12

Afterword: Innovating and Researching in Schools

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12.1 Introduction

In this chapter I bring together the different lines of research presented in this volume to examine the tensions and challenges of innovating and researching in schools and consider possible future directions. Three main strands are woven through the chapters and form part of the title of the volume: curriculum, schooling, and applied research. The sections group the chapters into challenges and issues/tensions in three “main critical areas”: global system and policy, school and teacher, and researcher. These may be the principal focus of chapters in these sections, but every chapter addresses some aspects of the other areas, revealing that even though authors may foreground one area or plane for the purpose of analysis (Rogoff, 2003) all areas are necessary to provide a holistic view.
The overarching and “shared” focus of the volume is educational innovation and change, and as pointed out by Trimmer, Donovan and Flegg (Chap. 1), each chapter investigates some aspect of the “tensions that impinge on research-based educational change and how to integrate directed change into their education system and classroom”. For Trimmer et al. a particular focus is the challenge of conducting and applying research in schools, with researchers and teachers usually positioned differently with respect to research, partly due to the differing needs and demands of their work.

As I read through this volume, I can relate to many of the experiences of teachers and researchers. Like many of the authors I have taught in schools, conducted research in schools as an outside researcher and as a co-researcher with a teacher practitioner, and supervise teachers as they conduct research for higher degrees. In doing so I have experienced innovation and research from different perspectives in trying to implement the findings of research in my own classroom teaching, and negotiating access to schools and classrooms to conduct research that I thought would contribute to innovative practice in classrooms. One memorable moment was during data collection in schools for my PhD study. On my first visit to schools, I explained to the primary school students that I was interested in their perceptions of their classroom and what made them feel successful, so that we could make school better for students. On my second visit to one school (the study was longitudinal) a boy put up his hand and said in a puzzled kind of voice, “I thought you were going to change things … nothing has changed”. I muttered something about change taking time, but realised that the students (at least this student) had taken me at my word, and expected that my research would result in change in his classroom.

Educational change not only takes time, it is complex and shaped by the differing and often changing demands of systems, policies and institutions and the activities of individuals and groups. In bringing together the findings of the chapters in this volume, I looked for a framework that would incorporate the three strands and the main critical areas relevant to
innovating and researching in schools. My aim was to present an overall framework for discussing the complex multifaceted phenomenon which is innovating and researching in schools. The framework I chose draws on ideas from sociocultural (Rogoff, 2003), and cultural-historical (Hedegaard, 2005, 2012, 2014) perspectives. Although these perspectives have origins in child development, they provide ways to bring together individuals and social and cultural environments, and the dynamic nature of processes contributing to change. In particular Hedegaard (2005, 2012) considers position conflicts across traditions and activity settings and Rogoff (2003) stresses the holistic nature of developmental processes.

At the level of society Hedegaard (2014) argues that the process depends on societal traditions and value demands. The dynamic is societal conditions and we see this in the policies and political decisions based on what is valued at particular times by particular groups with power. The next level suggested by Hedegaard is institutional practice and this focuses on particular ways of participating, and for the purposes of the chapters in this volume, ways of enacting curriculum and research. The dynamic is the particular value laden goals and objectives of institutions. Hedegaard also includes an activity setting, in this situation the classroom or the research program as it is enacted. For individuals there are demands for how they act and their intentions in doing so. In addition, Rogoff (2003) explains that individuals and groups “shape practices, traditions and institutions at the same time that they build on what they inherit in their moment in history” (p. 62).

The bringing together of the diverse, yet connected, ideas in these chapters in one volume is one of the key contributions of this work. In order to provide some structure for this Afterword, I have divided the discussion into parts, but there is considerable overlap. For example aspects related to innovating in schools and researching in schools are in the section of curriculum, schooling and applied research and vice versa, further demonstrating the holistic nature of the ideas in this volume.
12.2 Curriculum, Schooling and Applied Research

