important to note, and prevent causal claims being made, both samples are robust enough to enable exploratory analysis.

The comparison is conducted at two levels. The first of these is at the national scale (Canada versus Australia). The second of these concerns the two largest jurisdictions in the initial responses, Alberta and New South Wales.

Administration Activities Inventory — Canada and Australia

The following questions map the frequency or level of commercial activity (understood as products and services) school administrators in Canada and Australia report in use in their school. The report uses the abbreviation AdminAct to represent this. The frequency of commercial activity for school administrators is determined via a 7-point Likert like scale where 1 represents "never" and 7 represents "very often". A score of 6 or 7 is interpreted as that respondent reporting significant use of commercial products and services with respect to the topic and a score of 1 or 2 indicating none or little use. A score of 3-5 is taken to indicate moderate use. The median value is the 50th percentile and is interpreted as 50% of respondents registering at or above this value and 50% registering at or below this value.

This inventory focuses on six areas of commercial activity; data analysis programs, curriculum provision, attendance and behaviour tracking software, software programs that are used to generate student reports, assessments and professional development. These areas were chosen because focus groups of Australian teachers indicate they are areas where school-wide products and services are most likely to be available.

Table 21 Comparison of Administration Activities Inventory — Canada and Australia

	Australia				Canada			
	Count	Median	Mean	Standard deviation	Count	Median	Mean	Standard deviation
Data analysis	542	2	3	2	920	2	3	2
Curriculum provision	542	2	2	2	920	2	2	2
Commercial behaviour/ attendance programs	542	6	4	3	920	5	4	3
Reporting software	542	4	4	3	920	5	4	2
Assessment packages	542	2	3	2	920	2	3	2
Prpfessional development	542	3	3	2	920	2	3	2

Commercialisation Concerns Inventory — Canada and Australia

The following questions attempt to map the level of concern school administrators hold with respect to specific policy, teaching and operational issues associated with commercial interests in public education. The level of concern is derived via a 7-point Likert like scale where 1 represents "not at all" and 7 represents "to a great extent". A score of 6 or 7 is interpreted as that respondent having significant levels of concern with respect to the topic and a score of 1 or 2 indicating none or little concern. A score of 3-5 is taken to indicate moderate concern. The median value is the 50th percentile and is interpreted as 50% of respondents registering at or above this value and 50% registering at or below this value.

Table 22 Comparison of Commercialisation Concerns Inventory — Canada and Australia

	Australia				Canada			
	Count	Mean	Median	Standard deviation	Count	Mean	Median	Standard deviation
Businesses dictating education policy	542	5	5	2	920	3	2	2
Teacher activities being outsourced	542	4	4	2	920	2	2	2
Lack of support from department	542	5	6	2	920	5	5	2
Concerns around ethics of student data in commercial hands	542	6	7	2	920	4	4	2
Concern re: privatisation of public education	542	6	6	2	920	3	3	2
Paying for services departments should provide	542	5	6	2	920	3	3	2
Concerns re: cost of technology	542	6	7	2	920	5	6	2
Concern re: private tutoring	542	3	3	2	920	3	3	2
Concern re public schools running as businesses	542	6	6	2	920	4	4	2
Concerns re: the quality of commercial products	542	4	4	2	920	4	4	2

Summary

The concerns inventory shows that Australian school administrators report much more concern than their Canadian counterparts in regards to commercial interests in public education. This is despite the fact that they reported similar levels of commercial activity in their schools over the past 12 months. It appears based on these results that concern for these participants is motivated by something other than direct personal experience of the frequency of commercial activity that they encounter or are involved with. However, in some of the questions (3, 7, 9, 10) the effect sizes were small so we should be cautious about over-interpreting the Canadian/ Australian differences. However, the questions that generated medium effect sizes are worthy of comment. These are represented in the Table below.

Table 23 Medium effect size

Number	Concern	Significance	Effect size
1	Business dictating education policy	p <.001	r =.4
2	Outsourcing common activities	p <.001	r =.39
4	Student data	p <.001	r =.39
5	Privatisation of public education	p <.001	r = 49
6	Paying for services traditionally provided by education departments	p <.001	r =.47

As this is an exploratory study, the explanation as to why these responses are so different is purely speculative. Given the similarities between the Canadian and Australian education systems, both structurally and historically, it would appear to be worthwhile to conduct further research to try to ascertain why this difference emerges. Perhaps, as Perry and McConney argue, an "important difference between the two educational systems is the level of marketisation — i.e., privatisation and school choice — evident in the two systems" (2013, p.128). It would also be worthwhile to consider whether creating a national schooling system through data, as has occurred in Australia though mandated national testing systems, a national curriculum and national teaching and teacher education standards contributes to these concerns. This seems to be one significant difference between Australia and Canada, however, it is not possible to move beyond speculation given the nature of this study.

NSW and Alberta

New South Wales and Alberta were further chosen for analysis because they represented the largest sub-samples of school leaders in Australia and Canada who participated in the survey. There were 290 school leaders from NSW and 256 principals from Alberta who completed the survey. The details for the two sections analysed, Administration Activities Inventory and Commercialisation Concerns Inventory remain the same as for the Australia/Canada comparison.

Table 24 Comparison of Administration Activities Inventory — NSW and Alberta

	NSW				Alberta			
	Count	Median	Mean	Standard deviation	Count	Median	Mean	Standard deviation
Data analysis	290	1	2	2	256	2	3	2
Curriculum provision	290	2	2	1	256	2	3	2
Commercial behaviour/ attendance programs	290	7	5	2	256	6	5	2
Reporting software	290	7	5	2	256	6	5	2
Assessment packages	290	2	3	2	256	3	3	2
Professional development	290	3	3	2	256	3	3	2

Table 25 Comparison of commercialisation concerns inventory – NSW and Alberta

	NSW				Alberta			
	Count	Mean	Median	Standard deviation	Count	Mean	Median	Standard deviation
Businesses dictating education policy	290	5	5	2	256	3	3	2
Teacher activities being outsourced	290	4	4	2	256	3	2	2
Lack of support from department	290	6	6	2	256	4	5	2
Concerns around ethics of student data in commercial hands	290	6	7	2	256	4	4	2
Concern re: privatisation of public education	290	6	7	2	256	4	3	2
Paying for services departments should provide	290	6	6	2	256	4	4	2
Concerns re: cost of technology	290	6	7	1	256	5	6	2
Concern re: private tutoring	290	4	4	2	256	3	3	2
Concern re: public schools running as businesses	290	6	7	2	256	4	4	2
Concerns re: the quality of commercial products	290	4	4	2	256	4	4	2

Summary

The concerns inventory shows that NSW school administrators report much more concern than their Albertan counterparts in regards to commercial interests in public education. This is despite the fact that they reported similar levels of commercial activity in their schools over the past 12 months. The different levels of concern in NSW and Alberta are even more pronounced that in the Canada/Australia comparison, further underscoring that there appear to be other factors involved in participant concern, rather than direct personal experience of the frequency of commercial activity that they have encountered or been involved with. In questions 7 and 8 the effect sizes were small so we should be cautious about over-interpreting these differences. Question 10, which asked about the quality of commercial products, did not return a statistically significant difference. However, the questions that generated medium and large effect sizes are worthy of comment. These are represented in the Table below.

