Research-practice Partnerships for School Improvement

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Research-practice Partnerships for School Improvement: The Learning Schools Model

BY

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Foreword

Research-practice partnerships (RPPs) constitute a novel and valuable model for doing educational research, one that is growing in importance and in vitality. I celebrate that shift and greatly value the information presented in this book about one successful instantiation of the RPP model. We have come a long way beyond the metaphors 'applied research' and 'translation from research to practice' that dominated educational researchers' thinking as recently as 20 years ago.

I have myself worked in those more traditional models, developing tools that proved their worth in experimental trials but then were handed off to teachers who never used them. The difference in uptake when we can provide tools to solve problems that teachers themselves nominate is enormous and deeply gratifying. Thus, I am a strong supporter. The partnership approach of developing tools in response to practitioner needs (and to the extent possible in collaboration with practitioners) is much more effective in leading to high-quality implementation, to measurable impacts and to sustainability.

The intuitive appeal of this common sense approach should not, though, blind us to the risks associated with it. The sudden popularity of the RPP model, and the consequent expansion of funding for research carried out in this tradition, threatens to transform a very good idea into a fashion or a trend. Thus the RPP label is now used for many different approaches to doing educational work in the real world, not all of which are equally authentic exemplars. We should be cautious not to let the heterogeneity of what people are calling RPPs dilute the construct and obscure the importance of the central principles, which are so well incorporated into the work presented in this volume, on the Learning Schools Model (LSM).

This model displays particularly robustly one of the basic RPP principles – that the work be done locally, with a rich understanding of the context. In the work of the Strategic Education Research Partnership (SERP; www.serp.org), with which I have been involved, we have found that approaches to an urgent problem of practice developed for a specific school district always end up being useful to and adopted by other districts, sometimes but not always with minor tweaks. In other words, as discussed extensively in Chapter Seven of this book, working locally does not mean jettisoning the potential for broader impact, or for contributing to research knowledge. But anticipating those more global contributions prematurely can undermine the local commitment.

In the SERP work we have experienced many of the tensions and challenges associated with adopting the RPP approach, some of which are brilliantly illustrated for the New Zealand context in this volume:

- SERP is committed to starting with the practitioners' definition of the problem, but sometimes find that characterisation is not helpful. For example, in our early work in the Boston Public Schools we were asked by the superintendent to 'solve' the problem of middle-grades reading comprehension. The teachers, on the other hand, characterised the challenge as academic vocabulary – a much more tractable issue. We found, after many years of work, that tools to improve academic vocabulary did indeed improve reading comprehension (Jones et al., 2019), but had we started focussing on interventions for reading comprehension itself we might never have gotten there.
- The collaborative data analysis that is a core practice in the LSM is costly in time and can limit the sophistication of the analyses. An alternative model, adopted within the longstanding partnership between the Department of Early Childhood at the Boston Public Schools (DECBPS) and a team at the University of Michigan headed by Christina Weiland (Weiland, Sachs, McCormick, Hsueh, & Snow, in press) displays an alternative, in which Weiland's advanced quantitative analytic capacities are deployed to answer urgent DECBPS questions, such as whether investment in summer school for lagging students was justified. Collaboration focussed on refining the question to that BPS got the answer it needed, rather than on engaged in the actual analytic process.
- The LSM centres its activities inside schools, with a focus on professional learning and development as the lever for improvement. SERP also works inside schools, but has focussed its efforts on developing tools that are immediately useful to teachers and that have the potential to change classroom practice; many of the SERP tools are designed to 'carry the training with them,' in part because the organisation does not have the capacity to deliver professional development at large scale. Other robust RPPs have focussed much more outside schools on structural and policy issues. The Chicago Consortium for School Research, for example, and the New York City Research Alliance have access to district data and respond to district requests for specific analyses, but also develop their own questions in discussion with the district. Collaboration in these cases is characterised by regular communication and adherence to a 'no surprises' rule before findings are made public. But the basic model of educational improvement puts more emphasis on district and school policies than the RPPs that do their work mostly with teachers, inside schools.A recurrent challenge, and one that the LSM team has solved brilliantly, is the sustainability of the partnership model. In the US context, where individual districts have considerable autonomy, where the tenure of district leaders rarely lasts more than a few years, and where new leadership is free to bring in new practices and curricula, the work that is needed to keep partnerships alive across transitions is daunting, and not always successful. There are great advantages to systems of education more like New Zealand's, where there are fewer layers

between schools and central government and centralisation of curriculum and policies, which can promote a level of coherence that is rarely reached in US public schooling.

