

Innovations Supporting Teachers for Teachers Supporting Innovations

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This paper discusses the forms of professional development that support teachers' roles not as users of innovations but as their initiators. It commences by outlining an understanding of innovation as thinking and doing outside the box. It argues that reconceptualising the professional development of teachers as capacity building and restructuring the provision of support for teachers as building collaborative networks are essential for initiating and sustaining innovations.

Innovation, like globalisation and sustainability, is a key discourse of the twenty first century. Like them also, it lacks an essential meaning, is undertheorised and is often used in a variety of contexts with different meanings. In this context, for the purposes of this paper, *innovation* is taken to refer to doing things differently *and* thinking about things differently – in other words, thinking and working *outside the box*. I claim that this focus on understanding *and* doing includes an understanding of the *box* and what is outside it, a vision of the outside as well as deliberate action to free us from the hegemony of the inside, and finally production of evidence that the outcome is actually desirable and an improvement on the way we used to think and act within the box. An innovation in understanding without a change in doing leads to surface change and hence is impotent; and a change in doing without understanding runs the risk of haphazardness.

Innovation discourse is often used to indicate a major organisational change as well as seeing the world differently - not for the sake of novelty but for the purpose of doing things better. Hence, it is closely related to problem solving. As the term is used at times to replace the discourses of change and reform, it is essential to remember that innovation never evolves from a vacuum – it always builds on what exists by changing it. Similarly, it is worthwhile to point out that while innovation may be started by a single person, and individual should be supported by an appropriate context, the focus on individual isolated innovations is falls short of wide implantations of these innovations to support real change in schools. Moreover, although innovation is sometimes used to denote the *outcome* of a process, in this context I will use it to describe the *process* of change itself. Finally, although innovation in mathematics and science education might include the use of the arising technology, I will not restrict my discussion on such a use.

This paper discusses the role of teachers as the key innovators in education. In particular, it discusses how the education system can, and should support teachers in such a role. Parallel to the particular understanding of innovation as adopted here, this paper argues that supporting teachers as innovators, we need new ways of thinking about the role of teachers and their needs as well as new ways of doing and structuring that support. Fullan (2000) discuss the terms *restructuring* and *reculturing* as two essential ingredients

of reform in education. I will use these two terms to frame my talk about innovation supporting teachers to support innovation.

Reculturing - Thinking Differently

Traditionally in mathematics and science education, teacher development is constructed around the two areas, *content* knowledge and *pedagogical* knowledge (Zaslavsky, Chapman & Leikin, 2003). These have become the dogma behind several research projects and professional development activities. Undoubtedly, to be effective users, and more importantly, initiators and evaluators of innovation, teachers need to be confident about their content knowledge and be able to demonstrate a command of pedagogical principles to assist students' construction of solid and useful knowledge. In other words, they are necessary knowledges for effective teaching. The question that I will raise here is "are they sufficient teacher knowledges to support innovation"?

First, I note that the construction of the two needs as *knowledges* can be open to question. Knowledge, as an object has the connotation of being static – at least at a particular point of time. Perhaps not in the sense that it is stable or final – because it can be developed and constructed - but in the sense that if a teacher has knowledge, they can apply it and hence be more effective in their role. And also, if a teacher does not have the knowledge, they need to develop it. At times of uncertainty in late modernity (Giddens, 1991), I would suggest that the construct of *power* is more dynamic and better reflects the expectations of teachers to be able to make decisions and take appropriate actions that suit their immediate context. The word "power" points to different components of the teachers' abilities in decision making. First, as the Compact Oxford Dictionary describes, it indicates an "ability to do something or act in a particular way". It also denotes the "capacity to influence other people or the course of events". Finally it reveals "a right or authority given or delegated to a person or body". Undoubtedly, all these meanings of the term are congruent with the expectations of effective teachers' role in today's classroom. Hence, as agents of innovation, perhaps most educators would agree that teachers need access to *content power* and *pedagogical power* that they can draw upon, as appropriate in their professional life.