Table 26 Medium effect size

Number	Concern	Significance	Effect size
1	Business dictating education policy	p <.001	r =.44
2	Outsourcing common activities	p <.001	r =.38

3	Little department support for schools and teachers	p <.001	r =.36
4	Student data	p <.001	r =.46
9	Public schools being run as businesses	p <.001	r =.48

Table 27 Large effect size

Number	Concern	Significance	Effect size
5	Privatisation of public education	p <.001	r =.55
6	Paying for services traditionally provided by education departments	p <.001	r =.52

As this is an exploratory study, the explanation as to why these responses are so different is purely speculative. However, a reasonable argument could be made that these perceptions reflect, at some level, the various policies and systems in place in Alberta and NSW. As noted in Case Study 1, if the creation of a national schooling system through data, as has occurred in Australia is having an impact, it may be that this is of significant concern in NSW. Equally, given that Albertan school administrators express less concern in regard to commercialisation, it would be important to understand what some of these protective factors appear to be. This is particularly important for questions 5 and 6, which generated statistically significant differences with a large effect size. Why is it that NSW teachers are far more concerned about the privatisation of public education and that their schools must pay for services once delivered freely by their central department? Answering these questions is outside the scope of this research design, but worthy of further research.

Open Ended Response Analysis

The themes reported here focus on the open-ended question concluding the survey: 'Do you have any other opinions and concerns about the role of education businesses, consultants and corporations in public schools?' Of the 2,193 AEU members who undertook the survey, 720 took the option of writing an extended response to this question. The responses provide further detail for understanding AEU members' perceptions about commercialisation in Australian public schooling.

- 38% of responses argued that Australian public schools have adopted the logics of business management, offering both affordances and challenges to the day-to-day practice of schools.
- 38% of responses argued that there are benefits to education commercialisation, particularly in terms of resources that support teaching and learning.
- 59% of responses expressed concern about increasing commercialisation and generally called for increased quality control and tighter regulation of the commercial products and services available to public schools.
- 43% of responses argued that commercialisation was having an impact on teachers' work, professional learning and wellbeing, as well as curriculum and student achievement.
- 40% of responses expressed concerns about the conduct of the federal and state governments and education departments in developing and enacting effective public education policy.
- 3% of responses did not express views relevant to the question posed.

Table 28 Extended response themes

Themes	Sub-themes	Frequency	Percentage
Business models — challenges and affordances	Business logics governing school management	119	
	Competition and school choice	73	
	Families and students as clientele	50	
	School sponsorship and advertising	32	
	TOTAL	274	38%
Benefits of commercialisation	Productive public-private partnerships	44	
	Commercial products can be useful resources for teaching and learning	182	
	Commercial products are considered better than Departmental alternatives	50	
	TOTAL	276	38%
Critique of commercialisation	Deprofessionalisation of teachers	70	
	Quality and regulation of commercial products and services	205	
	The challenge of ICTs for centralised bureaucracies	39	
	Commercialisation has no place in public schools	108	
	TOTAL	422	59%
Impact on teaching	Impact on teachers' work	100	
	Impact on curriculum	59	
	Impact on student achievement	68	
	Impact on professional learning	32	
	Impact on teacher wellbeing	50	
	TOTAL	309	43%
Government and department concerns	Evacuation of responsibility	118	
	Learning from the USA and UK	47	
	Public school funding concerns	74	
	Fear of public schools following TAFE model	21	
	Special needs schools and students disadvantaged	30	
	TOTAL	290	40%
Other	No relevant code	11	
	Survey concerns	14	
	TOTAL	25	3%

Business models — challenges and affordances

Thirty eight per cent of responses identified that Australian public schools have adopted the logics of business management, offering both challenges and affordances to how schools are being run, the types of interactions schools and teachers now have with parents and students, as well as the relationships that schools now attempt to cultivate with private sector organisations. School leaders commonly referred to needing to run schools more like businesses to ensure that they were budgeting effectively, maintaining a competitive advantage and improving student outcomes:

> *We must compete with our neighbouring schools. We must market ourselves in order to attract potential clients. We identify our unique selling points. We upsell our curriculum offerings. We mine our data. We talk about performance-based pay. We set teachers up to be rivals in the marketplace. We must meet targets. We measure ourselves according to indicators, milestones, or performance criteria. We are managers, administrators, marketing professionals, financial experts and IT trouble-shooters. Public schools have been forced to become more like businesses.*

As Bloxham, Ehrich and Radha (2015) have argued, high-stakes accountability environments encourage principals to adopt a corporate, managerialist approach to leading education. In many respects, the characteristics of school leadership are now described as forms of management, as they have shifted to emphasise efficiency, effectiveness and accountability at the expense of a more pedagogical orientation to the role (Dempster, Freakly & Parry, 2001). Indeed, teachers' responses tended to highlight the shift to business management styles as problematic because they felt leadership were working to change the meanings and purposes of schooling. As one person argued, "Principals and senior staff now commonly use managerial language and the jargon associated with business and the market. We are regularly told that parents are 'shopping around' and that we need to be an attractive product!" Similarly, another commented, "The language during staff meetings is less about nurturing and educating students who attend a given school and more about managing the school and raising student performance or 'productivity'."

Beyond the use of business language, teachers commonly referenced their concern with how families and students are now positioned as 'clientele'. Chief amongst their concerns was that public schools are working to shift costs of commercialisation to parents, with subsequent effects on teacher-parent relationships, pedagogy and equity. As one teacher explained, families are frequently asked to subsidise many of the commercial products and services being purchased by schools and teachers. They make the point that teachers are now expected to "chase money" from parents "which not only consumes time but also potentially damages relationships with parents". Another suggests that asking parents to subsidise costs or even buy commercial products (e.g. laptops and iPads) outright has meant that teachers feel pressure to ensure these are used in their classrooms, regardless of whether they are pedagogically necessary. As argued by a number of responses, it is not just asking parents to pay for these products and services, or the ways in which they influence their curriculum planning, but they have also referred to significant equity issues in that children are excluded from classroom experiences if their parents choose not to, or cannot afford to pay:

> *At our school this has been translated as providing access to programs like Sunshine Online, Reading Eggs and Mathletics... At our school parents are asked to pay for their subscription to these programs. Where parents are unable or unwilling to pay, their child cannot use the program. Therefore, within classrooms there are some students who can use the programs and others who cannot.*

As Taylor-Gooby and Hastie (2003) argue, this is a common dilemma for public institutions in the welfare state in which not enough money is given for services that meet the expected standards of provision that most people want. Indeed, some research suggests these issues are a common reason for why parents might choose to send their child to a private school that is potentially better resourced (Goldring & Phillips, 2008). So while there are significant equity issues, it seems that it is now a common phenomenon for Australian public schools to transfer costs of commercialisation to parents.