In short, this book can be read in many ways: as a primer in the advantages of RPPs as a new structure for engaging in educational research; as an analysis of the epistemological underpinnings of reliable knowledge about educational practice; as an encouraging story about educational improvement; and as a demonstration that lasting improvement in any complex system requires an unending cycle of learning how to learn.

by
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Acknowledgments

Nāu te rourou, nāku te rourou, ka ora ai te iwi
(With your basket and my basket, the people will thrive)
Māori Proverb

To our school, policy, research, and community partners,
and to those who support them

To our families

Chapter One

Ambitious Aims: Research for Solutions and Knowledge

Improving educational practice while advancing research knowledge is a lofty aim. Meeting these twin objectives is fundamentally important yet difficult to achieve in practice, particularly when the focus is on meaningful and lasting changes in educational outcomes in schools. The literature is awash with cautionary tales of research having little impact on practice. Yet there are pressing problems in school effectiveness and in particular, inequities between groups of students, that feel intractable. Both between and within countries we can see ongoing patterns of disparities at the same time as we can see shining examples of effective practices (OECD, 2015).

Educational research should be contributing better to solutions. The reasons why it has not are, in part, due to the questionable relevance of educational research to practice (Snow, 2015, 2016). They also reflect just how difficult educational challenges are; five of which are variability, scalability, capability, acceleration and sustainability. These pose substantial challenges for researchers in school reform; and much has been written about them.

It is in this landscape that our work germinated. Our motivation as researchers is twofold: to improve the valued outcomes for students, primarily from culturally and linguistically diverse communities, who have been historically under-served in education; and to advance research knowledge both locally and internationally. We have not been able to do this without a real partnership with the local communities, schools and students, respecting and drawing on their expertise in the design and implementation of the joint work. These motivations have culminated in a whole-school intervention model called the 'Learning Schools Model' (LSM), a design-based research-practice partnership that has been tested and replicated over 15 years and across diverse contexts and countries. This book provides a research- and theory-informed, yet practical account of the model and its application across contexts.

In this introductory chapter, we begin by positioning our work within the global challenges facing whole school interventions and within the wider call for different approaches to partnering with schools to improve practice and

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outcomes. We provide compelling reasons for adopting these new approaches, before describing how our book contributes to addressing the current gaps and avenues for future research in the current literature on these approaches. We then introduce the LSM, our contribution to addressing these gaps.

Solving the Big Five – Variability, Scalability, Capability, Acceleration and Sustainability

Five well-known challenges – variability, scalability, capability, acceleration and sustainability – pose challenges for researchers in school interventions focussed on improving valued student outcomes.

Variability

The first, variability, is inherent in education, at every level; from granular to macro-units of analysis (McNaughton, 2011). Variability in effects of teaching and learning outcomes can be seen within classrooms and between classrooms, within schools and between schools, within and between clusters of school and districts and within and between countries.

There are three major explanations for these phenomena. One is the nature of teaching. Teachers are professionals whose very humanness means that they use their tools and deploy instruction in ways that reflect aspects of their knowledge, skills, values and goals. There is plenty of room in what constitutes this personal professionalism for there to be idiosyncratic actions. The second explanation focuses on the degree of specification or prescription in the worlds of teaching: in curricula, syllabi, lesson plans and programmes or in the degree of professional accountabilities either professional or external. The third is the resourcing of teaching such as physical or social resources, the leadership available and how these impact on individual or collective preparation and delivery of instruction. We will have more to say later in this book about these sources of variability, where we address the paradox that variability is both a boon to, and a constraint on effective school change.

A form of variability occurs in programmes or interventions that go beyond a first experimental demonstration. It occurs as the designers, or those tasked with implementing, take what has been demonstrated to be effective to a larger scale. Scalability, that is repeating known-to-be effective instruction across multiple sites, activities and programmes, is a very real problem. The recent evaluation of Reading Recovery in the USA shows this starkly (May et al., 2014). Reading Recovery sets a 'gold standard' for early intervention in literacy. It has been shown repeatedly to be effective for a large percentage of the target children and provides a 'Response to Intervention' means for identifying those for whom a more clinical intensive intervention is needed. Despite an overall strong effect size for Reading Recovery on a variety of outcome measures, the variation in the effect size from school site to school site is substantial. It ranges from a negative effect size, meaning the Reading Recovery intervention children in that site actually got worse than their control group peers, to effect sizes greater than 2.0, almost unheard of in social science research interventions.

