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Conceptualising the research-practice-professional development nexus: mobilising schools as ‘research- engaged’ professional learning communities

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It is fashionable nowadays to laud such innovative professional practices as teachers researching their own practice, using action research, referencing data to inform improved practice, tailoring innovation to the particularities of context, and pursuing equity through policy and practice. Yet, all of these were compellingly advocated by Lawrence Stenhouse (1975) nearly half a century ago. With the march of time, it is easy for today’s educators to overlook his foresight and legacy.

Unfortunately, Stenhouse’s prescient foundational thinking was by no means complete, as he met a premature and untimely early death in the 1980s. However, his pioneering work bringing research and practice together was decades ahead of its time, and his seminal contributions to many of the issues at the fore-front of teacher professional development and practice today reflect his continuing relevance. While reminding ourselves of our indebtedness to him, we also have a responsibility to build on the foundations he left.

These foundations are rich and diverse. First, in addressing the question, what counts as research? – Stenhouse broke convention in legitimising classroom modes of inquiry to fit alongside conventional academic research. His self-addressed questions included, how can collaboration occur between academic researchers and teacher researchers so that research is useful to practitioners as well as adding to the knowledge base? Second, the central theme of his work was the idea that knowledge was the route to emancipation for both students and teachers. Through acquiring knowledge, teachers and learners came to a better understanding of the world, which in turn enabled them to make better personal and professional decisions. Consequently, he was against objectives-based curricula, believing that students and teachers should have more rather than less control over the curriculum. Third, he was all too aware of the authority, control and power structures involved in educational research, arguing that it should be academics justifying their research projects to teachers rather than vice versa. Fourth, he championed the influence of context in modifying how the same policy or practice

might play out differently. He rejected the traditional research caveat, 'other things being equal' because, he said, they never were! Lastly, at the time of his death, he was on the verge of some major breakthroughs, the consequence of which left many questions unanswered: How would collaborative research best work between teachers and academics? How could practitioner research fulfil (his) requirements of being systematic, planned, rigorous and self-critical? What exactly is the role of theory in action research?

Stenhouse's ideas and questions are just as apposite in today's arena of teacher research and professional development, collaborative practitioner-academic research, professional learning communities and associated ideas. The aims of this paper are to extend and articulate many of the precepts and principles first enunciated by Lawrence Stenhouse. Specifically, the paper is predicated and structured on six interdependent and contemporary professional development problems, precepts, principles and trends, many of which are traceable back to Stenhouse. The six professional development themes comprise three that can be thought of as theorising and conceptualising existing problems in the present provision of professional development, and possible solutions, and three that are concerned with implementation of these solutions, and are thus organisational, methodological and resource based. These six themes form the structure to this paper, which considers both teacher and leader professional development.

The three themes that conceptualise existing problems and their possible solutions are

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1. Bridging the research-policy-practice gap by mobilizing knowledge through stages of generation, transfer, adoption and implementation
2. Valuing both tacit knowledge and academic coded knowledge
3. Raising the professionalism and reflectivity of teachers and leaders.

These conceptualised problems and laudable objectives present a challenge regarding their implementation. What, for example, is the organisational and human infrastructure that will enable their practice in schools? Three responses to this challenge are suggested, all of which hinge on the concept of knowledge mobilisation in the 'research-engaged' school -

4. Facilitating research-engagement on the part of teachers and leaders

5. Creating schools and networks as professional learning communities (PLCs) by which teachers and leaders can engage in research
6. Adopting a workable methodology for teachers and leaders to underpin research-into-practice while tailoring innovations to the specific conditions of each context: the research-design-development (RDD) methodology.

Underpinning all six interdependent themes is the core concept of the ‘research-engaged’ school and school network. In bringing these trends and ideas together in a functionally integrative way, the paper presents a comprehensive and holistic yet workable landscape for future teacher and leader professional development. Indeed, it argues that while each of the themes has been addressed discretely elsewhere, there is a need for coherent and holistic frameworks that are viable, connected, integrated and synergistic. In other words, there is need to reconceptualise a comprehensive conceptual framework that rationalises, constructs and connects salient professional development concepts and practices fit-for-purpose in 21st century schools. It is argued that this can be achieved through the powerful unifying central concept of the ‘research-engaged school’ (Author, 2012).

Conceptualising existing professional development problems and solutions

Bridging the research-policy-practice gap by mobilizing knowledge

The research-policy-practice divide in education is a well known phenomenon among educationists (Hargreaves, 2000). School leaders and teachers have come to rely on their own tacit knowledge rather than on research evidence to underpin their practice (Author, 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. Moreover, policy makers and governments have shown reluctance - for diverse reasons - to assimilate the evidence from research to inform the direction of policy, even when they have been instrumental in funding it.