Interestingly, teachers and leaders also recognised sponsorship and advertising as playing a key role in appropriately financing schools, however, most responses were quite divided on this issue. Those that supported school sponsorship did so with the rationale that it was necessary to support their limited school budgets, particularly in terms of ICT and sports equipment resourcing: "I'd encourage more corporate sponsorship to provide equipment. Our students are very poor and they have very little access to technology. Corporate sponsorship would be an effective way to get computers into our classrooms." Others, however, expressed frustration and/or concern at having to rely on commercial or philanthropic funding sources like Woolworths for adequate support. Interestingly, some comments questioned what the 'price' of school sponsorship might be, including school-based advertising or even influence on curriculum, where for example "sponsorship by a fast food company is in conflict with the teaching of healthy nutritional habits". Many responses voiced that schools should be free of corporate philanthropy, including one response that explained their school had turned down the offer to be sponsored by McDonald's:

> *The idea was put to the school community that the local McDonald's franchise would give us a certain amount of money if we would have their logo on the school uniform! … For such a giant organisation why not just give a donation of goodwill to the community they have profiteered off for so many years (and still do)? Morals, ethics, greed and scruples are all intertwined. Thank goodness the majority saw this as a very bad idea and it was not accepted.*

As suggested by this teacher there has been a shift in the notion of philanthropy, from the historical conception of a social obligation where funders had no control over how donations could or should be used, to social investment where funders seek to maintain control of the money (Saltman, 2010) and often direct its use to influence education policies and practices (Au & Ferrare, 2014; Au & Lubienski, 2016; Lipman, 2015; Reckhow, 2013; Reckhow & Snyder, 2014). Regardless, it is apparent that a key factor driving the business management of schools is a perceived lack of funding, where school leaders are attempting to fill this void through parental contributions and venture philanthropy. It is clear that principals in Australian public schools have become middle managers working to balance multiple responsibilities to ensure they engage and function effectively within a market-oriented and competitive environment (see Carpenter & Brewer, 2014; Dempster, Freakly & Parry, 2001; Goldring and Schuermann, 2009; Thompson & Mockler, 2016; Rousmaniere, 2013).

Benefits of Commercialisation

The most commonly referred to benefit of commercialisation was that commercial products are useful resources for teaching and learning. In particular, teachers perceived that commercial resources were necessary for their day-to-day practice and an important component to adequately resource public schools. Many comments reported that commercial products were helping "time poor" teachers design "high quality learning experiences" and assisting them to "differentiate learning" for their students. In fact, a majority of responses argued that when "commercial businesses provide high quality, well written and presented products that abide

by teaching guidelines these are not a problem" and are actually "advantageous to support the delivery of curriculum based on the needs of individuals and groups within a school context". Moreover, it was commonly cited that when teachers lack a particular skill or area of expertise it is best to "outsource". For example, one response indicated that their school purchased The Jellybeans music program because their teachers "do not have the skillset, equipment or musical expertise to implement this learning area". In fact, over 25% of survey responses agreed that commercial products help "provide teachers with a wide range of resources to support a well-structured learning program". It is unsurprising that teachers feel they need commercialised resources given the traditional commercialised textbook has been a prominent feature of schooling since the early 20th century (Callaghan, 1964). Online, digital, malleable and adaptable unit plans, lessons and learning experiences could be considered the new-age textbook of the 21st century (Hogan et al., 2017).

In reporting the benefits of commercial resources, it is interesting to note that most responses also included a warning or caveat to their usefulness. Concern was expressed about the "lazy approach to teaching" in which teachers adopt a "one size fits all approach where the textbook (or resource) becomes the curriculum". Others noted that while commercial companies can provide resources at a "reasonable price" not all schools can afford to purchase this type of support and thus equity issues exist and the "gap between the haves and have nots continues to grow". Similarly, there was some apprehension apparent about the "hidden agendas" of commercial organisations and how they might be "driving curriculum and assessment to take over publicly devised aspects of education" on a for-profit basis. As summarised by the following response: "Commercial producers have a place in the resource market for teachers but must never be considered as a substitute for quality teaching — this is what we are trained to do and we must remain the experts in this regard". As Hogan and colleagues (2017) argue, commercial resources are potentially important additions to a teacher's pedagogical toolbox as long as they are able to modify them to create bespoke learning experiences to meet the needs of their students. These findings suggest that (not all) teachers are not being seduced by commercialisation and the 'quick fix' it promises. However, Hogan et al. (2017) do caution that we still need to be critical of the 'intensity' of commercialisation that exists within schools and classrooms.

We still need to be critical of the 'intensity' of commercialisation that exists within schools and classrooms

When we consider how the ICT and education technology industry interacts with schools, this idea of intensity becomes clearer. Many responses argued that ICT and technology solutions, including attendance and timetabling software, as well as programs that assist in the recording, summarising and reporting of student assessment, were absolutely necessary to purchase from the private sector, particularly because teachers, school leaders and even education departments do not have the skills or expertise to develop these services and programs themselves. As one response argued:

> *The fact that schools are increasingly seeking resources and help from businesses and corporations is a sad reflection on the Education Department. It shows that the Education Department is underfunded and there is a lack of commitment for developing quality and useful resources. A classic example is the frequent use of Sentral in public schools, which is a fantastic program. The Education Department tried to bring out their own version, using inferior software with significant bugs and issues and [still] wonder why schools choose not to use the free resources available to them, but instead pay for quality resources elsewhere.*

This comparison between the Department's "old, clunky and slow systems" and the commercial provider's "effective, efficient and modern programs and apps that are user friendly and save staff, students and parents time" was common. Given the scale of the education technology industry, we would argue that Australian public schools will continue to expand their uptake of education software and digital content, which Richards and Stebbins (2014) suggest is organised into three related markets: instructional support (including testing and assessment, learning management systems, online professional development, productivity tools), enterprise management (which included school administration tools, data and IT management tools, IT consulting and digital content repositories) and content (covering curriculum areas such as reading/language arts/literacy/English/literature, arithmetic/mathematics, science and social studies/history). This phenomenon will be a significant space for future research that seeks to understand whether this type of commercialisation helps or undermines teacher professionalism.