Reading Recovery is an exception to the general picture of educational interventions, in the sense that it consistently produces high average or median effect sizes, as well as having this substantial variation. Many experimentally tested programmes in education only ever show weak or small effects when implemented across groups of schools. For example, in the USA since the Education Science Reform act in 2002, the Institute of Educational Sciences has funded about 90 methodologically strong randomised control trials (RCTs), 9 out of 10 of which (88%) found no or weak effects (Coalition for Evidence-Based Policy, 2013).

There are methodological reasons why few show important educational effects (see Schochet, Puma, & Deke, 2014). One of the most obvious of the problems is integrity in implementation. Programmes are hard to put in place reliably if the criterion is being consistent with the original programme design. Durlak and DuPre (2008) recently reviewed 500 health and education programmes for children and adolescents in studies from 1976 to 2006. There were generally low levels of compliance to the programme design.

Each person who is directly responsible for the intervention on the ground is a source of variability, and weakness in implementation. This is true in Reading Recovery where being able to use the complex assessment and instructional procedures flexibly and adaptively for each child can be difficult. In addition, there are features of context across the different sites of an intervention, which may be influential. Durlak and DuPre (2008) identified 23 contextual factors that influence implementation. These include differences from the initial experimental site that change the implementation needs; these could be in the characteristics of teachers and students, such as language or knowledge. There can be differences between the original demonstrations that occur under carefully controlled and well-resourced conditions with the more open complex conditions that typically operate which may be less well funded. In the case of Reading Recovery, advocacy by a principal and the status accorded the intervention in a school, as well as resourcing in terms of time and funding at a district level are influential.

Scalability

Scalability is a form of replication; in Murray Sidman's (1960) terms it is 'systematic replication'. In educational settings it is impossible to have as it were a true replication ('direct replication') – that is, repeating the same experiment in exactly the same way under exactly the same conditions. Schools are not laboratories and except under very special circumstances cannot be controlled to make each look like the other for replication purposes. So each step in scaling an intervention should be considered a systematic replication, does it work under these new conditions, with these new groups of teachers and students across these sites that are known to vary in systematic ways (McNaughton, Lai, & Hsiao, 2012).

The finding, that integrity in the 'treatment' design is often compromised, due to methodological and contextual issues on the one hand, and variability in how professionals carry out the intervention on the other, is well established

(Schochet et al., 2014). The old adage applies: 'there is many a slip twixt the cup and the lip'; the distance between what an intervention was designed to do and what it might actually do on the ground and across several grounds is fraught with obstacles.

Capability

The role of leaders and teachers in the aforementioned 'slippage' introduces the third big challenge: it is building capability on the ground to engage in the core activities specified by the evidence-informed design of an intervention. Here is the nub of this challenge, what should be specified? One approach to variability and scalability is to increase treatment integrity, focussing on the specificity of the design or programme itself. The clearer the specification, the more the integrity. Teachers are both human actors and professionals, with all that entails in terms of knowledge, skills, values and beliefs (McNaughton, 2018). This means that they interpret and reconstruct new ideas, new programmes, new methods and new designs through their existing human and professional roles. The more prescribed the actions, the more likely the actions are to be carried out in keeping with the original design features.

Two aspects of this assumption pose problems for research that is able to change practices on the ground. One is in how teachers are positioned and enabled to act. Increased specification to increase adherence to a programme results in teachers being used as technical experts, technicians who follow the prescribed steps. But this is not how teachers of the twenty-first century should be positioned according to Linda Darling-Hammond and John Bransford (2005). For these and other writers teachers need to be more like adaptive experts. More like a Reading Recovery teacher who is flexibly and adaptively able to tailor instruction to the needs of individual learners. Their bespoke instructional designs draw on rich, evidence-informed judgments and an articulated knowledge base of content, learning and instruction. Prescription also does not work well in a context of the increasing diversity in classrooms in many countries, and is less useful in developing the complex repertoire of skills and knowledge needed for life and work leaving school in the twenty-first century, let alone the design skills needed to effectively use digital tools across curricula.

An alternative view of teachers might lead to an approach that favours loose specification. When an intervention comes to town the focus should be on developing teachers' and leaders' understanding of the underlying principles of the design. This might position teachers as more like adaptive experts, but it carries problems too. The looser the specification the more room there is for interpretation and idiosyncratic enacting; much of which may not add value to the original design leading to greater variability and the challenges of taking to scale we have already identified. A different approach, which we explore in this book, is to reconsider the nature of capability. It is not only a capability to carry out an instructional design. In essence, it is the capability to be a co-design expert, in partnership with others including the research partners.