The three main strands, curriculum, schooling and applied educational research are inextricably linked. We could argue that the ultimate aim of each is to contribute positively to the education of students and this is evident in the research documented in this volume. For example, curriculum and teaching is to improve or maximise student outcomes (Padró, Hurley & Trimmer, Chap. 3; Harris & Danaher, Chap. 10) and the educational experience of students (Williams & Perera, Chap. 6; Wilson-Gahan, Chap. 8). Research (and teaching) is conducted to improve student outcomes (Dixon & Verenikina, Chap. 11), and more specifically to improve the learning and metacognitive capacity of students (Treagust, Foreword), enhance academic or social outcomes for students (Trimmer et al., Chap. 1), support students’ learning and understanding of abstract concepts (Haeusler, Donovan & Venville, Chap. 7), support students’ development of motivation and interest (Rasmussen & Andreasen, Chap. 5), and support student agency (Christie & Barry, Chap. 9). In Australia, the national agreed goals for education are set out in the Melbourne Declaration on Educational Goals for Young Australians (Ministerial Council on Education, Employment, Training and Youth Affairs, 2008, p. 6) with “improving educational outcomes” being central to the “nation’s social and economic prosperity” as well as positioning “young people to live fulfilling, productive and responsible lives”. Even in these few words we see the political nature of education and the link to broader societal issues.

While innovating in schools may have the goal of improving education for students, innovations can target different, but interlinked, elements of schooling from the curriculum to teaching methods and technologies, the school organisation and relationships between schools and their environments (Rasmussen & Andreasen, Chap. 5). These elements are represented in the chapters of this volume, for example, integrated curriculum (Chap. 3), teaching practices (Chap. 11) and relationships between school of community (Chap. 10). Rasmussen and Andreasen also identify five key drivers of innovation in schools: social and cultural change,
growth of recognised knowledge, emergence of new technologies, concerns for cost/effectiveness, and to foster new skills and competencies in students. Each of these drivers is also represented in the chapters.

Research interacts with curriculum and schooling in two key ways. Curriculum and innovative approaches to schooling may be informed by research, and applied research may investigate systems and policies, practices and outcomes of teaching and learning in schools, usually with the aim of further improving practice. Nerren (Chap. 4) explains how the initial Head Start program in the USA was informed by research on the detrimental effects of poverty on educational outcomes. In Chap. 6, Williams and Perera justify the benefits of 60 minutes of daily physical exercise for students, citing higher academic performance, physiological benefits and potentially improved health and wellbeing in the longer term on the basis of research evidence from a range of sources. Similarly, Wilson-Gahan (Chap. 8) argues for a prominent place for Health and Physical Education (HPE) in the curriculum. Yet there are tensions and challenges across these three strands.

Implementation of curriculum is not without tensions. As explained by Haeusler et al. (Chap. 7) adherence to Piagetian ideas of the development of logical reasoning has limited the primary school curriculum to “what?” questions for development of macro concepts rather than introducing “how?” and “why?” questions for developing abstract concepts, which their research demonstrates are possible for young children to understand. They lament that their research program has not resulted in curriculum change. Students will continue to find other means to learn about these abstract concepts just as a previous generation of Australians did by watching _Why is it So?_ with Professor Julius Sumner Miller. Different approaches to research often result in divergent research findings as described by Nerren (Chap. 4) in relation to student outcomes from participation in Head Start programs and these contradictions have raised questions about the benefits of Head Start, its ongoing funding with the erosion of public trust.

The tensions and challenges in interactions among curriculum, schooling and research are complex. Reading through the chapters, it is possible
to pull out many examples of the demands of systems, policies and institutions, groups and individuals and how these impact innovating and researching in schools.

12.3 Tensions and Challenges

Tensions from changes in governments and policy are recurring themes throughout the volume. In the countries represented in the chapters, political agendas and apparent changes in values have resulted in changes in innovating and researching in schools, and from the perspective of the authors generally hampered these activities. For example, Rasmussen & Andreasen (Chap. 5) describe how Denmark has changed from a collaborative local focus on innovation and teacher experimentation, to a more centralised “template approach” to research dominated by evaluation of outcomes. Instead of benefiting teachers, they argue decision making in the centralised approach benefits authority. Likewise, French educational policy (Normand, Chap. 2) changes with change in the Minister of Education, thus becoming a political decision related to administration and people management, rather than a focus on student learning and teacher practice. Padró et al. (Chap. 3), Nerren (Chap. 4), Williams (Chap. 6) and Wilson-Gahan (Chap. 8) raise similar tensions in the USA and Australia. Further, Nerren argues that changing early childhood policy and programs in the USA hasn’t necessarily achieved the planned aims, possibly, as explained by Wilson-Gahan because ministerial decisions may rest on people without expertise.

