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Chasing Social Change: Matters of Concern and the Mattering Practice of Educational Research

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University-based education researchers are increasingly expected to collaborate and partner with schools to produce improvements in student learning outcomes. In this paper we describe a school-university partnership project which used smart tools to facilitate collaborative pedagogic inquiries around student learning. In the Smart Education Partnership (SEP) project we worked with a cluster of 12 schools and a local education district office in a high poverty urban area of Queensland, Australia. We were chasing the illusive goals of generating social change to disrupt educational disadvantage. We worked with teachers, school leaders and school district administrators to design pedagogic interventions that would lift students' reading comprehension and disrupt cycles of educational under-achievement. Here we describe the formation of the initial partnership and the struggles to develop peer-to-peer knowledge networks across university and school spaces. We also describe the data visualisation tools, one set of smart tools generated to focus inquiry around student learning and innovative pedagogic designs. We draw on three sets of concepts to think about this work: (i) matters of fact, (ii) matters of concern, and (ii) the mattering practice of research to intervene and make a material difference in people's lives through new worldly configurations (Latour, 2004; Barad, 2007).

keywords

knowledge networks, educational inequality, matters of concern, mattering practice of research, pedagogic device.



Introduction

[W]e are responsible for the world within which we live, not because it is an arbitrary construction of our choosing, but because it is sedimented out of particular practices which we have a role in shaping (Barad, 1998; 102)

Our focus in this paper is on social change. We are interested in how the collaborative work of university researchers and school practitioners around issues of educational inequality can lead to change in schools and research practices, and ultimately improvements in student learning outcomes. Our focus of attention is on two phenomena. The first relates to the development of peer-to-peer knowledge networks across the boundary domains of university and school workplaces. The second relates to the interface between human (people) and nonhuman (ideas, artefacts) leading to the emergence of new educational and research practices. Specifically, we explore the ways in which the complex entanglements between human (researchers, teachers, parents, students) and non-human (objects, artefacts, smart tools) came to matter in schools and was evidenced in the materialisation of different schooling practices, including changes in professional talk, design of learning innovations, and accelerations in student learning.

The paper is structured in four parts. In the first section, to contextualise our thinking in a broader inquiry frame, we summarise key themes emerging from leaders of Educational Research Associations across the US, UK and Australia. In the second section, we outline three conceptual ideas which came to guide our work, namely, (i) matters of fact; (ii) matters of concern; and (iii) mattering practice (Latour, 2004; Barad, 2007). In the third section we describe one set of smart tools designed in a university-school partnership project, the Smart Education Partnership (SEP), namely, data visualisation tools. The toolkit of ideas, artefacts (data charts), rituals and routines around data visualisation were designed to shift the material practices of teachers around literacy assessment, and in turn change pedagogic practices and student learning outcomes. The material practices were designed to produce new 'worldly configurations' (Barad, 2007: 91) between university-researchers and school practitioners, between teachers and students, and between teachers and sets of ideas around curriculum, pedagogy and assessment (Bernstein, 2000). The final section of the paper describes the outcomes of the project in terms of what came to matter and materialise for students, teachers, school leaders and researchers engaged in the partnership project.



Relation Between Research and Practice (Practitioners, Policy, Public)

Recently, the relation between education research and schooling practices, specifically in terms of addressing poverty has been a theme dominating Educational Research Association briefings across Australia, Britain and the US. For example, in her presidential address at an American Educational Research Association (AERA) meeting, Arnetha Ball (2012: 283) challenged members to ‘take what we know from research and put it to effective (policy and practice) use’. In making this call, she reviewed four models of ‘knowledge-practice’ work, namely: (i) The Research Development Diffusion Model; (ii) The Evidence-Based Practice Model; (iii) The Boundary-Crossing Practices Model, and (iv) The Knowledge Communities Model. On the basis of this review, Ball (2012: 289) argued for ‘generative research that has the power to close the knowing–doing gap in education’. Specifically, Ball (2012: 289) implored AERA members to focus on improving education and serving the public good through ‘introducing invention into existence’ (Ball, 2012: 289). For Ball (2012: 287) inventions can come into existence through collaborative engagement in a ‘zone of generativity’. This is the region or area that constitutes the distance between what is currently known as determined by the conduct of research and what education researchers have the potential to know through their ability to apply — or promote the application of — what they have learned through the conduct of research. (Ball, 2012: 287)