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.

Knowledge Production, Mediation and Utilization

For many decades, as Author (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 Hood (2002), Hemsley-Brown and Sharp (2003), and Levin (2008), OECD (2000, 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 (Author, 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 Author (2013) argue, this is not the complete story. David Hargreaves (2000), for example, notes 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 multi-modal rather than uni-modal (Author, 2013).

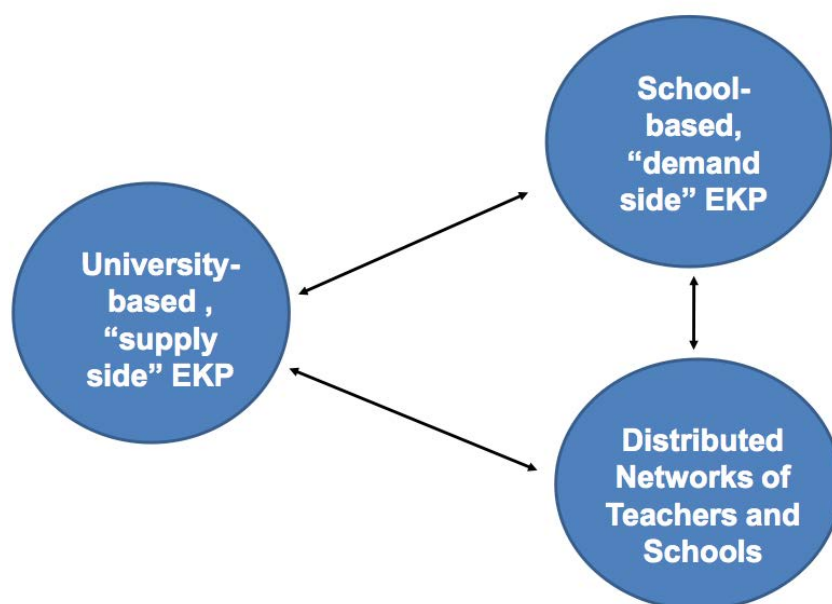


Figure 1. Modes of Knowledge Production (after Author, 2013)

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 (Author, 2013).

This is, however, a lot easier said than done. Furthermore, ideally it will 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 mobilisation.

Building an effective knowledge mobilisation environment

Author (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 the quality of instruction and learning and to bringing knowledge innovations to fruition in classrooms and schools. Instead of the 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 mobilisation. 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 (Author, 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 program. But while a knowledge mobilization program 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, Author (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 baseline data research; the design research approach; and continuous teacher professional learning, much of it *in situ*, contextualised in schools. Underpinning much of this are the present problems posed by the lack of robust research-based empirical evidence on which to inform practice.

Valuing both tacit knowledge and academic coded knowledge

A further crucial implication of an existing weak empirical knowledge base is that teachers and school leaders compensate instead by placing heavy reliance on tacit knowledge gained from organisational socialisation and past practical experience. In fact, tacit knowledge – rather than research-based evidence – more often than not acts as the default position for coping with difficult and intractable teaching, learning, and leadership problems. As Hallinger and Heck (1998) claim, few studies have focused on the strategic and practical

knowledge principals display on a daily basis. One such rare study is that by St. Germain and Quinn (2005) who investigated how tacit knowledge was used by expert and novice principals during problem-solving situations. As these authors argue, tacit knowledge is grounded in experience, and includes practical wisdom. Researchers have claimed that intelligence only accounts for 25 percent of successful job performance (Sternberg , Wagner, Williams, Horvath, 1995), and that as cognitive intelligence decreases with age, the tacit knowledge involved in problem solving appears to increase. Tacit knowledge rarely figures in formal leadership or teacher development programmes; rather, it remains implicit and internalised in individual leaders' and teachers' mindsets. Consequently, a key future challenge is to encourage individual leaders and teachers to explicate and externalise their tacit knowledge to a greater degree in order to incorporate such knowledge into programme content and shared professional practice. Combining tacit knowledge with research-based knowledge and theory is a compelling mix and needs to be endorsed as a principle of future professional development and practice.