Secondly, as agents of change, I would propose that these powers are necessary but not sufficient for supporting innovations. Above, I identified certain requirements of innovators (understanding the box, a vision of outside the box, deliberate action and evaluation of the outcomes). To achieve this role, here I argue that another source of power is needed by teachers if they are to be successful innovators. I will call this power the *professional power*¹. Through access to this professional power, teachers can be active participants in seeking innovations and in arbitrating on their usefulness.

How can this professional power be developed?

¹ Educative power knowledge (879)

Once again, I will argue that a change in language may challenge the way we *think* about things in order to change the way we *do* things. Here, I propose that the discourse of *capacity building*, rather than *professional development*, may assist us in breaking the mould of thinking about teachers as passive adaptors of innovation and assist in supporting them to play a more effective role as innovators.

Capacity building, a term of increasing use in educational literature during the last few decades, remains a contested term because it is used in many contexts and means different things to different people. It is a discourse of increasing use, among other places, in international aid programs. However, it remains undertheorised. In a book published by Oxfam (Eade, 1997), the author quotes a report from the Community Development Resource Association of South Africa that states:

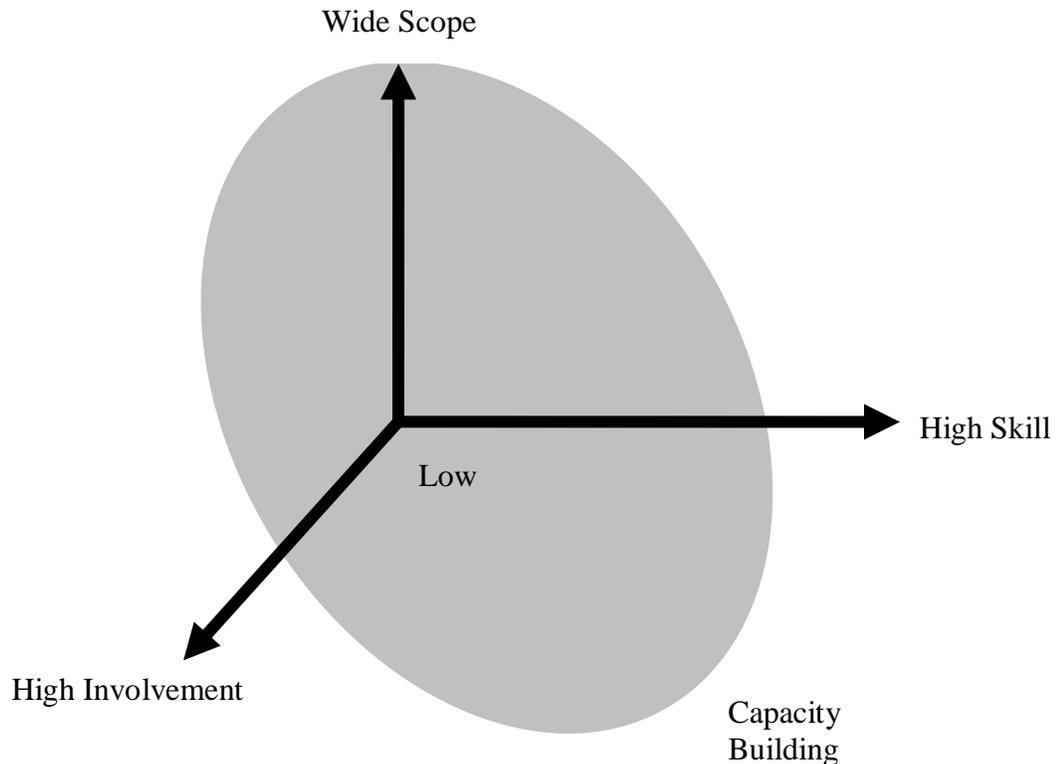
Our lack of adequate theory of capacity building reduces our own capacity to engage in the practice. We lack the theory because we are not thinking through what we see before us. And we are avoiding thinking things through because to face the obvious will be to radically transform our practice. We are avoiding genuine accountability. (p. 1)

