Bridging the research-policy-practice divide: Emergence of the 'research-engaged' school of the future

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We are pleased to introduce this new series of monographs as part of the ongoing collaboration between the Asia Pacific Centre of Leadership and Change (APCLC) and the newly established Hong Kong Principals’ Institute (HKPI). Both organizations are focused on promoting deeper understanding of school leadership through innovative research and to improved leadership practice in schools. We believe that working partnerships between organizations such as ours provide fertile tracts within which ways to more successful leadership can be explored, tested, practiced and disseminated in ways that neither partner can achieve individually.

We hope that you enjoy reading the monograph and that it in some way helps you reflect on what you do as a leader, regardless of where that is.

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Introduction

The research-policy-practice divide in education is a well known phenomenon among educationists, and has been so for many decades (Hargreaves, 2000). Over this time, school leaders and teachers have come to rely on their own tacit knowledge rather than on research evidence to underpin their practice (Dimmock, 2012). Researchers, on the other hand, mostly located in universities, have lamented the apparent lack of uptake by school practitioners in putting their research findings into practice. Across the globe, policy makers and governments have shown reluctance - for diverse reasons - to assimilate the evidence from research to inform and re-direct policy, even when they have been instrumental in funding it.

This monograph argues that current imperatives to address the divide are compelling, for two reasons: first, the wasted resources involved in public and private investment in research that ends up on shelves, finds its way into academic journals and fails to penetrate schools to influence practice, is a cost that societies can no longer afford to bear. Second, practitioners and policy makers can no longer afford to ignore important research evidence at a time when schools have immense pressures on them to secure continuous improvements in student learning while at the same time address the growing inequality issues between students of different socio-economic and ability groups. Accordingly, this monograph has two main purposes and sections: the first explores and conceptualizes the phenomenon of the research-policy/practice divide, presenting it as problematic in holding back advances that promise improved outcomes from schooling. The second purpose and section applies the conceptual frameworks previously outlined, and capitalises on contemporary trends in education policy and practice to advocate a strategy for overcoming the problem, namely, one founded on promoting and enabling research-engaged schools.
THEORETICAL CONTEXT: KNOWLEDGE PRODUCTION, MEDIATION AND UTILIZATION

For many decades, as Teh, Hogan, and Dimmock (2013) report, the dominant framework used to understand how knowledge utilization can improve policy and practice in education has been known as the Knowledge Utilization (KU) framework (see also Eidell and Kitcher (1968) and Short (1973)). The KU framework as an explanation of disconnect between research, policy and practice has more recently been discussed by Hood (2002), Hemsley-Brown and Sharp (2003) and Levin (2008). Indeed, the problem has been regarded as so serious that on a larger international scale CERI/OECD has devoted two major publications to it, namely, *Knowledge Management in the Learning Society* (OECD, 2000) and *Evidence in Education: Linking Research and Policy* (OECD, 2007).

The problem of knowledge utilization in education is often framed in terms of an entrenched hiatus between research on the one hand, and policy and practice on the other (Teh, Hogan, and Dimmock, 2013). This hiatus in turn is typically traced to a well established institutional division of labour that splits policy making, research and practice into independent social practices: politicians and bureaucrats make policy, academics research and teachers teach. Academics specialize in knowledge production, teachers in knowledge transmission and politicians/bureaucrats in setting strategic agendas and directions for both research and teaching. Universities focus on tackling problems theoretically and on research methodology, schools on practical problems and solutions, and the political bureaucracy on mediating between political ideology, knowledge (evidence-based and otherwise) of good practice, and electoral appeal. The resulting institutional hiatus between knowledge production (university-based) and knowledge application (school-based) means that research has limited relevance and impact on practice, to the detriment of both. The hiatus spreads to the body politic which too often seems divorced from the influences of researchers concerned with knowledge production and teachers and leaders in schools responsible for knowledge application.

However, as Teh, Hogan and Dimmock (2013) argue, this is not the complete story. David Hargreaves (2000), for example, writes in an important OECD publication that this account ignores the fact that there is substantial knowledge production in schools that takes at least three forms: lots of informal “tinkering,” “chatting” and action research; some development of professional learning communities focused on solving local practical problems within schools, and the rapid expansion of networks of teachers and schools in distributed professional learning communities.
As depicted in Figure 1, this revisionist account of knowledge production in education is multimodal rather than unimodal (Teh, Hogan, and Dimmock, 2013).