A global focus on educational testing has played some part in these policy changes, with competition and comparison between countries becoming commonplace. In France, international student assessment through PISA and the associated poor performance of students provide evidence to policy makers of the failure of schools (Normand, Chap. 2). Similarly in Australia, the focus on NAPLAN (National Assessment of Literacy and Numeracy) (Chap. 8) and the comparative school performance results published on the MySchool website (Williams, Chap. 6) have focused attention on literacy and numeracy with less value placed on other curriculum areas. These testing regimes have ripple effects, changing practices in schools.
Political decisions also impact the funding sources for educational research and how research is conducted. Research is often used to justify political decisions, with public sector funding usually focused on demonstrating outcomes of previously implemented programs (Trimmer et al., Chap. 1). Normand (Chap. 2) explains how a change in minister in France directed public funds to a national program focused on developing neurosciences within schools and classrooms. This put demands on researchers to conduct research in particular ways. Rasmussen and Andreasen’s example from Denmark (Chap. 5), illustrates how the demands of a funding body concerned with findings to measure impact of an innovative program and provide evidence of the value of their investment meant that researchers had to change to a quasi-experimental design. This required changing the proposed methodology to incorporate more quantitative methods and reducing the qualitative component that the experienced researchers knew would have allowed them to gain insight into how the different activities worked for which students and why. Thus the focus changed from informing practices at the model schools to demonstrating impact. Rasmussen and Andreasen make a critical point,

Using experimental and quasi-experimental in the study of education and learning involves many unsolved problems, for instance in data validity, and too much reliance on these methods may distort the field of educational research. These methods also come with a certain theory of knowledge, implying for instance that true knowledge has a very general character and that knowledge generated and used in local contexts has little relevance.

The themes in this quote run through many of the chapters. Just as schooling and curriculum are not value free, neither is research.

### 12.4 Researching in Schools

Different approaches and methods change the nature of the research, its aims, how researchers and participants are positioned, and what we can learn from it. Educational research is most often characterised by three social science approaches: post/positivism, interpretivism/constructivism, and critical theory. Which research approaches are appropriate for
educational research, is not a new debate (see Chap. 3). With the current global trends to testing and measuring the outcomes and impact of innovations, the debate is even more necessary.

As well as pointing out the negatives of quasi-experimental and quantitative designs for educational research in terms of informing teachers of innovative practice, Rasmussen and Andreasen (Chap. 5) suggest these developments may be progressive in some ways. The emphasis on evaluation means the aims of innovation are more likely to be clarified, innovative projects are “investigated, documented and made available to schools and teachers on a national basis”, providing a “better basis for interaction between educational practice and educational research”. However, there is another debate surrounding research and evaluation, as they are often characterised as fulfilling different purposes (Mathison, 2008). Research being more oriented towards generating new knowledge and evaluation more oriented to making decisions, it is almost inevitable that researchers and policy makers or funding bodies will be at cross purposes.

Taking a position similar to Rasmussen and Andreasen, Dixon and Verenikina (Chap. 11) acknowledge that qualitative research can provide insights into why an intervention may or may not work, but may not provide evidence of causality. When considering research related to special and inclusive education, they problematise Random Control Trials (RCT) as not appropriate for educational research, but recognise evidence-based practice. Their focus is on identifying the personal and broader social processes that explain the “wicked problem” of the gap between research evidence and implementation in practice.

Christie and Barry (Chap. 9) critique positivist approaches to educational research underpinning the evidence-based practice movement. Although positivism was considered modern and revolutionary once, Christie and Barry argue it is not appropriate for human research endeavours in schools. They argue that teachers and students are positioned differently by different research methods because of their different ideologies and power relations. From their perspective, critical theory research can bridge the gap between academic research and practitioner research, because it enables teacher agency and student agency. As evident
throughout this volume, positivism is still privileged by society and research taking a positivist (or post-positivist approach) is lauded by policy makers.

Education Queensland has adopted a different position, by allowing school districts to choose between different approaches to develop a required pedagogical framework for ensuring quality teaching. Christie and Barry point out the “striking paradigmatic contrast” between two of the seven approaches endorsed: productive pedagogies (government funded comprehensive research conducted in schools by Bob Lingard and colleagues) which views school effectiveness through a critical socio-logical lens, and Visible Learning (a synthesis of educational research by John Hattie) which takes an evidence-based approach based only on secondary analysis of quantitative studies.

These examples show that there are different positions in the research community as well as between policy makers and researchers, potentially leading to confusion in school communities. Important questions relate to the nature of evidence-based practice, what form the evidence takes, whether it is always linked to post/positivist approaches to research and the ways in which it positions teachers and students in schools.