It is beyond the scope of this paper to present a full critique of the discourse of capacity building. However, I will use some of the principles often associated with capacity building to reflect on effective and sustainable professional development models in educational settings that seek innovation. Here, I will use and expand a model suggested by Harris and Lambert (2003) to discuss capacity building as a special form of professional development. In their book, *Building Leadership Capacity for School Improvement*, the authors present a two-dimensional model to compare and reflect on the various professional development activities available for teachers. The first dimension relates to what they call the *breadth of involvement* in the program. At one extreme lie the professional development activities that target individuals, or multiple individuals, who work alone within the institution – e.g. an individual or group of teachers or principals. At the other extreme are programs that involve the whole school community including parents, students, teachers, administrators and possibly education departments. The second dimension discussed by Harris and Lambert relates to the *skilful involvement* of the program. On one extreme are the professional development activities that develop low level skills, such as developing lesson plans according to set specifications, writing of outcomes/objectives, use of computer systems and behavioural management techniques. At the other extreme, are the professional development activities that aim at improving learning outcomes of students or reduce student disengagement from education, or adapting the curriculum to take into account the needs of the disadvantaged such as students from low socioeconomic families and Indigenous students.

I will add another dimension to this model, which relates to the *level of involvement* by the participants. Some professional development activities are designed with minimal teacher input. In some hierarchal organisations, teachers are directed to attend scheduled seminars that may or may not develop skills and learnings that they need, or perceive that they need. At other times, teachers, individually or collectively, can identify needs or problems in their own practice and either collaborate to satisfy those needs with each other or seek external support to assist in the satisfaction of these needs. Likewise, they

may have full control on issues of timing, duration, depth and form of their professional development activities.

Each of these dimensions can have two values: high and low. That is, a professional development activity can have a wide or narrow breadth of targeted participants, can aim to develop high or low order skills, and can be designed with a high or low level of involvement from the participant. I use capacity building in this sense as a special form of professional development that contains a wide breadth, high level of skills and high level of involvement of teachers.



Consistent with some of the literature on capacity building from within and outside the educational literature, I propose that capacity building is not to be isolated from the professional development agenda of schools and education systems. In one sense, capacity building is a broader agenda that aims at developing the abilities of the school to set their goals, identify their needs to meet these goals, and to design means to achieve these goals. This involves training teachers in specific skills and how to understand policy and theories. But by going beyond them towards the development of professionalism schools and institutions are enabled to be learning organisations with an increasing role in the achieving of the national goals of education. Hence capacity building models of professional development are more attuned with the emancipatory interests of teachers (Habermas, 1972). Using the model discussed above, I will identify some characteristics of capacity building of schools.

First, since capacity building aims at developing the capacity of the school to identify goals, hindrances to these goals and the use of innovation as means of overcoming these hindrances, it must involve the development of the whole organisation, not only the individual teachers and leaders. It must develop the leadership of each member of the school to contribute for the collective aims of the school. This implies that 'one-professional-development-fits-all' solutions may not be the most efficient and sustainable solutions to the school or institutions needs. Effective capacity building depends on the particular school context and the individual capacities and needs within it. It allows different members of that community to develop leadership skills in their contribution to the overall needs of that community.

Secondly, capacity building involves the identification of higher order skills needed by the school community to take an active role in the identification of its goals and in achieving these goals through innovation. The aim of curriculum leadership and the professionalism of teachers and administrators should be made explicit in any capacity building activity. While this does not exclude the conduct of short term and directed seminars and workshops, capacity building should be seen as a long term and more comprehensive agenda for schools and education departments.