Critique of Commercialisation

In contrast to the previous section in support of commercialisation in Australian public schools, almost 60% of responses argued against commercialisation, or at least expressed concern about the quality of commercial products and services, how these are currently regulated and how they perceive these as contributing to the deprofessionalisation of teachers in Australia. Most commonly cited was the unease teachers felt when "forced" to implement commercial programs in their classrooms to align with the broader strategic objectives of their school. Many expressed that they voiced their concerns to their principals but were often ignored:

> *We are made to test our students on PAT-R tests [Progressive Achievement Test – Reading] when the creators [ACER] obviously have no ability to understand what is needed for students to have the best opportunity to achieve… PAT-R ignores educational research, students (even better readers) get tired and give up and guess answers half way through the tests. Yet, teachers have to collect this data, put it into One-School and we are asked why our data is not improving. When PAT-R was first introduced, I voiced my concern to the principal, was thanked for my concern — nothing changed.*

Similarly, other teachers highlighted they had taken their concerns about tests that did not appropriately align with the achievement standards of the Australian Curriculum straight to the commercial provider, only to be dismissed at this level as well. As one respondent noted: "I feel these publishers, as multi-national companies, show little regard for producing quality materials that relate to the Australian Curriculum and simply provide a generic product composed from materials prepared for education systems in other countries."

Private providers have sophisticated marketing campaigns and lobbying strategies to ensure their products and services are taken up by governments

A number of responses expressed their frustration not only in the way commercial products were infiltrating public schools, but also in the way that commercial providers are advertising their products to schools and teachers. A common complaint was the "endless emails" teachers and principals are receiving on a daily basis. As one respondent notes: "My inbox is full of offers from publishing companies and requests for meetings to showcase new products. Publishing companies are almost harassing in their contact, ringing at 9am and expecting to talk with teachers immediately." This aggressive marketing is not unsurprising, given a great deal of research argues that private providers have sophisticated marketing campaigns and lobbying strategies to ensure their products and services are taken

up by governments, systems and individual schools and teachers (see Au & Ferrare, 2015; Ball, 2012; Ball & Junemann, 2012; Hogan, Sellar & Lingard, 2016; Hursh, 2016; Reckhow, 2013; Verger et al, 2016). Some of this research also suggests that the products pushed into schools have little connection to curriculum or concern for student outcomes. And, as some respondents, particularly those working in non-core learning areas such as music, drama, the arts and health and physical education, noted, they are concerned for both their students and their future job prospects:

> *As a PDHPE [physical development/health/physical education] teacher in a NSW primary school I am very concerned about PE and sport being outsourced to private companies who are often less qualified than PDHPE teachers but may bring flashy equipment. It not only makes redundant highly trained teachers who know their students well and can develop a school specific program following through from year to year, but it also de-skills classroom teachers by abdicating their responsibility for PE and sport.*

As this teacher argues, there is a sense that commercialisation has been taken up uncritically in certain areas because school leaders and teachers have been positioned to view commercialisation as pragmatic (in terms of time and investment) and educationally valuable (Powell, 2015). The obvious concern here is not only the deprofessionalisation of teachers and the questionable learning outcomes for students, but the potential for commercialisation to undermine schools as equitable and just learning centres, positioning them instead as centres of capital investment for private interests (Ball, 2012; Kenway, Bigum & Fitzclarence, 2006; Molnar, 2007; Robertson, Bonal & Dale, 2002).

It is interesting to note that regardless of the areas where some respondents thought it was useful — even necessary — to have commercial support, a fair number of respondents (15%) said that commercialisation has absolutely no role to play in public schools. A majority of these responses cited concerns about the for-profit agenda of commercial providers, arguing, that "economic rationalism undermines the egalitarian basis of our public education system" and unduly influences government policy and thus, the development of students into "well-rounded citizens". Others referred to a free, high-quality public education system as a principle of democracy and a basic human right. As summarised by these responses: "Education has the potential to be an extraordinarily profitable 'business' BUT public education should never be for profit". We would suggest that while this view might be traditionally sound, it would be nigh on impossible for this to be a realistic goal for public schools moving forward, given the nature of the polity and structures that now surround their operation. It does, however, present important implications for considering what the appropriate amount and type of commercialisation in public schools are.

Impact on teaching

Respondents went beyond describing the dis-/benefits of commercial products to also reference how these impact on their work as teachers, in terms of how commercial products influence the way students are assessed, the curriculum they teach to students, the type of professional learning experiences available to them, and ultimately, the effect this has on their own personal wellbeing. Out of the 43% of responses that discussed how commercialisation impacted on teaching there was a general consensus that the nature of teachers' work had changed, largely due to the emphasis now placed on data from standardised testing. As one teacher suggested, the emphasis on results coupled with the lack of trust placed on teacher judgements of student achievement, had worked to create a space for commercial providers to prosper in. For example, teachers are being made to use particular testing products in their classrooms to prepare students for NAPLAN (e.g. PAT-R and PAT-M tests), and are also using

particular textbooks because there is a sense that "buying Pearson textbooks… [will] help the students do well on Pearson designed tests". Comments suggest that teachers view the focus on NAPLAN as creating an "overreliance on data" that is "killing education", with many feeling like they are "teaching to the test" and sacrificing the "creativity and higher order thinking" skills of their students. Thus, there is a clear argument that commercial providers have a great deal of influence deciding what is being taught in schools (Burch, 2009).

Another key concern for teachers was the commercialisation of professional learning (PL). This concern pivoted around the quality and cost of commercial PL opportunities. Some responses argued that commercial PL was merely "an advertisement opportunity" for commercial providers "to simply sell their product". There was a consensus that most commercial PL sessions were "schmick" productions, but "not as relevant as I had hoped". Similarly, teachers and school leaders expressed concern about the cost of commercial PL opportunities, where some schools were spending more than $700 a day to release a single teacher to attend a PL seminar, while others were spending their entire budget in sending their principal to a John Hattie conference, where presenters "often get paid $20,000 a day". Particularly concerning for teachers was the move towards them having to fund their own PL given the expense, and some already commented that they were spending thousands of dollars a year of their own money targeting specific PL seminars they personally believed as beneficial to their professional practice. Codd (2005) argued that not only are commercial PL opportunities growing exponentially, but teachers are more inclined to take up these opportunities, given the external expectations and accountability infrastructures now imposed on them to meet a range of specified competencies and standards each year. To date, little research has been undertaken on the commercial provision of PL in terms of the extent to which private providers are being used to deliver PL or the effectiveness of these programs for teacher learning and student outcomes.

These discussed concerns culminate in impacting on teacher wellbeing with a concerning number of responses suggesting this environment was making them consider leaving the profession. There is a sense that the various facets of commercialisation "are creating stress and anxiety for staff, and impinging on the effectiveness of teachers to deliver quality education as a result of flagging morale". Some suggested their workload "is a health and safety issue" where they felt like "overworked machines": "My school has already had young teachers resign because they have become disillusioned and dispirited by the hijacking of their teaching. More are planning to follow. I'm staying — because I'm old enough to remember what we've fought for and not let it slip away without speaking out." While this response argues there is room to speak back to commercialisation, others referred to having been "harassed or bullied to submit to this new model and not voice differing opinions or ideas". In fact, a number of responses referred to a "be silent or leave" agenda, where "anyone who speaks up or raises issues is quietly ushered into the excess system and branded as a whinger". As one person put it: "Good teachers can't stay teaching as they care too much and are not product based."