Acceleration

The focus of the developing co-design expertise is most often the improvement of valued student outcomes. That is, learning that is valued by all partners in an educational site. This is not only valued student achievement outcomes, but those sets of skills and knowledge valued across cognitive and social and emotional domains. In the case of achievement the challenge is often to not just improve overall levels, say in mathematics or in literacy for the 'average' student. With students from communities traditionally not well served by schools the challenge is to produce accelerated learning such that all students and not just some subgroups make more than the expected rates of gain. The accelerated learning needs to shift distributions of achievement for students resulting in the entire distribution of interest approximating the national expected distribution.

This fourth challenge is in part because of the problem that school interventions are often tasked to solve: to address long-standing inequalities in achievement at scale. Existing research shows how difficult this task is. Gains through interventions are typically small and need to be accumulated over long periods of time (e.g. Borman, 2005). If a group is on average two years behind where they would be expected to be nationally, a not uncommon finding for some groups of students, making even expected gains is not good enough. Students need to make more than just an expected rate of gain. This is a known problem recognised by the designer of a successful literacy intervention, Reading Recovery. Clay's (2013) developmental argument was that in order for an early intervention programme to be functional for an individual, it needed to change the rate of acquisition to a rate of progress faster than the cohort to whom the individual belonged. This was needed so that over the brief but intensive period of the individualised intervention a learner would come to function within the average bands required for their classroom.

The issue for students from social and cultural groups who have not been well served by school is not the same as in Reading Recovery in that the target is not for a group of students to come to function as a group within average bands. Rather, in the ideal case the distribution of students needs to approximate an expected distribution, in our case of New Zealand (NZ) students, the NZ national distribution. The probability of being in the lower (or indeed the upper) 'tail' of the distribution should be no more or no less than what would be expected for the population as a whole.

There is an added problem facing school interventions that are designed over several years to produce accelerated gains in achievement. It is the presence of summer effects where there is differential growth in learning over the months when schools are closed (Cooper, Charlton, Valentine, & Muhlenbruck, 2000). Students from poorer communities and minority students make less growth than other students over this period contributing to a widening gap in achievement. The challenge is to design powerful school effects that over time are greater than these summer effects. This is an added challenge to meeting the criteria of effective acceleration.

Sustainability

The final big challenge is the issue of sustainability. The field of educational interventions is littered with examples of interventions that were not sustainable (Coburn, 2003). The usual meaning of sustainability is that the programme or design continues to be effective, after the point at which the original intervention conditions have stopped. Does the intervention continue in the school or schools over time, with new teachers and leaders and with new cohorts of students whose demographic characteristics might also be changing? The answer to that question is not unlike the answer to the question of scalability: not necessarily or consistently.

Identifying when an intervention is 'finished' can be problematic in itself (see Chapter Six), but the idea is that evaluation periods, and the specified time over which professional learning and development (PLD) has put the intervention 'in place', define the beginning and end. Although, in the case of interventions such as Reading Recovery or another well-known intervention, 'Success for All', the intervention never really ceases because the intervention is systemic. It includes an infrastructure of more expert personnel who have continuous contact with the teachers and leaders on the ground providing ongoing refreshing of the original programme and integrity to its specifications.

There is form of sustainability that is even more challenging. It is the idea that interventions ultimately are designed to change what, and possibly even how, students learn *over time*. Early intervention in the life course of a student is often seen as the most cost effective form of an educational change, early means the changes are put in place and will sustain. Yet much about what we know in education tells us that early interventions in and of themselves often have weakening effects over time and even then any lasting effects are very dependent on conditions that learners subsequently encounter (McNaughton, 2011).

This is a problem of proximal and distal causation or chains of causation. That is, whether the learner from an early intervention continues to progress appropriately depends on the teaching they then subsequently receive. It also depends on what they have learned and how that enables (or does not enable) their learning to be developmentally sustained. This is not a trivial concern. There are examples where a very powerful intervention at early grade levels has little effect on the learning at later grades, because what is learned and how it has been learned are not developmentally progressive (McNaughton, 2011).

To summarise: the big question we address in this book is how to design research which addresses five seemingly intractable educational challenges. This was a question we faced locally, but the answers to which potentially have global significance. Are there good models for conducting research that achieve these ambitious educational aims? Can they at the same time make important contributions to our theoretical knowledge which are generalisable across contexts?