Although this revisionist account is substantially more accurate than the conventional wisdom and at least takes account of innovative teachers and principals in schools in highly localized contexts, overwhelmingly, the great bulk of knowledge production is formalized and conducted by university researchers — often exclusively for their own benefit — with very little transfer to policy and practice. The impact of research on the scalability and sustainability of innovative school and classroom practices is even rarer. Yet, as David Hargreaves (2000) pointed out more than a decade ago, despite this considerable investment in supply-side research, educational researchers have failed to provide a strongly validated social scientific foundation for professional practice in schools in comparison with their counterpart researchers in medicine and engineering. Moreover, educational systems have not been especially good at codifying and disseminating the tacit knowledge that expert teachers develop in the course of their professional practice (Hargreaves, 2000; Fullan, Hill and Crevola, 2006). This raises a host of challenges for educational systems, but two are particularly important, as highlighted by the OECD (2000, p.98): “they need to learn how to become more effective at learning and innovating than they have been in the past,” and, “they need to integrate R&D and knowledge management.”
Meeting these two challenging outcomes identified by the OECD (2000) will require a radical rethink of the relationship between knowledge production and knowledge utilization. In short, it will require solutions based on bridging the research-policy/practice divide. In particular, it will require a dramatic shift in the locus of knowledge production from universities to schools (specifically, classrooms) and networks of schools, and it will require teachers to abandon privatized forms of professional practice in favour of strategically-focused, evidence-based, collaborative partnerships with fellow practitioners and researchers (Teh, Hogan, and Dimmock, 2013). This in turn will require abandonment of conventional linear models of off-line, supply-side, knowledge production, codification and utilization, and their replacement by newer models that balance supply-side theoretical knowledge and demand-side (on-line) knowledge production, codification, dissemination and application of the tacit knowledge of expert teachers (OECD, 2000, p.74).

This, however, is a lot easier said than done. Furthermore, it will ideally need to be implemented in a way that reconciles rigor, relevance, strategic focus, sustainability and scalability. Clearly, in order to tighten the nexus between research and practice, educational knowledge production needs to be both rigorous and relevant. But while these are desirable criteria, rigorous and relevant research is not always strategically focused, nor capable of meeting both sustainability and scalability requirements. Rather, all of these criteria need to be satisfied. Critically, a key requirement for meeting all of them – relevance, rigour, strategic focus, sustainability and scalability – is an environment that fosters effective knowledge mobilization.
Teh, Hogan, and Dimmock (2013) argue that three conditions are necessary for the building of such an environment. First, prior to knowledge production, all stakeholders including researchers, practitioners, policy makers, parents and students should be engaged in informed dialogue (Reimers and McGinns, 1997) to co-construct the evidence *in situ*, that is, in the light of local beliefs, knowledge, values and problems (Spillane and Miele, 2007). Part of this entails engaging in collective deliberation to establish precisely what the problems are that knowledge users face; and a further part involves identifying what knowledge innovations are congruent with practitioners’ practical theory /knowledge, beliefs, values and norms (Dewey, 1904; Hirst, 1966, Sternberg, 2006). Second, university researchers must work in collaboration with teachers, for example in professional learning communities, and in carefully designed, evidence-backed, strategically-focused projects so that both explicit and tacit knowledge (Polanyi, 1967; Sternberg & Horvath, 1995; Nonaka and Takeuchi, 1995) can be mobilized and transformed into knowledge innovations to improve the quality of instruction and learning *in situ*. Third, teacher professional learning is central to improving
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The quality of instruction and learning and to bringing knowledge innovations to fruition in classrooms and schools. Instead of traditional knowledge dissemination through one-off workshops, seminars or discussions, knowledge mediation and knowledge application should be in line with the new accounts of professional learning mobilization. Such learning is grounded in participants’ questions, inquiry and experimentation as well as research on effective practice, and is focused on very specific and contextualized aspects of instruction. It should be iterative and extended over time, supported by follow-up activities, properly structured and overseen by expert teachers, and embedded in schools functioning as collections of communities of learning and inquiry. It should also be focused systematically on instructional innovation and cultural change at the school level to address the implicit (often uncontested) conceptions of, or beliefs about, teaching, learning, knowledge, assessment and epistemic authority that teachers hold (Teh, Hogan, and Dimmock, 2013). Finally, such research is more likely to be focused and effective when it is embedded in a national (or least jurisdictional) strategic research, development and innovation programme. But while a knowledge mobilization programme of this kind will help, it is by no means a sufficient condition to close the gap between research, on the one hand, and policy and practice, on the other (Hogan, 2011).