Thirdly, capacity building requires a high level of involvement from members of the organisation. A professional development program dependant on experts from outside the organisation is not a cost effective and sustainable way to develop schools abilities to achieve their aims. Such programs inevitably lead to the devaluing of the role of teachers and school administrators as empowered professionals who are capable of identifying problems and finding creative solutions. Only through the active involvement of members of the school community can capacity building that support innovation be achieved. External expertise can be drawn upon to facilitate capacity building. However, capacity building, like empowerment, does not come from outside.

Restructuring - Working Differently

The second part of the paper argues that supporting teachers to support innovations calls for restructuring the support mechanisms available for teachers. I will identify three models that may assist structuring such support.

Top-down innovation is a model for adopting innovations that are based on some research evidence or on government policies outside the school or and the provision of professional development programs for teachers to understand the innovation and implement it. Usually the professional development available to support such innovation implementation is in the form of short courses of few days duration involving one teacher from a school with the intention that they become professional developers for the rest of the teachers in their school or region. This model might also be called the cascading model of innovation.

The rationale behind this model include that innovations that stem from the top level can be developed by experts and, thus may be based on ample theory and research. Similarly, agendas of reform and innovation in the national interest are often planned by governments and dictated to schools. Further, it is often assumed that in contexts with

limited resources, such a model assures that the widest range of teachers can be trained in the new innovation most efficiently. However, serious questions have been raised in the literature about the efficacy of this model of professional development. I will focus on three of the main concerns.

Firstly, this model does not cater for the most efficient means of teachers' learning. In a wide review of professional development of teachers of mathematics, Zaslavsky, Chapman and Leikin (2003) comment that "Historically, professional development programmes in mathematics education have mirrored traditional teaching of mathematics" (p. 878). A constructivist theory of learning (Davis, Maher & Noddings, 1990) applied to teachers' knowledge asserts that learners develop their knowledge based upon previous knowledge and experience —and that this process is assisted by reflection and negotiation with others and not simply transmitted from expert to novice. Crawford and Adler (1996) have drawn some parallels between student learning of the mathematical content and teacher's learning about teaching. Using a neo-Vygotskian perspective they argue that knowledge or meaning is constituted rather than transposed through activity in a sociocultural context. They go on to assert that:

Students taught and assessed in traditional ways, learn to demonstrate that they have encoded the culturally approved knowledge and can reproduce it. Those who learn about teaching through reading about education research develop knowledge of a similar kind. In neither case is the knowledge necessarily a basis for further action or a changing personal view of reality. (p. 1189)

Hence, teachers, like all learners, do not learn by listening, nor merely by doing, but through reflection on their action (Schön, 1983), and I may add, critical reflection on their action. Through this critical reflection, it is possible to develop an understanding or some theory of practice, and subsequently construct a hypothesis about it, which would lead to readiness to change it. This duality of focus on understanding and changing lies at the heart of action research. Action research it aims to help people to investigate reality in order to change it (Fals-Borda, 1979 cited in Kemmis & Wilkinson, 1998, p. 24; 2002), and to change reality in order to investigate it.

Secondly, this model is not based on sound political awareness of the life of the teacher. Seddon (2000) argued that teachers in schools are committed to change and the principles of service to their students. However, when faced with reform that they see as conflicting with their concerns, teachers reveal contradictory stances of resistance and compliance as they re-define their new roles and practices. In other words an innovation imposed, or seen to be imposed from above, is much less likely to be genuinely adopted by teachers if it is not seen to be of direct relevance to the teachers concerns.

Lastly, this model of implementing innovation does not take into account the local context and the local needs of the teachers. Many teachers find such professional development activities irrelevant to their needs. Arguably, this was a significant factor in the "Predictable Failure of School Reform" as the title of a book by Sarason (1990) suggests. Many large-scale reforms are often contrasted with more recent reform theories that target the whole school organisation as a focus for change. These failures of grand scale reform movements to solve the problems in schools have re-focused the attention on the school personnel who are ultimately responsible for leading and implementing change (Hargreaves, 1994).