A New Approach

For a number of years Catherine Snow, a distinguished past President of the American Educational Research Association has questioned the relevance of

educational research. One of her key arguments has been that the low status of educational research is in part due to the perceived irrelevance of educational research to practice (Snow, 2016). She proposes various reasons for this, ranging from issues of 'translation' to the reward structures of academia. Education research is perceived as of limited relevance because it is difficult to translate research into practice. It is hard for practitioners – those actively engaged in the education profession such as teachers, school leaders, teacher aides and the like – to access quality research and then transfer what is read to their own context to improve practice (Snow, 2015). There is also what has traditionally been the applied/basic research divide, where applied research, typically conducted in the 'messy' environments of practice, is accorded a lower status and attracts fewer institutional 'rewards' (e.g. tenure) than more basic research, typically controlled trials in labs outside of schools or under tightly controlled conditions within schools (Snow, 2015, 2016).

These problems exist because the twin objectives of educational research – the improvement of practice and the advancement of research knowledge – can be in conflict. Applied research is often perceived as less rigorous, and emphasising the improvement of practice can distract from generating rigorously tested scientific knowledge. But basic research may be perceived as lacking in relevance by the users of the research and puts researchers into the position of controlling knowledge, and schools/teachers into being implementers of that research knowledge (rather than as those with knowledge to contribute).

There are approaches which solve these binaries. Building on early approaches such as those by Ann Brown (1992), three of the more prominent contemporary approaches are: practice-embedded educational research (PEER) promoted by the Strategic Education Research Partnership (SERP) (Snow, 2015), improvement science (Bryk, Gomez, Grunow, & LeMahieu, 2015) and design-based research (DBR) (Design-based Research Collective, 2003). Other similar approaches include continuous improvement models, design studies, design experiments and educational design research (see an extensive list in van den Akker, Gravemeijer, McKenney, & Nieveen, 2006). Although these approaches vary in emphasis, they share many commonalities. They each propose embedding research in problems of practice, building and sustaining research-practice partnerships, attending to both innovations and their implementation and the use of mixed methods involving rigorous, multiple iterations using data (e.g. Anderson & Shattuck, 2012; Bryk et al., 2015; Snow, 2015). At their core is an approach to educational research that potentially overcomes the binaries and achieves both relevance and robustness, one that is embedded in practice, responsive to context and in partnership with practice. The approach is encapsulated in this quote:

> Educational progress is most likely to emerge from approaches to research that create an equal footing for practitioners and researchers, recognising that though these groups accumulate and curate knowledge in different ways, they both have a role in creating tools that can be used to forge lasting improvements. (Snow, 2015, p. 460)

In this book, we will use the terms 'practice-embedded research approaches' or 'research embedded in practice' to refer to the suite of approaches that have the aforementioned common characteristics. But we will use specific names (e.g. DBR) when referring to a specific approach.

Compelling Reasons for Having Research Embedded in Practice

Four rationales help to explain just how the new approaches might be able to address the seeming conflicts between the twin objectives.

'Real-World' Impact

Research that is embedded in practice has the potential to have a greater 'real-world' impact by contributing to solving pressing school problems. There are many examples of this in the literature including the work undertaken by SERP (e.g. National Research Council, 2003), the Middle School Mathematics and the Institutional Setting of Teaching (MIST) (e.g. Cobb, Jackson, Smith, Sorum, & Henrik, 2013), and Bryk and his colleagues' work, most recently with the Carnegie Foundation (e.g. Bryk et al., 2015). In these cases, researchers working with practitioners have solved problems of teaching and learning in mathematics, reading and the like (see Snow, 2015, for examples). Solving these problems in situ, however, can contribute to addressing long-standing societal problems.

One of the most intractable of these, which has profound personal and social costs, is the gap in achievement between linguistically and ethnically diverse students from low socio-economic communities and other students in higher socio-economic communities (e.g. Nair, Smart, & Smyth, 2007). If these approaches, including the LSM described in this book, can address such achievement gaps, replicated over time and contexts in ways that meet the five challenges, then a major and substantial contribution to educational science will be made. Indeed, there is promising evidence that these new approaches can make such a contribution (e.g. Lai & McNaughton, 2016; McNaughton et al., 2012).

The reasons that practice-embedded research approaches and its variants are likely to impact on the real world are intuitively obvious. They are deliberately designed to have 'real-world' impact in a local context. They are not designed out of site and without the local context in mind. This focus makes it more likely that school leaders and teachers support, engage with and implement such research, thereby contributing to its success. But this seemingly obvious point raises complexities about the nature of a context, the nature of generalisable solutions, and knowing what caused what to happen when there are multiple partners, multiple levels of change and where the intervention looks as though it has been made up on the fly. These complexities will be discussed in the following chapters.