Government and department concerns

The final theme[2] to discuss briefly is the concern expressed by a number of respondents about the conduct of the federal and state governments and education departments in developing and enacting effective public education policy. The general consensus was that these organisations

2 In the interest of representing all survey responses as accurately as possible, comments that did not sit within any of the themes or sub-themes listed in Table 2 were coded as having 'no relevant code'. Similarly, approximately 2% of all responses did not discuss any aspect of commercialisation in schools, but rather focused on issues about the wording of particular questions on the survey, perceived bias on the part of the researchers attempting to illicit particular responses from participants, and confusion about the inclusion of a 7-point Likert scale for the answering of survey questions.

were abdicating their responsibility to run high quality public education systems. One common theme cited how state education departments have removed various support services for schools and teachers:

> *Over my career I have been dismayed to see the abandonment of quality professional support being provided by the State education system. There has been a dearth of support provided for the introduction of the new Syllabus documents. Their introduction has been a case of "here they are, good luck". It is obvious that each individual school has been struggling to work out direction for the introduction of these documents. In my career I have never before seen so much change at once with so little support to ensure quality delivery… Earlier in my career my experiences with implementing new syllabus' were well supported by regional consultants. They were regularly in our school to ensure quality delivery and to offer expert advice and support to teachers. It has been a long time since I have received this level of support that used to be available. Schools now feel that they have to look to commercial providers to fill this gap.*

This removal of departmental support has meant that schools are increasingly reliant on commercial products and services. Many argued that this constituted "the government passing the buck" because "the government has no money and no idea how to fix the system, so it has become easier to distance themselves from the problem by allowing external 'punters' to run the schools". This results in governments "shunning their constitutional responsibility to provide quality education to all students" and means they have become "more susceptible to inducements from commercial corporations to make decisions that affect all the students in their state for the simplicity of quick fixes and monetary gain with no thought for the future and what our children are or will be learning". Indeed, a majority of responses argued that privatising education was a political agenda and seen as an "easy solution" to the complexity of providing public education.

Australian policymakers needed to "stop looking at England and America and start looking at the educational systems that are showing the best results"

A percentage of responses compared the commercialisation of Australian public schools with public education systems in the USA and UK. A majority commented that Australian policymakers needed to "stop looking at England and America and start looking at the educational systems that are showing the best results". There was concern that Australia might follow the American Charter School model or the British Academies framework, or even look to implement "a teacher evaluation system based on student performance". All of these were critiqued as "dangerous business" that would lead to further problems for students and teachers. There was a sense that Australia had yet to travel to an irreversible point of commercialisation (and privatisation) of schools. The privatised TAFE system was regularly employed as an exemplar of how disastrous it could be to use this model as a blueprint to privatise Australian public schools. Indeed, many suggested that the USA, UK and Australian TAFE systems should be employed by policymakers as opportunities to learn from, and ensure the same mistakes were not made again. This is a particularly interesting finding given the private delivery of schools is increasing exponentially around the world. Research in the USA, UK, Sweden and so on argues that while governments implement these models because they believe they will deliver innovation, choice and improved student outcomes, in practice they work to deepen inequality and limit access to quality schools (Ronnberg, 2016; Henry & Dixson, 2016; DeBray, Scott, Lubienski & Jabbar, 2014).

The sub-theme of public school funding concerns is included here, but actually exists in multiple places across the dataset. School funding has always been a contentious issue in Australia, and it is unsurprising that many responses referenced this subject. A significant number of responses argued that current funding models are inequitable for public schools and that the Gonski funding model needed to be actioned to have any hope in rectifying this. Interestingly, some responses suggested that many people within the "education community around believe that governments are now intending to fund public systems so poorly that parents will place their children in private schools and public schools will be residual institutions for the poor". This critique of the "user pay mentality" and the resultant "inequality for students" was widespread, and sat in opposition to what most understood as the rationale for public education: "Education is a public right — not a money making scheme for private business. An adequately resourced and run public education system contributes more to society than privately run schools and providers who are after $$$ or elitism."

Summary

The responses to the open-ended question reveal that teachers and school leaders have a diverse range of concerns about the commercialisation of schooling. Most prominent amongst these are the quality of commercial products and services that are on offer to schools. Interestingly, almost as many respondents argued that commercial products and services are necessary for schools to undertake their core business of teaching and learning, and in particular, providing ICT hardware as well as software solutions for various administrative purposes. ICT was regularly cited as an example of why commercial products are considered better than department alternatives.

Those responses that argued for some level of commercialisation in public schools tended to offer a caveat for commercial assistance, suggesting commercial providers should not be able to influence school, state or national decisions about curriculum, pedagogy or assessment. Respondents agreed that this level of influence would lead to an intensification of the de-professionalisation of teaching. A high percentage of responses wanted governments and departments to learn from the failed models of commercialised and privatised schooling in the USA and UK, and even the reforms to the TAFE sector in Australia, so they could implement stricter regulations about the role of commercial providers in schools.

Chapter Four
The National Schools Interoperability Program: A case study of growing education technology markets in Australian schooling

Introduction

This case study describes how interoperability standards that enable data sharing between schools and school systems are helping to create new markets in Australian schooling for education technology (hereafter 'EdTech') companies (Sellar 2017). These markets are being made through the generally invisible work of standardisation linked to the growing implementation, and joining up, of data management systems across various scales, from individual schools to national school systems. The procurement of data management systems that adhere to interoperability standards generates positive network externalities; that is, as more and more organisations implement compliant software packages, the ability to share, use and re-use data, and thus its value, increases. In Australia, the development of data standards for schools has been driven by the National Schools Interoperability Program (NSIP).

Interoperability standards that enable data sharing between schools and school systems are helping to create new markets in Australian schooling for education technology companies

This rise of data in schooling has paralleled the growth of data in other aspects of everyday life. Data are used within school systems and governments to monitor performance and have become the lifeblood of new public management accountability systems that operate by setting targets linked to sanctions and rewards. Large-scale assessments, such as NAPLAN, have become important sources of data in schooling, along with a proliferation of sub-national and school level standardised testing programs. Educational testing is quickly moving to online platforms that increase the volume and types of data that are generated. School systems also generate large volumes of administrative data, relating to both staff and students, that are used, for example, to monitor attendance, manage budgets and generate timetables. Australian school systems now use commercially provided Student Information Systems (SIS) to integrate and manage multiple types of data and some Australian systems are procuring business intelligence platforms that enable powerful new approaches to data

Data must be distinguished from information in order to give due attention to the processes through which data are made useful and valuable

analytics and visualisation. Interoperability standards enable sharing of data between these systems.