Experience alone, however may be insufficient to become a successful practising teacher and leader. Many professionals have similar types of practical on-the-job experience, but while some may go on to become expert teachers and leaders, others may not. While experience is necessary for expertise, it is not sufficient. A study by Nestor-Baker and Hoy (2001) on superintendents found that expert performers with reputations displayed larger amounts of 'if-then scenarios' to draw on when navigating difficult problems, allowing them a greater intuitive orientation to the tasks at hand. Expert teachers and leaders seem to possess a larger reservoir or repository of tacit knowledge on which to depend than non-expert, but also an ability to spontaneously acquire such knowledge on a daily basis. They also seem to display greater capacity as to how and when to use and apply such knowledge on future occasions. For example, according to Hart, Bredeson, Marsh and Scribner (1996), who compared expert with novice school leaders in their problem-solving behaviours – the timing of decisions is critical. Most errors made by novices were based on making a decision either too early or too late. Experts, however, were more able to draw on their tacit knowledge with greater integrity in judging the best timing of a decision. They also brought a calm assurance to solving problems. If expertise is developed by the accumulation and effective use of tacit knowledge, training models for teachers and school leaders should place

less emphasis on experience alone and focus more on how experience may or may not lead to professional learning from tacit knowledge.

While practitioners are normally strong advocates of the usefulness of tacit knowledge over academic research-based knowledge – especially from the viewpoint of relevance and application – there are dangers in over-relying on tacit knowledge. To the extent that an individual teacher's or leader's experience is limited or negative, tacit knowledge is likely to be impaired or unhelpful – leading to the repetition of mistakes. In addition, if good teachers and leaders are able to conceptualise and theorise their practices as a basis of understanding, then tacit knowledge alone may not necessarily enable that to take place. Not only might the tacit knowledge possessed by teachers and leaders be limited, but it is not always a sound basis on which to make judgements and decisions. Common sense dictates that future professional development and practice should be based on a balanced combination of research-based academic and tacit knowledge, thereby avoiding the limitations of over-reliance on one or the other.

Raising the professionalism and reflectivity of teachers

Major educational reform initiatives in England since 1988 have been based on a 'technicist' view of curriculum and teaching with change initiatives being delivered from the centre for teachers to implement (Dadds, 2014). This linear top-down model denies teachers their professional expertise in making judgements and decisions, locating such responsibility outside of schools. Yet, international research reports continue to emphasise that it is the quality of teachers and teaching that has the largest effect size on improving student learning (OECD, 2011). Expecting teachers simply to 'deliver' and reducing their role to mere 'technicians' does not equate with quality teachers and teaching. Assuming that 'quality' is associated with professionalism, then there are at least two interlinked ways of enhancing teacher professionalism – nurturing and respecting teachers' individuality as learners and experts, and enabling them to realise their reflective capacities.

Nurturing the teacher as learner and expert

As Dadds (2014) argues, irrespective of whether policy initiatives are top-down or otherwise, the expertise of the well-educated teacher must lie at the heart of continuing professional development and practice; it is this which ultimately determines the successful

implementation of educational reforms and social justice. This form of professional development is predicated on the development of teachers' understanding of learning, and respect for their sense of voice, judgement and self efficacy, all of which are necessary to cultivate an inner expertise as a basis for their teaching and mediation of outside initiatives. The inner (tacit) knowledge, judgement and decision making of the professional teacher are a vital resource in confronting the complex nature of their work. Furthermore, an integral part of nurturing the teacher as learner and expert is down to developing their reflective practice.

Teachers as reflective practitioners

A key part of improving the professionalism and performance of teachers is concerned with aiding their reflective skills on past teaching events in order to enhance their future classroom effectiveness. It is insufficient, however, simply to extol teachers to become more reflective – as many do – since without the conceptual and technical capacity necessary to make both critical and accurate reflective judgements about their teaching there is little benefit. To this end, Van Manen's (1977) three levels or categories of reflectivity provide a useful start for monitoring progression and growth of a teacher's individual expertise, as a teacher's level of self efficacy (that is, their perceived belief in their ability to succeed in a certain task) enhances their reflective practice. Van Manen (1977) recognises the following levels:

- i) Level One – *Technical rationality* – where the teacher considers only the technical application of educational knowledge and basic curriculum principles for the purpose of attaining a given end. At this level, the contexts of classroom, school, community and wider society are not linked to the problem. Van Manen (1977) labels this level as the 'empirical-analytical' paradigm, and classifies it as the lowest form of reflection.
- ii) Level Two – *Practical Action* – where the teacher is concerned to clarify assumptions and predispositions underlying competing pedagogical goals while assessing the educational consequences toward which a teaching action leads. The teacher analyzes student and teacher behaviours to see if and how goals are met; Van Manen calls this level the 'hermeneutic- phenomenological' paradigm
- iii) Level Three – *Critical Reflection* – at this level, teachers are concerned in a personal and professional way, with the worth of certain kinds of knowledge and the social circumstances useful to students. Critical reflection is seen as a way of remaining open minded to moral and ethical consideration of educational processes.