Calls for *bottom up innovation* model are based on the belief that teachers are the most likely developers of innovations that are sensitive to their needs and experiences. Under certain conditions teachers can develop innovations and can trial them using reflective practice and action research. Likewise, teachers as professionals can take the initiative to share their learning with others. Gradually, successful innovations developed at the local level can influence government policy and hopefully become widely used.

Undoubtedly teachers are great innovators and their role should be encouraged. However, there are few assumptions and conditions that have to be met in order for this model to be effective. Fullan (2000) identifies conditions within the school to make innovation successful. Innovative schools had teachers and administrators who “1) formed a professional learning community, 2) focused on student work (through assessment), and 3) changed their instructional practice accordingly to get better results. They did all of this on a continuing basis”. This focus on pedagogy and assessment is illustrated by the New Basic reform in some Queensland schools (Department of Education, Training and the Arts, Undated). Fullan calls for reculturing within the school in terms of developing professional communities where the whole school community collaborate to set its goals with the roles of individuals as curriculum leaders in their own areas.

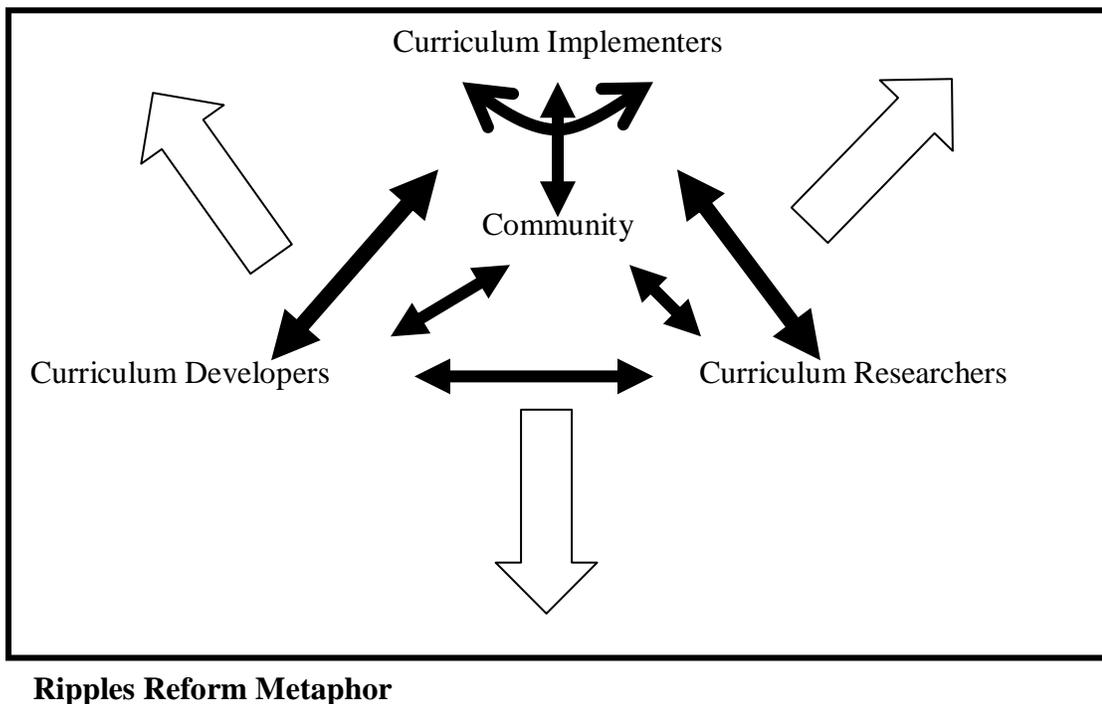
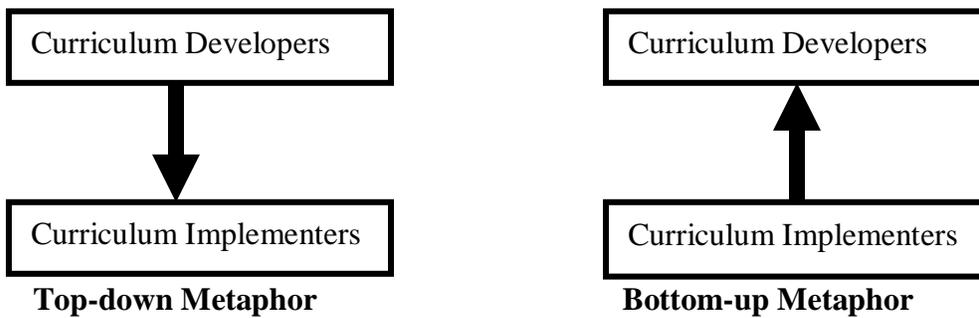
However, Fullan goes on to discuss that restructuring and reculturing within the school are not likely to be sufficient to deal with effective reform unless they take into consideration factors outside the school. Increasingly, the school’s day to day life is affected by demands of the educational and social structures. The new reality of teachers’ work is determined to a large extent by a new environment that is “complex, turbulent, contradictory, relentless, uncertain and unpredictable”. This includes parents’ demands, government policy, demands of accountability, technology and the demands of the profession itself. Lastly, school innovation needs support from the outside. At a minimum structures and policies need to change to allow teachers to experiment and take risks without the frustration of bureaucratic hurdles; at best, external structures should provide resources to support teachers innovations.