FURTHER STRATEGIES FOR BRIDGING THE THEORY-POLICY / PRACTICE DIVIDE AND ACHIEVING ITERATIVE KNOWLEDGE MOBILIZATION

The three key elements of an iterative knowledge mobilization effort cited above create an increased likelihood of producing useful knowledge which is in turn found to be meaningful by practitioners and policy makers. Based on their experience and study of Singapore’s education system, Teh, Hogan and Dimmock (2013) identify three further elements they consider instrumental to enhancing the actualisation of an iterative knowledge mobilization process.
between researchers, practitioners and policy makers; these involve – a strategy of:

- generating baseline data research;
- the design research approach; and
- continuous teacher professional learning, much of it *in situ*.
As argued above, informed dialogue of an extended and iterative nature between researchers, practitioners and policy makers increases the likelihood of reaching a consensus about the key problems encountered by the education system and the knowledge which the system needs to address these problems. Having a consensus helps mobilize and target the necessary resources needed to produce the knowledge, and heighten the likelihood of the knowledge, once produced, being adopted and implemented by practitioners and policy makers. This makes the knowledge production process significantly closer to Mode 2 (demand-driven) than Mode 1 (supply driven).
A necessary component of this informed dialogue is the construction of rich, comprehensive and robust databases which comprehensively describe the status of leadership, teaching and learning in a system’s schools and classrooms. Large mixed method studies (using surveys, interviews, observations and documents) provide a comprehensive information resource for sharing across all stakeholders. Practitioners can be heavily involved in the design, gathering and interpretation of the data. Besides the involvement of teachers in such research endeavours, the purpose of constructing large baseline databases is to engender a level of consensus among a large number of teachers and school leaders with regard to current systemic practice across schools and classrooms, and to signal possible directions for further improvement.
Besides involving practitioners and policy makers in the development of a research agenda and the planning of research projects, steps need to be taken to support the development of close partnerships between researchers and practitioners before, during and after the research process. These steps ensure the teachers and students are not merely research subjects, but that the research itself is honed and informed by classroom practice and that classroom practice is informed by research findings to the point where, optimally, classroom practice becomes a form of research practice (Wagner, 1997).
A relatively recent step towards involving both researchers and practitioners in applied research focuses on intervention projects in schools and employs a design research approach. At its best, design research is iterative, collaborative and reflective in ways that test and refine instructional innovation and learning environments with due attention to developing and testing principles of learning (Cobb, diSessa, Lehrer & Schauble, 2003; Design-Based Research Collective, 2003). Crucially, design-based research is iterative and collaborative since both researchers and practitioners collaborate to engage in the design and implementation of the interventions in classroom settings. This process ensures research takes place in context, that theories of learning are developed and refined, and that researchers and teachers engage in re-design and continue the cycle of design and implementation.

Design research is therefore often characterized as interventionist, iterative, process-oriented, utility-oriented and theory-oriented (Van den Akker, Gravemeijer, McKenzie and Nieveen, 2006). The close collaboration of researchers and practitioners throughout the course of the research enhances and facilitates the incorporation of the tacit dimension of practitioner knowledge in the systematic explication of the research process.

While design research is still considered an emerging research approach, it has the potential to meet the needs of practitioners because it supports co-design, learning design, curriculum development, technology development and professional development – thereby actualizing the iterative knowledge mobilization cycle.
A third strategy to mediate knowledge, support its application and increase its impact on practice in a sustained manner is to leverage on pre-service and in-service programmes provided by teacher training institutions. Through programmes, conferences and research publications, these institutions can play a key role in translating and disseminating research findings through regular print and online media.