An implication of Van Manen's model is that teacher reflectivity advances through the three stages. Much of this resonates with Stenhouse's (1975) view of the teacher-as-scholar and teacher-as-researcher. According to Stenhouse, not only should teachers consider the results of systematic enquiry conducted by other people, but they should reflect as a form of systematic enquiry what they themselves might undertake as researchers on their own practice. Systematic enquiry was the centrepiece of Stenhouse's (1975) influential notion of the teacher as 'extended professional' (see Hoyle, 1974). This model encompasses 'systematic self-study', as well as 'the study of the work of other teachers' and the 'testing of theory in practice', with the support of specialist education researchers (Stenhouse, 1975). While the teacher-as-scholar makes use of the research findings of professional researchers, the teacher-as-researcher generates one's own research and leads to systematic enquiry into one's own practice, including not just the teacher's work in the classroom, but the assumptions and values that underpin it (Elliott, 1991).

A final aspect of enhancing teacher reflectivity is supplied by Shulman's (1986) persuasive argument that we are mistaken if we treat teachers' subject knowledge and pedagogy as mutually exclusive. To address this dichotomy, Shulman introduced the notion of *pedagogical content knowledge* (PCK) where pedagogical knowledge means the "how" of teaching, generally acquired through education coursework and personal experiences. Content knowledge, on the other hand, is the "what" of teaching. It is different from the knowledge of a disciplinary expert and from general pedagogical knowledge. According to Rowan et al. (2001, p.2)

In Shulman's view, pedagogical content knowledge is a form of practical knowledge that is used by teachers to guide their actions in highly contextualized classroom settings. This form of practical knowledge entails, among other things: (a) knowledge of how to structure and represent academic content for direct teaching to students; (b) knowledge of the common conceptions, misconceptions, and difficulties that students encounter when learning particular content; and (c) knowledge of the specific teaching strategies that can be used to address students' learning needs in particular classroom circumstances. In the view of Shulman (and others), pedagogical content knowledge builds on other forms of professional knowledge, and is therefore a critical—and perhaps even the paramount—constitutive element in the knowledge base of teaching.

In the context of the present argument, Shulman's concept of pedagogical content knowledge dovetails well with enhancing teachers' reflective capacities in both of Stenhouses's notions - teacher-as-scholar, and teacher-as-researcher. It also accords with Van Manen's levels 2 and 3, helping to equip teachers to make decisions about teaching strategies and their likely effects and outcomes in particular learning environments and classroom settings, after consideration of specific conditions.

So far, three themes identifying existing problems and their possible solutions in regard to research, practice and professional development have been conceptualised – bridging the research-policy-practice gap; valuing both tacit and academic coded knowledge; and raising the professionalism and reflectivity of teachers. The question now arises – how to bring about their implementation? What infrastructure is needed to enable these conceptualised solutions to be successfully practiced? The rest of this paper is devoted to ways of addressing this challenge. It is argued that the key is to make schools more 'research-engaged'; and that this can best be achieved through two strategies – first, the creation of schools as professional learning communities, and second, the adoption by teachers, leaders and researchers of a methodology to generate, mobilize and apply knowledge more effectively.

Designing the organisational and human infrastructure – the 'research-engaged' school

Inescapably, research engagement is the common theme in addressing each of the three major problems and their solutions discussed so far in this paper. However, 'research engagement' entails more than simply participating in research; it signals a willingness and capability on the part of schools to install a *research-into-practice* mentality and set of institutional procedures. When teachers, leaders and schools become 'research-engaged' in the sense of research-into-practice, they generate and mobilize professional knowledge, value both academic and tacit knowledge, and empower the professionalism of teachers and leaders.

The concept of 'research-engaged' schools

In the *research-engaged school*, knowledge is effectively mobilised 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, 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 – and these give strong clues as to a successful strategy to resolve the hiatus, as suggested below:

- 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 governing body 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.

As suggested in the following section, an overarching institutional framework is necessary for a school (or network of schools) to embrace the seven capacities listed above. In this regard, the school as a PLC enables the implementation of the institutional structures, cultures and processes associated with the seven capacities.

For schools and networked schools, a strong dualism between research engagement and PLCs adequately reflects today's research-intensive environment where technology generates, supports and enables 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 it 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 research to become *intervention* focused. The switch of research location would enable teams of academic researchers to work alongside teachers as researchers, with both engaging in school-based research. It would also signal the need for closer collaborative research projects to be undertaken between schools, and themselves and university partners. Indeed, if fully developed, such partnerships promote 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.