Similarly, William Tierney (2013: 299-300) in his AERA Presidential address identified key interventions that can increase access to higher education for students from low socio-economic/high poverty communities. Tierney (2013) suggested that school leaders and teachers need to: (i) have high expectations of students; (ii) know how students are tracking with their learning; (iii) make sure that students know how their own learning is tracking; (iv) devise plans and stick to these plans to overcome any learning problems/difficulties; (v) raise aspirations rather than level or destroy them; (vi) make connections outside local contexts, because connections matter; and (vii) make use of emerging technologies, including mobile applications and games, which matter to young people. Moreover, Tierney (2013: 301) proposed that education researchers need to move ‘beyond the ivory tower’ and bear ‘witness to the struggles and challenges that young people face in their daily lives’. And from these acts of witnessing, Tierney (2013) argued, education researchers are likely to engage, listen and develop a sense of how the students that they have hung out with ‘matter, how they view the world, how they think the world is changing’ (Tierney, 2013: 301). According to Tierney, educational research will only make a difference in addressing poverty through such engagements or ways of knowing.



Across the other side of the Atlantic, Mary James (2012: 194) in her Presidential Address at the British Educational Research Association (BERA) Conference suggested that a ‘commitment to knowledge brokering in ways that engage with the concerns of practitioners and policymakers has undoubtedly increased in recent years’. James aligned her position with that of AERA colleagues and repeatedly placed emphasis on the issue of ‘knowledge transfer’. She urged BERA members to ‘aspire to contribute to the improvement of education, in the same way that medical researchers aspire to contribute to medicine and the improvement of health’ (James, 2012: 183). Moreover, James (2012) challenged the theoretical and applied distinction within education research, suggesting that the very nature of the discipline warrants and necessitates an applied focus. James (2012) also pointed to the increasing volume of research about and on education produced outside of university contexts, and pleaded for stronger engagement across various research agencies.

Down under, in the Australian context, Christine Halse (2013: 150) the President of the Australian Association for Research in Education (AARE), made an address that echoed the concerns of colleagues in BERA and AERA. She called on members to make research accessible to the general public, to communicate in an accessible language, and to engage with new social media platforms to reach larger audiences. Specifically, Halse (2013) suggested that a common concern of AARE, as stipulated in its mission statement, is to build socially just societies. Striving to achieve this mission means that university-based researchers need to explore the ways in which ‘research improves the lives of real people’ through the generation of knowledge (Halse, 2013: 150).

The directions for university education research, as articulated by leaders from AERA, BERA and AARE, are consistently oriented around issues of knowledge transfer, brokerage, and invention. University-based education researchers are being urged to listen to practitioners to learn what matters to them. And on the basis of understanding what matters, they are being encouraged to demonstrate that university-based research can produce material effects that make a difference to educational inequality.

We agree with these messages, and in this paper we want to describe how teams of university researchers and educational practitioners worked collaboratively to address matters of concern



relating to educational inequality and to materialise new pedagogic practices leading to accelerated student learning outcomes. Following Latour (2004) and Barad (1998, 2003, 2007) we deploy the term matter in three ways. The phrase 'matters of fact' refers to the set of empirical facts or representations produced through various data collection devices such as National Standardised Testing regimes, diagnostic tests, classroom observation schedules, teachers' anecdotal records and so forth. The phrase 'matters of concern' refers to the issues needing 'care and protection' given that 'matters of fact are only very partial and, ... very polemical, very political renderings ... and only a subset of what could also be called states of affairs' (Latour, 2004: 232). In other words, partnership practices gather or assemble together empirical facts, teams of people, artefacts, ideas, and funding about matters of concern relating to educational inequity (Edwards, 2012; Heimans, 2012). The phrases 'come to matter' (Barad, 2007) and the 'matter-ing practice of research' (Edwards, 2012) suggest that matter and meaning are entangled (see also Heimans, 2012). In other words, objects, artefacts, ideas and people come together to materialise meaning and practices in specific ways with material consequences. Elaborating on this point, Lenz-Taguchi (2009: 22) argues that materialisation can be

... understood as an active ongoing process where specific notions and ideas are not only performed but have become an embodied routine and habit in our daily practice, rendering them into a state of 'naturalness' and taken-for-grantedness. In these materialising processes matter and meaning are intertwined to a state where we cannot distinguish what notions shaped our bodies and motions, or how the material preconditions of our bodies, architecture or organisation of practices shaped our notions and beliefs.