However, it is largely through school-based continuous professional development (rather than off-site provision) that the greatest potential can be realised for mediating the research-policy/practice divide, for fusing and connecting knowledge production and application, and for mobilizing knowledge.

In this regard two powerful concepts are of critical importance: the first is the *research engaged* school; the second is the school as a *professional learning Community* (PLC). First, however, it is important to re-emphasise the need for schools (and policy makers) increasingly to adopt research evidence-based policy and practice and a research-into-practice strategy.
The need for an evidence-based, research-into-practice strategy for policy and practice

The case for schools to be research-engaged, professional learning communities is predicated on a research-into-practice strategy as the basis for knowledge mobilization. In the introduction to this monograph, two main drivers justifying such an approach were identified. The first adopts a supply-side, societal or macro-perspective centring on the unsatisfactory nature of the status quo, where government and non-government organisations (e.g. charities and private agencies) invest considerable financial resources in educational research without seeing an economic return for their investment; a return which is only realised through the adoption and implementation of findings leading to improvements in practice. Even where research evidence is relevant and rigorous, failure of take-up among knowledge users (practitioners and policy makers) is all too commonplace. The disconnect is indicative of clear shortcomings of the present institutional roles and relationships and suggests a new model of knowledge mobilization is needed – if only to avoid the considerable waste of scarce public and non-public resources in research that ultimately benefits few. The second driver assumes a demand-side, educational and school perspective, again targeting the status quo, where every school is nowadays under increasing public scrutiny and accountability from its multiple stakeholders, and where there is an expectation of continuous annual improvement in student learning outcomes for all students across the ability range. Enabling schools to meet such challenging goals, and to sustain them, clearly calls for the most expansive and creative capacity building strategies predicated on optimizing the quality of teaching, learning and leadership. Again, a review of the shortcomings of the status quo regarding school practice suggests a new model of knowledge mobilization is required, one centred on quality teaching, learning and leadership and anchored in highly professionalized teachers and leaders. This brings the argument back to schools as ‘research-engaged’ professional learning communities (Dimmock, 2012).
The concept of research-engaged schools

In the research-engaged school, knowledge is effectively mobilized to underpin professional practice and learning (Levin, 2008). Teaching is underpinned by evidence-informed ideas and practices, drawn from both research evidence of ‘what works’ and tacit knowledge, that is, knowledge based on teachers’ practical experience. Given the importance of relevant and robust research evidence in determining the best professional teaching and learning practices the crucial question for schools in the future, as Levin (2004) poses, is – How do they find, share and use research in their work? This and the following section provide some ideas to address this question.

In the conceptual framework outlined earlier, a main cause of the problem of a lack of uptake of research by schools was attributed to the hiatus between knowledge producers (academic researchers) and knowledge users, that is, school practitioners. The divide between them has two dimensions - an institutional and an occupational. Researchers in universities mostly pursue research for their own career advancement,
conforming to the institutional reward structures of their profession, while teachers and leaders in schools are preoccupied with solving practical problems of delivering curricula to students. This remains largely the case despite government (and non-government) agencies prioritising the funding of university projects that have relevance to practice, and their insistence that practitioners are represented on reference groups to steer projects. Since the hiatus has both an institutional and occupational manifestation, it makes sense to generate solutions that address both.

In regard to the present separation of the institutional aspects of the hiatus, the divide could be closed by locating future educational research not in universities, but in schools. In relation to the present separation of the occupational aspects of the researcher–practitioner hiatus, the divide could be addressed by more meaningful collaboration between researchers and teachers, and by teachers themselves becoming researchers (role switching). Both aspects of the hiatus – institutional and occupational – are interrelated and could be addressed concomitantly. In bringing this about, the following sevenfold strategy is suggested:

i. Schools will need to become the sites for research design, methodology and application

ii. Educational research will need to take the form of intervention projects tackling practical problems

iii. System and school council expectations will be that schools conduct research (eg. action research) projects as part of their normal ways of working

iv. Joint research programmes between schools and universities will need to become commonplace

v. Every school will need teachers with research skills; indeed, research capacity will need to become part of teachers’ job descriptions

vi. Formal roles will need to be established in schools, such as a research co-ordinator and even a research division.

vii. A research approach and methodology is needed that is conducive to collaboration and even role switching between teachers and researchers; design research appears to be a promising approach.
We live in a research-intensive environment; technology is supporting and enabling a fast expanding knowledge base. Learning is increasingly a function of new knowledge created by the user, rather than the producer. Teachers are increasingly responsible for more than transmitting knowledge; they must discover knowledge and help students to do likewise. Schools as centres of learning are increasingly expected to undertake knowledge production functions as well as knowledge transmission and consumption.