Implementation of research-engagement and PLCs depend on policy direction, support and resources from systems and school governing bodies for their realisation. 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, albeit on a limited scale and confined to 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, a research department, a budget and physical space. Up-skilling teachers in research methods could be undertaken by university personnel involved in school-university collaborative partnerships. Such initiatives reinforce the compelling nature of the PLC as the appropriate institutional vehicle for realising a research-into-practice strategy.

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 schools currently possesses for other purposes, such as student performance data, parent and staff information
- iv) School-generated projects on particular topics, such as action research projects undertaken by staff
- v) Collaborative (ie. school-school, school-university) school-wide, school-deep co-ordinated intervention projects intended to be sustainable and scalable.

Data from the first three sources already exist; 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 involves the whole school (or partnership networks) and external collaborators, such as universities.

In reality, more than one, and even several, of the sources of information/data listed above would 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*. There is little justification for the research-engaged school if research fails to translate into practice. 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. Nonetheless, history is littered with teachers failing to adopt and implement new practices, even where there is convincing evidence 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.

Why are *research-engaged* schools more likely than typical schools to be successful in putting research into practice? As suggested earlier, through professional learning communities, research-into-practice processes can be institutionalised and formalised. Policies, roles and structures all need to 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. Collaborative teams of teacher-researchers, for example, can mediate and internalise the research findings and evidence, plan together how to accommodate 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 may trial the new practice, while other team members act as 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.

Schools as professional learning communities

The concept of schools as PLCs is a powerful enabler and vehicle for moving them to become 'research-engaged'. Indeed, the PLC concept establishes the 'ideal' conditions for schools to become research-engaged, as Hord's (1997) early definition of a PLC portrays –

(a school)... 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 teaching and learning outcomes. Such professionalized social contexts and environments, are conducive to knowledge mobilization (Author, 2012). Research engagement as a fulcrum of the PLC ensures that professional learning and practice, and indeed, the knowledge mobilization process itself, is given centre stage.

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 principal's supportive leadership and extended leadership roles for middle-level and teacher leaders. Aligning professional development to achieving school vision and aims, 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 an expansive 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 (Author, 2012).

The social context of schools is critical for research-engagement

Teachers are reluctant to absorb research evidence-based knowledge in their own practice for many reasons on both the knowledge supply and demand side. 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 influential colleagues' established and accepted norms of practice. In other words, improving knowledge mobilization in schools is conditional on the school social context and its cultural milieu, since these overwhelmingly shape teachers' practices.

While socially influenced practice reinforces tacit knowledge as a form of knowledge mobilization drawing 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 judgements about what is good practice. Personal judgement, 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 (Author, 2012).

Importantly, the social context of leader and teacher learning holds poignant implications for the notion of the PLC and *research-engaged* school. Clearly, greater cognisance of the school as a social organisation in influencing teacher values and behaviours is required. Here, leadership and management play a crucial role in knowledge mobilisation, as acknowledged by Cooper and Levin (2010). In short, for knowledge mobilisation to underpin the PLC and research-engaged school, organisational factors appear to exert greater influence than individual factors. Greater focus needs to be put on how organisations mobilise knowledge and convert it to practice. Indeed, Hemsley-Brown and Sharp (2004, p. 462) 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 is not just that schools should become learning organisations, but that we need to appreciate the ways in which organisations affect practitioner thinking and working 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. 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.

In PLC research-engaged schools, research activities need to be built into the regular routines, processes and systems. 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 -

- 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 eg. 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.

Barriers to PLC research-engaged schools

The *status quo* in many schools, however, may not be 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.

Furthermore, teachers' often distrust research – seeing it as irrelevant 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 – account for this perspective. 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 to research evidence of what works (Author, 2012). To reverse all these, good leadership of PLCs to change school collective culture is a *sine qua non*.

A methodology for underpinning research-into-practice

Lastly, bringing the PLC school to fruition demands a research approach and methodology that is conducive to intervention projects focusing on practical problems, their solutions and improved practice. The methodology 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-Development (Brown, 1992; Bryk & Gomez. 2008).

Design Research finds 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) identify the following five features as key aspects of the approach:

- (1) *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.

- (2) *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.”
- (3) *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.
- (4) *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.
- (5) *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.

Conclusion

This paper 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 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

(Hogan, Teh, and Author, 2013). It is important, however, not to understate 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, 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. 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. It is feasible and desirable to institutionalise and formalise research engagement through creating schools as 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. In these ways, we would be not only valuing but building on the legacy that Lawrence Stenhouse bequeathed.

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