We propose, following Latour (2004) and Barad (2007), that as educational researchers we need to take responsibility for the ways in which our engaged knowledge-making practices make a difference in what comes to matter and materialise in schools. Moreover, these knowledge practices do not simply have material consequences, but rather

practices of knowing are specific material engagements – in both senses of the word. Making knowledge is not simply about making facts but about making worlds, or rather, it is about making specific worldly configurations – not in the sense of making them up ex nihilo, or out of language, beliefs, or ideas, but in the sense of materially engaging as part of the world in giving it a specific material form (Barad, 2007: 91).



In the section that follows, we analyse what came to matter in the Smart Education Partnership (SEP) project, and how these ‘matters of concern’ produced material practices that made a difference to the learning outcomes of students in poverty (Latour, 2004).

Knowledge Partnerships: Flows and Translations Across Borders

The SEP project officially commenced in 2009 when funding was provided by the Australian Research Council through the ARC Linkage scheme (see Glasswell, Singh, McNaughton, and Davis, 2008). But the beginning of partnership work between university researchers, local school policy makers and practitioners can be traced a long way back to 1993. The partnership’s roots lie in the Teacher Education Industry Advisory Group (TEIAG) that was established at the Gold Coast campus of Griffith University between members of the School of Education and Professional Studies and a network comprised of policy makers, practitioners and union delegates (see Heck, 2008). The group was set up to focus on real world problems by encouraging cross talk between sectors. Priority topics for the group included building quality teacher education programmes and effective mentoring processes for beginning teachers. Each stakeholder contributed different and equally valued teacher education knowledge to the partnership (see Brady, 2002). From its inception in 1993, TEIAG met monthly to ensure that university researchers/teacher educators listened to, engaged with, and understood what mattered to school practitioners, and then used this knowledge to inform the design of teacher education curriculum.

The group functioned well as an advisory in that university teacher educators elicited advice from practitioners and used this advice to redesign pre-service teacher education curriculum. In other words, practitioner knowledge was translated for incorporation into existing university curricula programs (Bernstein, 2000; Singh, Märtsin, and Glasswell, 2013).

By 2006, members of TEIAG increasingly became concerned with the plight of local schools which had long held patterns of struggle and for which additional problem-solving activity was needed to address issues of educational inequity. The group called for higher levels of engagement between university teacher education staff and school practitioners. Between 2006 and 2008, three summits were organised between university education researchers and school practitioners to forge a renewed direction for TEIAG (Heck, 2008). By the end of these forums, TEIAG had made an ongoing commitment to five strategic priorities, namely: to create research



dialogue among partner organisations; to enhance pre-service teacher education; to enhance continuing professional teacher development; to support, promote and celebrate the teaching profession; and to harness technology to improve learning. Of note, is that the push for research dialogue and engagement was instigated by university staff not school practitioners. At that time, there was little interest from practitioners in university led research projects. Many research projects were perceived of no real benefit to the practitioners themselves. Indeed, some practitioners were quite vocal suggesting that university led research utilised valuable resources, such as teachers' time, with little or no return value to the school community or even individual participants (see also Brady, 2002).

By 2008, the need for collaborative problem solving between university and school practitioners became paramount as national standardised test (NAPLAN) score data revealed that students attending schools in high poverty areas were underachieving at benchmark compared to their peers in national cohorts. Moreover, the data indicated that the gap in achievement progressively worsened as students proceeded through schooling.