For academic researchers, gaining access to schools can be a struggle (see Chap. 1). Research procedures are often developed at a system level and enacted a little differently at different sites. As the leader of several national research projects, I have first-hand experience of the complexity of meeting the ethical requirements of the university, gaining “working with children” approvals in each jurisdiction, and meeting research approval requirements of different school systems in each Australian state. In addition, each controlling body has different proforma for information and consent letters that must be negotiated. Over the years these proforma have become more extensive. A recent PhD graduate with university ethics approval was forced to limit the schools included in the study because of incompatible advice from different school systems and lengthy approval timeframes. When I conducted my PhD study nearly 30 years ago, the approval and informed consent processes were very different. Rather than active informed consent, parents needed to actively withdraw their students from research, so all students not withdrawn by parents were considered to be participants. I also provided students with
information about the research and asked students to sign a form to indicate their active and voluntary consent. Only one student wanted to withdraw. While changes to consent processes provide the necessary protection for participants these changes have consequences for researching in schools in terms of where research is conducted and who participates. This may distort research findings.

An alternative approach to researching in schools is research with a close connection to practice, and in particular research conducted collaboratively and involving teacher researchers and academic researchers. Christie and Barry (Chap. 9) argue that a culture of action research is needed to support teacher research. In the mid 1990s one of the projects funded through the National Professional Development Program (NPDP) was a large national project called Innovative Links, exploring the ways in which “university academics [academic associates] might work in partnership with school teachers to support the professional development of those teachers involved in the project and facilitate school reform” (Grundy et al., 1999, p. 38). Each of the 14 participating universities hosted a Roundtable through which academic associates supported action research projects. Although the project had successes, there were also tensions and challenges. As explained by Grundy and colleagues (Grundy et al., 1999; Grundy, Robison, & Tomazos, 2001), achieving “parity of esteem” between academic associates and teacher researchers wasn’t straight forward and in some schools the principal made unilateral decisions about what would be researched. The project did enable teachers to disseminate the findings of their action research to other participants through the Roundtables and in written reports.

12.5 Innovating in Schools

A continuing theme in the chapters is the lack of connection between policy makers and teachers and students in local classrooms. Nerren (Chap. 4) explains the token inclusion of early childhood practitioners in providing input to policy decisions around the Head Start programs. To combat this, NAEYC, the National Association for the Education of Young Children is taking a stronger advocacy role to influence public
policy and give practitioners a voice. The disconnect is explained by Normand (Chap. 2) as an apparent lack of autonomy and authority of principals in France to innovate. However, innovation in French schools continues through individual approaches by teachers that are not always recognised.

Individual teachers can innovate and make a difference for their students. Harris and Danaher (Chap. 10) explore the way Harris, as head of department in a geographically isolated school, was able to connect with local cultural groups to build a locally relevant curriculum in mathematics and sciences. His recognition is through dialogue and writing as a teacher researcher with an academic researcher. A teacher colleague, and co-researcher working with me, implemented a collaborative and inclusive approach in her classroom with noticeable improvements in students’ participation and learning. She was able to sustain her motivation to innovate with the support of the deputy principal and parents (Morcom & MacCallum, 2009). This teacher researcher has published a number of journal articles documenting her approach (Morcom, 2015, 2016), as well as supporting colleagues to introduce some of her innovative strategies in their classrooms (MacCallum & Morcom, 2011). This was not without challenges and her innovations have yet to be adopted more widely.

The attitudes and values of educators can also impact innovation and implementation. Williams’ research (Chap. 6) found that teachers who valued physical activity didn’t perceive barriers as strongly as those who didn’t value it. This is an important point to consider for enacting change. Equally, the attitudes and values of school leaders and parents can impact teachers developing and researching innovative practices. Dixon and Verenikina (Chap. 11) also point to teachers’ attitudes to research and their perceived lack of power and control in implementing evidence-based practice, but also to the importance of a range of contextual affordances and constraints of classrooms and schools, such as school culture and availability of resources, relevance to their practice and time. The “research-practice gap in special education was supposed to be solved by the introduction of EBP by enthusiastic and eager practitioners” (Dixon & Verenikina) but the model was too simplistic and the outcomes were disappointing.
Another challenge of innovating in schools described by Padró et al. (Chap. 3), is integrating the curriculum in the midst of different testing regimes, and insufficient professional development of teachers and preparation of pre-service teachers. Professional learning was one way that Haeusler et al. (Chap. 7) were able to support primary school teachers to implement the science curriculum in a way that developed students’ abstract thinking. Dixon and Verenikina (Chap. 11) propose longer and practice-based professional development in the context of a community practice to be one way to support the implementation of relevant evidence-based practice in special education.