It is important to define the term data in order to clearly understand the function of interoperability standards. Data must be distinguished from information in order to give due attention to the processes through which data are made useful and valuable. Kitchin and Dodge (2011) also contrast data with capta. While data can be understood as everything that is given, capta describe a subset of selected data. As data are captured they are organised in a particular form. Data are what is given, capta are what is selected and information is the form that is given to captured data (Galloway 2011). Interoperability standards specify the form in which data are captured. Through this process data are framed as re-usable and potentially valuable pieces of information. 'Data' and 'information' will be used interchangeably in the remainder of this discussion, but it is important to keep in mind the process of translation involved in capturing data as information.

The aim of this case study is to: 1. map the development of a national data infrastructure based on interoperability standards; and 2. examine the role of this infrastructure in creating new markets for data-driven products and services in Australian schooling. The following background section frames the analysis by surveying developments in: a) the US EdTech market; and b) the decades long agenda to develop interoperability standards for schools. This agenda has, in significant part, been driven by Bill Gates, Microsoft and the Bill & Melinda Gates Foundation. The empirical case of data infrastructure in Australian schooling is then examined, focusing on the National Schools Interoperability Program (NSIP), followed by a discussion of how standardisation helps to create new kinds of EdTech markets.

Methods

With the standardisation produced through the work of NSIP, Australian schooling now has arguably the most developed national data infrastructure in the world. The selection of NSIP thus fits the criteria for a revelatory single-case study (Yin 2009). While the inBloom initiative in the US and the implementation of Schools Interoperability Framework (SIF) standards in USA and UK school systems provide a precedent for the work of NSIP, we are not aware of any similar initiatives that are as sufficiently advanced or involve the same degree of coordination between federal and state governments and industry partners.

The data set for this study is a corpus of publicly available documents relating to SIF, NSIP and the data systems of Australian education departments. This documentation was primarily obtained from the NSIP website (*nsip.edu.au*) and the SIF Association website (*sifassociation.org*) in the form of brochures, reports, webpages and videos, standards specifications and other technical documents. Systematic web searches were used to document the development of SIF during its initial phases in the US. Discussions with staff and technical personnel in Australian state and federal education authorities aided with the identification and interpretation of these documents.

Background

EdTech markets

The EdTech market is a relatively small, but increasingly lucrative, part of a global education industry worth trillions of dollars. To give an indication of the growth and nature of the EdTech industry, this section will examine the US EdTech market, which has an industry body that publishes market surveys. The US market reflects broader international trends towards growth in demand from schools and school systems for learning software and information systems that can integrate, manage and analyse proliferating volumes of educational data.

In 2014, the Software and Information Industry Association (SIIA) published a survey that estimated the US EdTech market to be worth over $8.38 billion (Richards & Stebbins 2014). This is a modest amount in the context of overall spending on public schooling in the USA, which is in the hundreds of billions annually, but it is seen by many companies and commentators as a market with very strong potential for growth. In 2014, the value of the EdTech market increased by 5.1% from the previous year and by 11% since 2010. Importantly, this valuation only counts software and digital content, not hardware such as computers or other devices, the provision of internet services and so on.

The EdTech market is a relatively small, but increasingly lucrative, part of a global education industry worth trillions of dollars

Testing and assessment was the most valuable market category in 2014, worth $2.5 billion after growing by 57% over the previous two years, followed by English language arts and reading content, mathematics content, and online courses. Demand for online content and courses is driven by testing and assessment data and, in turn, there is growing demand for systems that integrate data from multiple sources. The report argues that:

[in] the age of big data and formative assessment, *companies working to help schools efficiently collect, analyse, and make actionable their student data have a tremendous opportunity*. This opportunity includes support not only for basic testing, attendance, and grading information, but also for social networks … new adaptive learning platforms, and relevant family and community information. (Richards & Stebbins 2014, 41; emphasis added)

The potential for strong growth in the profitability of the market is being driven by new kinds and quantities of data and the emergence of new modes of data analytics. Both *testing and assessment and data analysis and integration* are identified as the key growth areas for the industry in coming years (Richards & Stebbins 2014).

The SIIA report demonstrates that the market for digital educational data already offers substantial commercial value and is growing quickly as government and non-government schools and jurisdictions invest in new information systems. Increasing the interoperability of systems and data sharing is an important enabling condition for market growth. There is demand in US school districts for interoperability between various systems and this demand is driving infrastructure development, which is often funded by the state (e.g. through programs such as Race to the Top).

One key challenge to growth is privacy, including laws and regulations that limit access to, and the circulation of student data. Public concern about data privacy has manifested as resistance to data-focused education reforms. For example, the inBloom initiative was launched

The EdTech industry is employing strategies to push for regulatory changes that would facilitate the joining up of datasets and freer access to student data

in the US in 2013 and was backed by the Bill & Melinda Gates Foundation (Bulger, McCormick & Pitcan, 2017). inBloom sought to establish a standardised infrastructure for managing school data across schools, districts and states. However, resistance from activist groups concerned about data privacy and technology companies profiting from personal data led to the closure of the program. The need for the EdTech industry to lobby governments to reduce limitations on data sharing and other data privacy regulations is emphasised by the SIIA. The EdTech industry is employing strategies such as partnerships between philanthropies and think tanks to push for regulatory changes that would facilitate the joining up of datasets and freer access to student data.

Data standardisation in education

Various agendas to standardise education data have emerged as the EdTech market has expanded over the past two decades. A number of standards specifications have been developed, including the Schools Interoperability Framework (SIF), IMS Global's Learning Tools Interoperability (LTI) standards and the US Department of Defense's Shareable Content Object Reference Model (SCORM). Interoperability standards specify common data models that enable data to be shared between applications, platforms and systems. Interoperability standards can provide significant benefits for schools and school systems, including the development of generic applications that can be integrated into existing systems with lower development costs and fewer risks. This point was emphasised by respondents to the survey component of this study who see the contributions of SIF Australia members such as Sentral Education. This case study focuses on the implementation of SIF in Australia.

In February 1999, Microsoft co-founder Bill Gates launched SIF at the US School Administrators' Annual Conference (SIF Association, 2012). Gates described the need for school districts to develop 'digital nervous systems' built on data standards that would constitute 'a big step forward for both the educational software industry and schools' (Microsoft Corp. 1999). This initiative was led by Microsoft and supported by 18 other companies and SIIA. The first specification of the SIF standards was released in November 1999. A more developed specification was released in 2003 and at this time the US Department of Education joined the development efforts. In 2006, a SIF Association was established in the UK. In 2009, Australian Ministers of Education agreed to adopt and develop an Australian SIF specification. In 2015, the Access 4 Learning (A4L) Community was launched as an overarching organisation bringing together SIF associations in North America, the UK and Australia.

The A4L community is described as a 'non-profit collaboration composed of schools, districts, local authorities, states, USA and international ministries of education, software vendors and consultants, who collectively address all aspects of learning information management and access to support learning' (*a4l.org*). The renaming of the SIF community as the A4L community coincided with an expansion of the focus of the various national SIF organisations beyond data management to enable 'the usage of that data as true learning information for parents, practitioners and learners themselves' (A4L 2015). A4L argues that its standards now constitute 'the most comprehensive data model and mature infrastructure interoperability framework in use globally in education' (A4L 2015). NSIP is driving the implementation of SIF standards in Australian schooling.