As many critical scholars have pointed out, the national standardised testing regimes across the US, UK and Australia were producing negative effects in schools, as the work of practitioners was increasingly oriented to teaching to the test (see Hursh, 2013; Lingard, Creagh, and Vass, 2012; Martino and Rezai-Rashti, 2013; Power and Frandji, 2010). As Bernstein (2000) has argued power relations in educational organisations are invested in evaluation systems. The group that exercises control over the production, dissemination and management of evaluation systems, also exercises control over what constitutes valid curriculum knowledge and pedagogy. National and international testing regimes reduced teachers' professional autonomy to select and organise curriculum and design pedagogy to meet the specific needs of students in local community contexts. In the local schools, which had long struggled with issues of poverty and educational under-achievement, the adoption of packaged curriculum products and scripted lessons were not working to raise student learning outcomes. In the words of the local District Administrator, the schools had tried different strategies to lift the achievement profiles of students but to no avail. They thus turned to the university researchers on TEIAG for collaborative problem solving to address the complex problem of students' learning under-achievement.



At this stage, the TEIAG partnership started moving towards developing a peer-to-peer (P2P) knowledge generating process (Sunstein, 2006). P2P knowledge refers to pooling the creativity and information of lots of different people, across time and space, to address a common problem through cumulative knowledge production (Sunstein, 2006). The model is based on the notion that complex problems cannot be solved within 'echo chambers' or 'information cocoons' – which vibrate the same, familiar, comforting sounds or ideas (see Sunstein, 2006: 9). Rather, complex problems need the aggregation of information from multiple sources.

Making Data Matter

By 2009, the University, the district education department and twelve schools had forged a partnership to design and test a model of schooling improvement focused in clusters of schools in two low socio-economic areas south of Brisbane. Our work began by gathering data about students' reading competencies. It seems paradoxical that at a time when schools were saturated with data, and critics were calling for less data, that the SEP project introduced yet another set of processes and procedures around testing students' literacy. As Hattie (2005) has remarked, school administrators are awash with data. They deal in scale scores, stanines, percentile rankings and test-item analyses every day. Our main goal in this project was to begin to understand more deeply the origins and progressions of matters of concern relating to student test scores. As a research team, focused on changing achievement profiles in a somewhat hostile culture of assessment critique, we needed to demonstrate the mattering potential of assessment as inquiry by engaging teachers with meaningful, quality data that could elaborate on the problems they and students faced and to provide immediate feedback to them about who needed to learn what, how and when. While schools had a lot of data, the standardised test instruments such as NAPLAN did not provide school teams with such data agility. And yet, we would argue, such agility in diagnosing student learning difficulties, engaging in collaborative inquiry around evidence, and planning and implementing pedagogic interventions are key to disrupting patterns of educational inequity.

Making data come to matter; to materialise in new ways, that allow teachers the space to think about the possibilities of new pedagogic designs and the learning potential of students, is more complex than it might first seem. Many data reports provided to schools take the form of aggregated information about the performance of the whole school. Critical detail about the learning performance/difficulties of individual students in specific curriculum areas is often



missing from these reports. In other words, the data becomes abstracted and reported in a form used for accountability and audit purposes, rather than for designing innovative pedagogic practices. For the SEP team, the first point of intervention was to shift these regulative practices around data, and refocus discussions around data to student learning and teachers' work that could make a difference to learning achievement. This meant introducing different sets of evaluation tools into the schools which would enable teachers to gain critical information about individual students' learning needs. It also meant working closely with individual teachers to collaboratively interpret diagnostic data. Indeed, the main priority of the partnership was on joint problem solving using an evidence base of data collected on students' reading comprehension. In addition to national standardised testing data (National Assessment Plan Literacy and Numeracy – NAPLAN) provided by the Education Department, teachers in the project schools administered norm-referenced diagnostic reading comprehension tests (Australian Council for Educational Research, Tests of Reading Comprehension – TORCH), and considered data collected from day-to-day classroom practices.

The focus on data incorporated two main overlapping phases involving data collection, analysis and inquiry. A major focus in Phase 1 was the use of data visualisation tools to enhance collective problem solving. These tools were used for focussing analysis, inquiry and forward planning. As we will discuss later, this innovation to current school practices had perhaps the most enduring impact on how the inquiry process was conceptualised and undertaken by schools. Phase 2 of the project involved targeted professional learning for teachers and school leaders in designing curriculum and pedagogy to address the specific learning needs of students.