With schools rather than universities as the locus of future educational research, research agendas and projects can focus on problems of practice, with solutions built around improvements to practice. This will enable more research to take the form of intervention projects. The switch of research location will enable teams of academic researchers to work alongside teachers as researchers, with both engaging in school-based research. It also signals the need for more and closer collaborative research projects to be undertaken by schools and university partners. Indeed, if fully developed, such partnerships could even see role switching, with researchers undertaking teaching or leadership tasks in order to better understand the research problem and its possible solutions, and teachers undertaking some of the research to gain corresponding understanding and skills of methodology and attendant research issues.

Clearly, the emergence of many of the features described above depends on policy direction, support and resources from systems and school councils. The greater the expectation on the part of governing bodies that schools integrate research and practice, that is, R&D becomes a part of the normal work of schools with research feeding into practice, the more the likelihood of the research-engaged school becoming a reality. Already, schools in many systems are undertaking some (limited) research activities. Action research projects are commonplace; but these are normally on a limited scale and confined to a few enthusiastic teachers, with little intention to achieve sustainability or scalability. In the fully-fledged research-engaged school, research roles would need formalising and given some associated authority; for instance, each school (or group of schools) might have a research co-ordinator, even a research department, a budget and physical space.
Up-skilling teachers in research methods could be undertaken by university personnel involved in the school-university collaborative partnership. Above all, an approach and methodology is needed that is conducive to intervention projects focusing on practical problems, their solutions and improved practice. The approach must also accommodate collaborative school-university projects, role switching and interdependency of teams of teachers and university researchers, and school-site research where all stages of research design, methodology, data gathering and analysis, interpretation, trialling and putting into practice – are conducted. Such an approach and methodology has been heralded recently, and is known as Design Research (Brown, 1992; Bryk & Gomez, 2008).

Design Research has found strong support from Bryk and Gomez (2008) (the former as President of the Carnegie Foundation in the USA). These authors, for example, advocate future school research adopting a Design-Educational Engineering–Development (DEED) approach, with the capacity to bring improvement at scale to critical, high leverage problems of teaching and learning. This ‘learn by doing research’ approach also relies on building principled accounts of how to conduct research so that others can learn from and use it, and means that schools become double-loop learning organisations that can both do the work of teaching and learning and learn how they and others can do it better in the future (Bryk & Gomez, 2008). Bryk & Gomez (2008) identify the following five features as key aspects of the approach:
R&D should be organized around high-leverage problems embedded in the day-to-day work of teaching and learning and the institutions in which these activities occur. Successful problem-solving R&D begins with a working map of the elements that comprise the problem, the multiple pathways toward solutions, and an integrating framework for forming a coherent field of improvement activity.

Activity should be driven by an engineering orientation where the adaptability of innovations to local contexts is a primary consideration. It is not sufficient to know that a program or innovation can work. We need to know how to make it work reliably over many diverse contexts and situations.

An evidence-based practice must discipline the enterprise. Continuous improvements at scale require measuring the key components that contribute to student outcomes. This system of measures must be guided by a working theory about how various instructional processes, organizing routines and cultural norms interact to affect desired outcomes. This cause-and-effect logic must, in turn, be constantly tested against evidence of actual efficacy in action.
Designers, developers, and researchers need to work in close collaboration with educational practitioners from the beginning. We cannot achieve the improvements needed so long as R&D operates in accord with an if-we-design-it-they-will-come principle. The full range of stakeholders must be at the “design table.”