In the US, the Bill and Melinda Gates Foundation has been a strong proponent of data-driven education policies and practices through initiatives such as inBloom and its K-12 Education (*dataqualitycampaign.org*) and Postsecondary Success programs (*ihep.org/postsecdata*). In 2007, the Foundation commissioned a report from The Parthenon Group that surveyed the education data landscape and highlighted the growing market for information management systems, pointing to the commercial opportunities for private vendors (The Parthenon Group 2007). While the Gates Foundation has a philanthropic agenda, this cannot be easily disentangled from its promotion of corporate approaches to philanthropic activity, its network of relationships with corporate actors and its political lobbying. The standardisation and joining up of data systems in education is an agenda that has been pursued by key players in the tech industry since the 1990s and it continues to gather momentum.

Interoperability Standards in Australian schools

NSIP was established in 2010 to support the interoperability of information systems used by government and non-government schools and school systems across Australia. The establishment of the program followed the endorsement of an Australian SIF specification by Australian Ministers of Education in 2009. NSIP is a joint initiative of federal, state and territory ministers for education and operates under the auspices of the Council of Australian Governments Education Council (SCSEEC) and the Australian Education Senior Officials Committee (AESOC). It is supported by each of the state and territory school systems and the Australian Government, as well as the Catholic and independent school sectors. The work of NSIP is overseen by a steering group that includes chief information officers (CIO) from each state and territory education system. The day-to-day technical work is undertaken by a relatively small team of approximately ten staff.

NSIP is closely aligned with the Australian SIF Association (SIF AU), which currently has 38 members. The membership comprises: 13 governments and government bodies; nine Catholic and independent school bodies; and 16 commercial vendors (Table 29). The main product categories offered by these vendors are information management systems, including Student Information Systems (SIS) and timetabling software, but there is a diverse array of companies including app developers and providers of medical simulation software. In 2015 and 2016, representatives from two of these vendors sat on the Australian SIF Association Management Board and there were five vendor representatives on the Technical Board. The NSIP website lists more than a dozen vendors who have SIF compliant SIS projects at various stages of development (Table 30). Tables 29 and 30 provide an indication of the level of engagement with SIF among the Australian EdTech industry.

Table 29 SIF AU membership (companies only); as specified at nsip.edu.au, 02/2017.

Company	Products
CingleVue International	Virtuoso Enterprise Learning and Instructional Support platform and Virtuoso Student Information System
Civica	Specialist systems and business process services
Education Management Solutions	Medical simulation software and training
Edval Timetables Pty Ltd	School timetable software
Sentral Education (GP Technology Solutions Pty Ltd)	Student information system
Verso Learning	Learning apps based on work by John Hattie, Michael Fullan and Carol Dweck
Accelerus (Semaphore Consulting Pty Ltd)	Assessment and reporting software
School Bytes Learning	School administration software
SEQTA Software	Learning management system
SIMON	Web-based database for schools
Studentnet	Cloud-based identity management
Synergetic Management Systems	Data management systems
Systemic	App development
Timetabling Solutions Pty Ltd	School timetable software
Tribal SchoolEdge	Timetabling and administration software
uEducateUs Pty Ltd	School management system

Table 30 Vendors with SIF compliant projects; as specified at nsip.edu.au, 02/2017

Vendor name	Project level
Civica Education (Maze)	Operational
Eclipse Computing- EduPoint (MXL)	Designed
Holross Systems Pty Ltd	Designed
Human Edge	Operational
Millennium Schools Pty Ltd	Designed
PCschool	Operational
SchoolPro	Designed
Sentral - GP Technology Solutions	Under consideration
Systemic	Operational
Synergetic Management	Operational
The Alpha School (TASS)	Operational
Edval	Operational in test
Simon Schools	Operational

One rationale for establishing interoperability standards for Australian schools is the growing federal presence in schooling, which since 2007 has seen the introduction of national curriculum, national literacy and numeracy testing and national teacher standards. Proponents of national curriculum have argued, for example, that students should be able to move between schools and between state and territory school systems without missing aspects of the curriculum. A natural extension of this argument is that student data should also be transferable between systems in order to track attendance, particularly for highly mobile student groups such as Indigenous students in remote areas.

With this rationale in mind, one NSIP pilot project used SIF standards to develop a system for sharing data between schools in Western Australia, South Australia and the Northern Territory (SIF AU, n.d.). This project used a unique student identifier and a central application to aggregate student data from three jurisdictions. Data are updated on a near real-time basis. Two key findings from this project were that: 1. in order to 'continue to serve the needs of the Australian education sector, the SIF AU specification requires ongoing development, including regular engagement with local industry and SIF vendors'; and 2. '[v]endors need access to infrastructure within jurisdictions' (SIF AU, n.d.). This last point is important with respect to the changing landscape of commercial opportunities in Australian schooling.

State and territory education departments are now expected to procure SIF compliant SIS when replacing current systems and NSIP has also overseen the development of a Student Information System Baseline Profile (SPB), which facilitates data exchange between applications and organisations. The SPB uses the SIF data model to specify common data definitions. The Australian SIF Association explains that:

> *[t]he SBP is a breakthrough agreement that defines the relationship between Students, Parents, Teachers, Schools and Classes in a digital machine readable format. It will facilitate the next generation of online services being linked securely into a school's systems – by reducing the complexity, cost for schools and increasing the ease for vendors. (SIF Association AU, n.d.; emphasis added).*

The SPB was developed with a group of nine SIF vendors and demonstrates the commercial imperative for interoperability standards: reducing the costs for vendors associated with: 1. discovering idiosyncratic data formats used by different jurisdictions at the beginning of each separate project; and 2. developing new applications from the ground up for each customer. The SPB provides vendors with the capacity to develop products, outside of specific projects, that will work across schools and jurisdictions.

Managing relationships between users and vendors is an important element of growing markets for software packages. One key service provided by NSIP is an 'industry forum on technical and interoperability matters for educators and solution providers' (*nsip.edu.au/services-and-projects*) that constitutes a new kind of interface between schools and commercial organisations. NSIP is thus an example of what Pollock and Williams (2009) call 'management by community', which enables a transition from providing tailored solutions for individual customers within a contractual relationship to developing generic products for a wider customer base whose requirements are carefully shaped by vendors. The forum provided by NSIP enables 'suppliers and users of software packages [to] constantly work towards a pragmatic solution of the tension between the generic and the particular' (p. 175). This is a crucial dynamic through which the needs and capacities of public schools will be subtly shaped by the provision of software.