Smart Tools – Data Visualisations

In the following section, we describe how we designed and deployed a set of data visualisation tools (material objects) to focus inquiry and create new ways of thinking and acting (see also Glasswell, 2012). We viewed the tools like other researchers have (e.g. Danielson, 2009; Little and Curry, 2009) believing that for these objects and artefacts to be used successfully, they needed to be introduced as part of a complex process of problem-solving the matters of concern in these schools. For this reason, these tools were not stand-alone, but rather they were part of formalised, collaborative processes. Their use involved certain routine procedures and interaction protocols and used in concert, they focused attention at multiple levels within and



across the project schools to assist us in developing new ways of working with data and new ways to think about improving instruction. Three variants of the data visualisation tool were deployed to develop and discuss facts about performance. Class maps assisted teachers and researchers to consider (and reconsider) students' performances at the individual level and group levels. School walls helped the whole school staff examine student performance patterns by class and year level and make plans for interventions in areas that were of concern. Finally, Cluster Data walls, allowed cross site talk to occur and provided leaders, researchers and district administrators with opportunities to develop collective plans for tackling the 'sea of red' – that is the large cohort of students in this region who were achieving below benchmark on literacy.

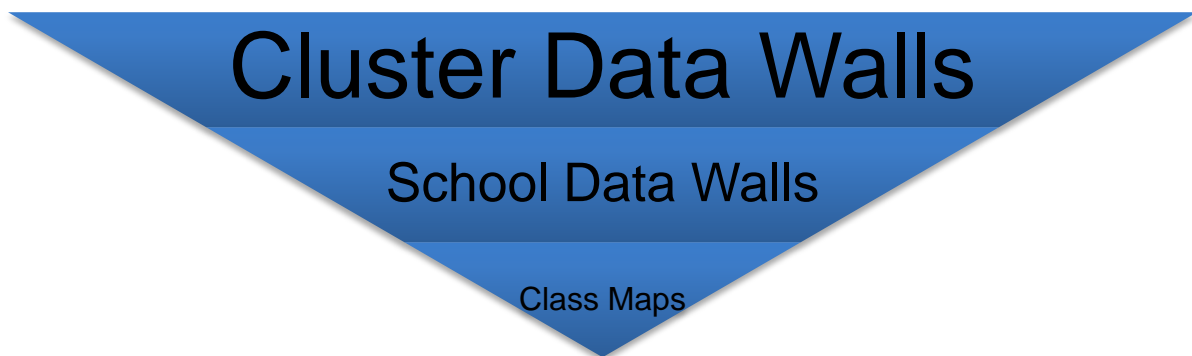


Figure 1: Different Levels of Data Visualisation

Data visualisations tools are graphic representations of data that help teachers, leaders and researchers “see” patterns differently than they might have done before. These tools represent material artefacts that when engaged with, materialise new ways of knowing and doing. The tools are integral to focus attention on new routines, new possibilities and new ways of dealing with the collective concerns. Within a week of gathering reading comprehension data via TORCH testing, each teacher met with a university researcher. A class data map was used to focus discussion on student learning achievement. Each student's score was plotted on the class map. The map included a scale designed to help teachers understand student learning profiles and needs, and the complexity of reading comprehension development. As the meeting progressed, students with similar needs were identified and possible grouping options thought through. The discussion incorporated a clear focus on current instructional practices and possible innovations that would help accelerate learning. The teacher and the university researcher collaborated to



establish professional learning needs and to problem solve issues related to the logistics of innovations to be trialled.

The second data visualisation tool we designed was the school-wide 'Data Wall'. All schools in the project had a Data Wall. It was usually displayed in an area where teachers met informally or came together to plan. In most schools, the data walls were large black felt charts (2m x 3m). Each displayed a horizontal scale divided into 13 bands of reading scores, which became represented as columns. Each year level in a school had a row on which student identification tiles were placed. Using Velcro, each child's tile was attached to the wall in the row for his/her year level, and the reading score band column. The national norms for the mean and the range of the distribution were marked and these markers provided teachers with immediate visual information about how their students' scores compared to those of national cohorts.