Openness is fundamental. A participatory culture that both enables innovation development and stimulates broad uptake and use. This means building communities of designers, researchers, practitioners and institutional leaders around specific improvement problems. It also means tapping into the capacity of research data bases for promoting the exchange and development of powerful practices.
Manifestations of research-engagement in schools

There are at least five ways in which research-engaged schools can source research information and evidence to underpin improvements in practice. They are:

i. Academic research – codified, theory-driven, formalised, and found in magazines, journals, and books; also presented at conferences

ii. Tacit knowledge – the accumulated and aggregated knowledge of teachers and leaders gained from practical experience in situ

iii. School records and similar data that the school currently possesses, such as student performance data, parent and staff information

iv. School-generated projects on particular topics, such as action research projects undertaken by specific staff

v. Collaborative (i.e., school-school, school-university) school-wide, school-deep co-ordinated intervention projects intended to be sustainable and scalable.

The first three sources of data already exist, and thus the main challenge for teacher-researchers is to access them, and to interpret their significance in the specific context of the school. The fourth and fifth sources require schools to adopt a pro-active stance to generate new data in situ, the main difference between them being one of scale, in the case of the fifth, research on a larger scale would involve the whole school and external collaborators, such as universities.

In reality, more than one, and even several, of the sources of information/data listed above should be used simultaneously. For example, teachers’ and leaders’ tacit knowledge are invariably relevant as a source of valuable data alongside other forms of research information generated from within and outside the school. Likewise, data generated from within the school might be compared with academic research data from other case schools sampled or surveyed.
Translating research into practice

Changing and improving practice is the ultimate purpose of schools becoming research engaged. If schools fail to translate research into practice there is little justification for the research-engaged school. This is not to claim, however, that all research evidence should be implemented, especially where after considerable analysis and reflection teachers remain unconvinced that it will improve learning outcomes. Nonetheless, history is littered with teachers failing to adopt and implement new practices, even where the evidence is convincing that improvement in teaching and learning is likely. Indeed, this final step of putting research into practice is traditionally the Achilles heel of all change and reform initiatives.

A key question is thus - Why is the research-engaged school more likely than typical schools to be successful in putting research into practice? As hinted at earlier, it is mainly because it institutionalises and formalises the research-into-practice process and integrates both. Policies, roles and structures all support research-into-practice, and as explained below, the embedding of research into the social context of the school as a professional learning community provides compelling institutional conditions to expect and reinforce implementation. For example, collaborative teams of teacher-researchers are expected to mediate and internalise the research findings and evidence, plan together how to accommodate the new curricula, think through the implications for new methods of teaching and learning, and then decide on a strategy to pilot or trial the new practice in a classroom. One of the team trials the new practice, while other teachers in the team attend in the capacity of evaluators. After the first round of trials and evaluation, the team might decide to amend the practice, hold re-trials, and scale-up the practice in more than one teacher’s classroom – thereby applying a form of evaluative data collection consistent with the action research cycle. In this way, research-into-practice becomes expected and institutionalised, always with the proviso that only those new research-based practices are implemented for which there is compelling evidence of improvements in learning outcomes.
Barriers to research-engaged schools

The status quo, in most schools, however, may not be regarded as conducive to their transition to productive research environments. Teachers generally do not have the skills necessary to conduct rigorous research. Nor do they have the resources – time especially being at a premium. In many cases, they may not have the motivation, seeing their prime function as teaching rather than researching. The absence of institutional rewards and motivators for teachers to undertake research is a further deterrent, especially in systems where accountability is focused on student learning outcomes. Teachers generally concentrate on achieving short-term goals, and may see any benefits from research as long term, and thus lacking priority. Evidence suggests (Cooper, Levin, & Campbell, 2009) that teachers are interested in research, but spend little time on learning about research directly. Instead, they rely on third parties, intermediaries and on attending conferences, professional development activities, and in some cases, graduate study. Barriers to teacher uptake of research also include problems of access and understanding. It is commonplace for teachers to complain of lack of synthesis of research findings and inconsistency and unreliability of findings, as well as difficulties in clarifying the practical and contextual implications.