One concrete mechanism for enabling vendors to develop more generic products is NSIP's Hub Integration Testing Service (HITS). HITS is an interface that enables vendors to test whether their software will integrate successfully with a given jurisdiction and it fulfils the requirement

identified in pilot projects for vendors to have access to jurisdictional infrastructure. The NSIP website explains that:

HITS allows jurisdiction and vendor teams to achieve a level of technical assurance that interoperability will succeed, without having to undertake this discovery process as part of a formal project. HITS itself is a hosted service that allows data interactions and which presents SIF and other suitable endpoints to allow developers to test their system interactions. HITS comes with sample client applications, full developer and administrator documentation and a rich set of credible synthetic school data to make testing and development as meaningful as possible. (*nsip.edu.au/hits-hub-integration-testing-service*)

Put simply, HITS enables vendors to test their software with synthetic data that accurately reflects the data structures of a particular school or system. The HITS technology may enable vendors to discover information and develop products before users identify a need for them. The NSIP website explains that:

> *[i]n the next 3-5 years the CIOs of all education jurisdictions see a significant shift in their role in the market. This shift will be for education jurisdictions to act as information hubs, exposing student, staff and school data to trusted third party developers, with the expectation that the market will provide products of value to schools that make use of that information. (nsip.edu.au/hits-hub-integration-testing-service)*

Education jurisdictions will act as information hubs, exposing students, staff and school data to trusted third party developers

The CIOs who constitute the Steering Group for NSIP have in mind a model where school systems provide synthetic data to vendors as a resource for product development outside of specific contracts for products or services. Testing to ensure that a particular software package is interoperable can be undertaken before responding to a request for tender or to develop commercial off-the-shelf (COTS) products or services that can be marketed to, and adapted for, a broad potential customer base. While this development comes with clear benefits for schools and systems, it also represents a shift in the balance between supply-side and demand-side drivers in the EdTech market. The difficult issue in our present context is how to balance the benefits of commercial EdTech provision with the privacy risks associated with commercial access to data and the governance issue of commercial interest shaping the demand for, and capacities of, products and services used for public education.

Prior to NSIP, a school system purchasing a SIS would have needed to cover the costs of the supplier discovering their data structures and designing a product that functioned with their existing systems, within the timeframes and budget of a specific project. If the same school system used SIF compliant data structures, then the vendor would not need to dedicate the same resources to designing bespoke applications. The vendor can reuse the same applications or software 'building blocks' in products for other SIF-compliant school systems, thus widening the market for their products. The reduced development costs can be passed on to consumers, increasing the competitiveness of the products in the marketplace.

The case of NSIP shows how the development and adoption of interoperability standards is expanding the EdTech market. First, standardisation reduces the time and costs of product development and enables a shift from particular to generic solutions. Second, forums required to enact standardisation are state-sponsored spaces in which suppliers can increasingly shape the needs of users, creating demand for their products and services. Third, tools for enabling

interoperability may expose data to vendors, providing them with new resources for product development.

Growing EdTech markets in schooling

SIF is an open standard, rather than a proprietary one. Answering the question of why Bill Gates and Microsoft initially championed SIF, and how an open standard might serve Microsoft's commercial interests, provides insight into the ways in which data standardisation is reworking commercial opportunities. While the imposition of proprietary instruments is a favoured lock-in strategy of organisations like Microsoft and Apple, jumpstarting the work of standardisation in order to grow markets is a necessary precursor. In the initial stages of organising markets it can be more advantageous to contribute communal efforts to develop open standards.

EdTech markets are in the early stages of being organised and are network markets in which the value of a product depends on how widely it is used. The market for information management systems in education has been undergoing a long lead time since SIF was initially specified in 1999. In these circumstances, the development of open standards is a good strategy for growing the total value of the market and potentially sparking explosive growth of positive externalities as the network of users reaches a critical point. This can be a good strategy even for large players like Microsoft, who can compete in areas such as branding and marketing when the market makes the shift from particular to generic solutions (Shapiro & Varian 1999). From this perspective, the work of NSIP and the implementation of interoperability standards in Australian schooling can be understood as a strategy to make network markets for data-driven products and services, with benefits for both suppliers and customers. As an example of the latter, some respondents to the survey component of this study drew attention to the improved performance of SIS provided by commercial developers in comparison to products developed in-house by governments.

Conclusion

This case study has examined the development and implementation of interoperability standards in Australian schooling and has shown how this work is growing markets for data-driven products and services. These markets are currently somewhere between the end of a long lead time and the beginning of what will likely be an explosion in demand. The development of open standards such as SIF has helped an alliance of corporate interests to grow the value of the overall pie in order to grow the value of their market segment.

Standardisation reduces the time and cost of product development of vendors as the markets for more generic software packages grow. The access to jurisdictional infrastructure enabled by NSIP now provides commercial actors with synthetic data generated within and by public institutions as a resource for product development. The forums that have been established to advance the agenda of standardisation enable commercial actors to shape the demands of users, which in this case are often governments, and this may further contribute to growing demand for generic products.

In the US, there are cases in which contracts between school systems and vendors go so far as specifying that the supplier owns the actual data generated by the school system and simply provides the user with reports. This is not the case with HITS, which only provides synthetic data to vendors. However, making the 'digital nervous systems' of schools accessible to EdTech vendors does create new sources of value along with reduced costs and potentially better products for schools and systems. Participation in the development and use of these infrastructures can thus be seen as an important source of both political influence and commercial opportunities.

EdTech companies clearly stand to benefit from participation in the development of standards and data infrastructure in schooling.

While the corporate players involved in the Australian case are much less influential than Microsoft and the Gates Foundation in the USA, the standards setting forum sponsored by NSIP is still a site of what Keller Easterling calls 'extrastatecraft' (p. 15): often invisible but influential design work that operates outside of, and in conjunction with, the authority of the State. Easterling writes that '[c]ontemporary infrastructure space is the secret weapon of the most powerful people in the world precisely because it orchestrates activities that remain unstated but are nevertheless consequential' (p. 15). The 'management by community' that NSIP facilitates for software vendors, and the provision of tools such as HITS, shift the balance between needs-driven procurement of software packages by school jurisdictions and the creation of demand by corporate actors.

This case study raises two key issues of importance for teachers' unions in Australia:

1. Concerns about data privacy: a) are identified by the EdTech industry as a major obstacle; and b) have been successfully mobilised by opponents to commercial involvement in public education, in order to block major initiatives such as inBloom. Privacy regulations will be an important terrain upon which to evaluate and, where necessary, challenge commercial activity that involves improper private usage of data generated in and by public education systems.
2. Those who develop the operating system get to operate the system. In 2016, Microsoft forced many users to accept an upgrade to Windows by secretly changing the function of the 'close window' button. The operation of data infrastructure provides commercial actors with hidden and technically complex means to subtly orchestrate activities in schools and school systems. It will be important to monitor: a) whether and how new data management systems change the work practices of educators; and b) whether and how the data that are generated and analysed by new software applications change conceptions of students and learning.

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