In particular, one external potential ally to school innovation is the educational research community. In many countries around the world there is what Crossley and Holmes (2001) described as a “crisis of confidence” (p. 395) in the faith that traditional educational research could contribute to the solution to many educational problems and in their ability to inform policy. Several researchers have identified a gap between research concerns and the concerns of teachers (Atweh, 2004; Hargreaves & Evans, 1997; Sprinthall, Reiman & Thies-Sprinthall, 1996). However, movements such as action research have targeted this separation between knowledge generation and knowledge application (Kemmis & Wilkinson, 1998),

If neither the top-down nor the bottom-up models to innovation are sufficient, what model may be appropriate to support teachers as innovators?

In a previous project in the Philippines (Atweh, Ubina-Balagatas, Bernardo, Frido, & Macpherson, 2008), I and my colleagues have adopted the metaphor of *ripples* to describe our conceptualisation of our work with educators from Teacher Education

Institutes and universities. Ripples unsettle the *status quo* to bring much needed nourishment and air to the depths of our day to day lives and practices. Further, they take on different shapes depending on our local context. Unlike a waterfall, they have different sources as they may commence from policy makers, researchers or teachers. However, ripples do not differentiate between the top and bottom; or between the inside and the outside. In other words, all educational stakeholders are swimmers in the same waters. Finally, ripples interact with each others to form larger ripples and, under right conditions may even become waves.



Finally I shall consider some of the implications of this model to support teachers for innovation.

This model of innovation highlights the complexity of innovation and change. In a complex world, innovation does not have a single source. It can start from any stakeholder in education. Although in this paper I have tried to re-position the teacher in a crucial role as innovator, the impetus of innovation can start from inside or outside of the classroom or even the school. This does not mean however, that the teacher can be taken for granted as a mere implementer of innovation. Experience has shown that the teachers can be innovators, and to implement innovations started by others, they have to be active in trialling the innovation and adapt it to their own local context.

Second, innovations are best carried out collaboratively by different stakeholders. Innovations do not arise from, nor are they implemented in a vacuum. The role of curriculum developers and their public authority, the role of researchers and their expertise in theorising and testing the effects of innovation, the needs and expectations of the community including parents have to be balanced with the crucial role of the teacher as the ultimate adapter of innovation in the classroom. For an innovation to become systemic, support from the different players is necessary.

Lastly, teachers are in a unique position to understand the complexity of factors affecting teaching and learning and to identify the interaction of several factors affecting the performance of their students. Practices that are based on the construction of the teacher as practitioners do not support a culture of innovation in the schools. Teachers' professional standing within the community should be strengthened if innovation has any chance of success within the school or the classroom.

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