Further obstacles to teachers’ openness to research-induced changes in their practice lie in their distrust of research, their perspective of its apparent irrelevance to practice, their lack of ability to interpret it, the complexity and ambiguity with which much research is presented, and above all, their pre-disposition and preference to rely on their own tacit knowledge, that is, the accumulated wisdom gained from their on-the-job experience in situ, over time. Indeed, surveys conducted on the factors influencing teachers’ choice and selection of teaching methods consistently place high rankings on practical issues such as curriculum coverage, formal summative assessment, and student ability, and very low ranking on research evidence of what works (Dimmock, 2012).
Consideration of the social context of schools is critical for research-engagement

The above catalogue of reasons why teachers are reluctant to absorb research evidence-based knowledge in their own practice provides a forbidding list of difficulties to surmount. Obstacles appear on both sides of knowledge production (academic researchers) and knowledge users (school practitioners). So far, this monograph has suggested ways of overcoming them based on creating research-engaged schools, with researchers and teachers collaborating on intervention projects using the design research approach. Even this however, may not necessarily guarantee changes in teacher behaviour, practice or policy. As Levin (2004) insightfully claims, school leaders and teachers rely more on tacit knowledge gained from experience and practical intuition and wisdom, than on research knowledge. They are more influenced by workshops and in-service publications than they are by academic books and papers. They are also more persuaded by colleagues than by governments and academic researchers. In fact, the most powerful of influencing factors on individual teachers’ professional practice is likely to be their peers; that is, the social milieu of the school, its norms, and colleagues’ established and accepted norms of practice. In other words, improving knowledge mobilization in schools has to take major cognisance of the school social context and its cultural milieu, since it is these that exert overwhelming influence in shaping teachers’ practices.

While practice based on tacit knowledge as a form of knowledge mobilization draws much support (for example, it is usually strongly contextualised), there are nonetheless problems with too heavy reliance on it. As Levin (2008) argues, people are not necessarily skilled at using experience to make sound decisions or exercise judgments about what is good practice. Personal judgment, he claims, is not always a good substitute for evidence. Whatever the conclusion about tacit knowledge, it seems that teacher behaviour in schools is grounded in social behaviour and the influence and values of colleagues and leaders; in other words, personal norms and practices are adjusted to fit group norms and practices (Dimmock, 2012).

The social context of leader and teacher learning holds poignant implications for the notion of the research-engaged school. It is clear that we need to take greater cognisance of the school as a social organisation in influencing teachers’ values and behaviours. Here, leadership and management
play a crucial role in knowledge mobilization, as acknowledged by Cooper and Levin (2010). In short, for knowledge mobilization to underpin the research-engaged school, organisational factors appear to exert greater influence than even individual factors. Greater focus needs to be put on how organisations mobilize knowledge and convert it to practice.

Indeed, Hemsley-Brown and Sharp (2003, p. 460) put it succinctly thus: ‘the conclusions from empirical research, in both education and nursing, confirm that the main barriers to knowledge use in the public sector are not at the level of individual resistance but originate in an institutional culture that does not foster learning’.

The conclusion from the above argument is not just that schools must become learning organisations, but that we need to appreciate the ways in which organisations affect how practitioners think and work within them. Levin (2004) is right when he claims we need to boost organisational supports and incentives - and especially consider the part that school leaders and districts can play in fostering research in schools and its take-up in practice. But at present most social service organisations have low capacities for research absorption because managers often have weak research backgrounds themselves and are too busy to reflect on how research can boost teaching and learning performance in their schools.

At least two models of teacher research in research-engaged schools can be postulated: first, partnerships with external researchers; and second, teachers themselves as researchers. Both have their pros and cons: for example, the former is more difficult to scale up across a system, while the latter challenges teachers without research skills and resources, particularly lack of time. Above all, as mentioned previously, research activities need to be built into the regular routines, processes and systems of schools. Ways of integrating research and regularising it in the normal day-to-day work of the school should be aimed at enabling teachers to use time more efficiently and effectively. Among the means of embedding research into the normal daily routines of schools are the following (some of them already recognised in this monograph):

- Formalising of roles and structures – a research co-ordinator in each school, with resources, authority and departmental status
● System expectations that all schools conduct research e.g., action research projects
● Dissemination and discussion of research findings at meetings inside and outside of school
● Formalising and institutionalising school professional development.
● Joint research programmes between schools and local universities.