In conversations around the data wall, the teachers examined how the visualisation depicted learning difference by differentiating which groups of students needed what types of assistance, when, where and why in relation to the development of reading literacy. These visualisation tools were not just material objects or tools – paper and ink, felt and Velcro. They came to matter in the lives of the teachers in this study. Following Barad (2007) we came to understand the data walls as performative agents. Teachers individually and collectively produced these walls, but these walls also acted on the teachers, focussing their attention on student learning and new possibilities for achievement. Through careful and sustained engagement with data visualisations, teachers came to see data not as irrelevant or threatening, or as an instrument externally imposed by governments for accountability and audit purposes. Rather, teachers began to see and interact with data as key to discussions about student learning and the design of innovative pedagogies. In Barad's (2007) terms, using these tools and processes was much more than engaging with teachers' language, beliefs, or ideas about the performance and potential of the students in their classes. It was a way to give these new knowledge practices a specific material form and to generate a 'new worldly configuration' around data, students' learning, and the possibilities of pedagogic innovations (Barad, 2007: 91).

Chasing Social Change



This project had far reaching effects in the materialisation of new practices for assessment, professional learning and teaching. In a survey conducted at the final exit point of the project, teachers (n=98) reported that they had developed: (1) increased capacity for working with evidence (including assessment data) to enhance classroom literacy instruction; (2) deeper knowledge about how children learn to read and think; and (3) more confidence as teachers of literacy. In addition, school leaders reported during interviews conducted at the end of the project, that the partnership had helped them develop problem solving skills that would enable them to sustain and extend the project activity independently. For example, many principals indicated that participation in the project, specifically in terms of collaborative inquiry around assessment data and linking assessment to instruction, had been very beneficial to their own professional development and that of the teachers in their schools. Student learning outcomes as measured on NAPLAN and TORCH, tracked over three years indicate accelerated progress in reading literacy in 8 cohorts. The students saw these results themselves on the classroom data walls. They could visualise their own reading progression, and could hear/see that they and their learning came to matter to teachers and school leaders. Rather than acting in a negative way, of naming and shaming individual students, the data walls had a positive productive impact on the students. The data walls actively made themselves intelligible to the students so that they came to question teachers about their own learning progress, and how particular lessons were designed to improve learning outcomes.

Final Thoughts:

Our goal in this paper has been to consider how educational researchers and education systems can partner to work on matters of concern and to explore how, in line with recent calls from education research associations, research can come to matter in the worlds of schools. We discussed the challenges of chasing social change beginning first with concerns about ‘facts’ presented as at the core of the problems facing the schools and community we worked with. We have described how in this project, we engaged in collaborative problem solving around data ‘facts’ that were generated by teachers themselves. In so doing, we constructed our data work differently from that commonly associated with standardised national testing regimes, such as NAPLAN. It is important to say that while we applaud the work of scholars who have spent considerable time and energy critiquing the social construction of the testing data facts, we took a different approach to data with the goal of making our research matter in schools. We worked with teachers in acknowledging the central role of data in conversations about what needs to be



taught, to whom and when. We actively engaged with the limitations of the NAPLAN data sets, and the limited potential of curriculum and pedagogic strategies that taught to these tests. Moreover, we challenged the truths produced by standardised testing regimes about the learning potential of students in high poverty communities, and the limited impact that teachers and indeed whole school communities can make to lifting learning achievement. For the partners involved in the SEP project, the matters of concern became mobilising funds, people, resources and ideas to make a difference in student learning outcomes. The data visualisation devices worked in three ways. First, they focussed attention on matters of fact relating to student literacy achievement. Second, they generated discussion around matters of concern. The data walls spoke about the achievements of individual students. Third, they gave data a human face and materialised a new ‘wordly configuration’. The data visualisation walls were such large artefacts that they could not be ignored. Teachers simply could not avoid these walls – they had to interact and engage with them. The data walls elicited emotions ranging from grief and mourning about the educational under-achievement of students, to joy and excitement about the potential of pedagogic innovations to generate improvements in learning outcomes.

The research partnership came to matter in the schools. It had real material effects. It produced matter such as objects, artefacts, ideas, and tools that come to matter and have meaning in the lives of school leaders, teachers and students. As Lenz-Taguchi (2009: 37) argues ‘materialisation is not just a matter of how discourse and meaning-making comes to matter, but how matter comes to matter in its agency’.

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