12.6 Ways Forward for Innovating and Researching in Schools

There are different ways of understanding the world and in these chapters we see how the different orientations of individuals and groups, positioned in different critical areas, create tensions and challenges for innovating and researching in schools. An important question is how to work with these differences and tensions to find effective ways forward. One way recommended by Rasmussen and Andreasen (Chap. 5) is to re-establish “the constructive links between innovation projects, educational research and everyday practices in schooling and teaching” and to do that we need to recognise the differences, bring together the relevant groups and individuals, develop mutual respect and establish stable communication. Respectful dialogue can help to bridge differences as demonstrated by Harris and Danaher (Chap. 10). This can help to build parity of esteem (Grundy et al., 1999) that is necessary for collaborative research by academic researchers and teacher researchers.

We can start with small groups but to have impact more broadly we need ways to bring different groups together for a common purpose. Projects like Innovative Links that engage multiple groups in action research relevant to their particular local settings is one possibility. Dixon and Verenikina’s (Chap. 11) proposal for engaging teachers in professional learning that is practice based within a community of practice is
another. Murdoch University has been developing a school-based model of teacher research that is part of a research masters, where teachers develop a research project that is relevant to their work with the support of university academic supervisors. These projects need the support of the school community and the creation of a culture promoting innovation and research. With this support we are more likely to keep teacher researchers in schools to support other teachers in innovating and researching. Often teacher researchers transition to work as university academics, as is evident amongst the authors in this volume. We also need new ways to disseminate research findings other than journals which are often not accessible to practitioners. New avenues of dissemination, like The Conversation (https://theconversation.com/au/education), could engage more practitioners.

Pre-service education is another area of focus for potentially building a connection between teaching practice and research. Finland has been extolled in recent years for achievements in international testing, for the autonomy and professionalism of teachers and its research-based teacher education (Niemi, Toom, & Kallioniemi, 2012). However, as Niemi et al. explain, despite their pre-service education giving teachers “tools for professional development throughout their careers, they still need support for their work and various possibilities for in-service teacher education” (p. 280). A recent study of research-based teacher education in Finland and Norway showed the ongoing challenge for new teachers of connecting research-based knowledge in teacher education and teachers’ professional work (Jakhelln, Eklund, Aspfors, Bjørndal, & Stølen, 2019).

Another way to build connection is to develop opportunities for discussion fora that bring together participants with different perspectives (Rasmussen & Andreasen), so that each participant can better appreciate the needs and demands of each other’s work. Change models like expansive learning (Engeström & Sannino, 2010) can suggest ways to work together to transform approaches to innovating and researching in schools. Technologies could be used to broaden the reach of these kinds of activities. In addition, mixed methods research may be a way to develop more complex research projects that include qualitative and quantitative approaches to research, and create opportunities for dialogue between researchers from different research traditions. There are different
paradigmatic avenues to bring different approaches together and a dialectic approach “promotes dialogue amongst theories, data and results” (Shannon-Baker, 2016, p. 323) and supports the examination and discussion of convergence and divergence in data.

Advocacy was argued by Nerren (Chap. 4) as a means for the voices of practitioners and experts to be heard by policy makers. In Western Australia, advocacy and lobbying by early childhood researchers, teachers and parents on the benefits of play for young children was successful in changing policy. The Focus 2019 document released by the Director General of WA Department of Education “instructs administrations to emphasise the role of play-based learning in a balanced curriculum for kindergarten and pre-primary students” (Cross, 2018). Associations and researchers have an important role in this kind of work.

The chapters in this volume demonstrate that educational innovators and researchers contend with similar tensions and challenges around the world. The coronavirus pandemic shows how truly globalised we have become with the spread of COVID-19 reaching every corner of the globe. Health research and expert advice have come to the fore with policy and practice being informed by applied research and vice versa on a daily basis. It shows the value of research in informing decision making and how on-the-ground knowledge can inform research and policy and feed back to inform practice. In the health emergency there are elements of commonality in policy and practice across countries, but also differences that reveal tensions related to politics, infrastructure and personal beliefs.

Schooling and educational research have been impacted by this global crisis, with face-to-face contact reduced and technologies providing new ways to participate. Teachers have quickly learned new ways of teaching and students taken more responsibility for their own learning. It is a reminder that societal conditions can change and change in a short period of time. What will this mean for educational innovation and educational research into the future? Only time will tell how the activities and different ways of participating in the current time will develop into the future.
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