Bringing together all of the above arguments and analyses of the prerequisites for the emergence of research-engaged schools and after taking cognisance of the present social contexts of schools, there is a convincing case for the school as a learning organisation, that is, as a professional learning community (PLC). The following section connects achievement of knowledge mobilization and the research-engaged school with the notion of schools as PLCs.
The concept of the school as a professional learning community (PLC) is a powerful enabler and vehicle for moving them to become ‘research-engaged’. Indeed, the PLC concept can be seen as establishing the ‘ideal’ conditions for schools to become research-engaged. Hord’s (1997) definition of a PLC is one:

... in which the teachers ... and ... administrators continuously seek and share learning, and act on their learning. The goal of their actions is to enhance their effectiveness as professionals for the students’ benefit; ... this arrangement may also be termed communities of continuous inquiry and improvement. The notion, therefore, draws attention to the potential for a range of people, based inside and outside a school, to mutually enhance each other’s and pupils’ learning as well as school development. (p.1)

Furthermore, advocates of schools as PLCs (such as Bolam et al., 2005) claim they foster many attributes, all of which reinforce and support research-engagement: shared values among staff; collective responsibility for pupils’ learning; collaboration focused on learning; continuous individual and collective professional learning; reflective professional enquiry; openness, networks and partnerships; inclusive participation; and mutual trust, respect and support. In short, schools as PLCs are predicated on two main purposes - continuous professional development of teachers and leaders, and improved quality of teaching and learning outcomes. In such professionalized social contexts and environments, knowledge mobilization can be maximised (Dimmock, 2012). Research engagement as a fulcrum of the PLC ensures that professional learning
and practice, and indeed, the knowledge mobilization process itself, is of the highest quality.

In regard to the embedding and institutionalising of research engagement in schools, the concept of PLC has a further appeal. As a school-wide, school-deep organisational activity, the PLC is dependent on the principals’ supportive leadership and extended leadership roles for middle-level and teacher leaders. Resourcing the research and professional development activities of teachers and leaders, motivating them, clarifying, sharing and owning teaching and learning goals across the school, associated evaluation and accountability processes, and encouragement to innovate – are all dependent on instructional and transformational leadership permeating the school in a distributed fashion. In this way, the leadership of schools as PLCs establishes the organisational and social contexts within which knowledge mobilization, professional learning and improved practice can be formalised and achieved through research engagement (Dimmock, 2012).
CONCLUSION

This monograph began with expounding the need for knowledge producers, mediators and users to facilitate a close workable union in order to close the research-policy/practice divide. The aim as set out is to design schools and school systems that are effective in knowledge mobilization in ways that are strategically focused, geared to improving practice and outcomes, while being sustainable and scalable as well as rigorous and relevant. We should not underestimate the value of researchers, practitioners and policy makers recognizing their specific (at present, often conflicting) institutional and occupational interests and working out a coherent knowledge mobilization strategy that simultaneously supports high quality knowledge production in the form of research, and also usable knowledge that is relevant to policy makers and teacher practitioners seeking improvement to the quality of teaching and learning (Teh, Hogan, and Dimmock, 2013). It is important, however, not to underestimate the difficulties of pursuing such a strategy successfully. Few educational environments are favourable to high levels of policy, research and practice articulation and alignment; and institutionalising and formalising such articulation presents even greater challenges, especially at the national level.
At the school level, as this monograph has argued, the concept of research-engagement offers a powerful and promising strategy to achieve close alignment between knowledge production, mediation and application, and a way of maximising knowledge mobilization. It is argued that while few schools presently commit to research engagement on the scale advocated, contemporary trends and drivers are encouragingly supportive. These include – the rapid pace of technology application in school teaching and learning, the constant pressure of accountability on schools to achieve improved learning outcomes, and the ubiquitous desire to professionalize teachers using resources stretching beyond their present tacit knowledge and experience. This monograph has also argued that it is feasible and desirable to institutionalise and formalise research engagement through creating in schools social learning contexts based around the notion of professional learning communities. Together, schools that are research engaged and professional learning communities offer a compelling future for mobilizing knowledge and closing the research-policy/practice divide.
REFERENCES


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