How effective is the research and development ecosystem for England's schools?

David Godfrey[*]
UCL Institute of Education, UK

Chris Brown
University of Portsmouth, UK

Abstract

This article examines the role of research and development within England's school system. From a range of literature past and present we argue that six features (three dimensions) should form the focus for action at the institutional, systemic and policy levels. Applying these stress tests to the current system, we suggest that an effective ecosystem of research-informed schools is as yet not being fully realized. We argue that the keys to improving this are to change the structures, cultures and incentives that bridge the research–practice divide, and to align accountability arrangements to allow schools to learn through enquiry.

Keywords: research-engaged schools; knowledge-mobilization; evidence-informed practice; self-improving system

Introduction

There is growing currency in the idea that we need to create a coherent system for research and development (R&D) in England's self-improving school system (Brown *et al.*, 2017; Goldacre, 2013; Godfrey, 2017, 2016b). In order to ascertain what coherency is and whether it can be measured, we present this paper to argue that a series of tests can be derived from extant literature in this area, and apply these to the current English school system. From these we can establish a baseline from which to focus on next steps. Our evidence comes from several sources. Partly this is grounded in the authors' own work on large school-based R&D projects funded by the London Schools for Excellence (LSE) (Godfrey, 2015) from a large project funded by the Education Endowment Foundation (EEF) focused on getting research into practice (Brown, 2017), and from case studies that explore cultures of research engagement in eight English secondary schools (Godfrey, 2016a). Both authors also work extensively in research, evaluation and advisory capacities with a range of schools from the base of a leading school of education at a large, prestigious university. The latter also has a growing R&D network of schools. From our work, we have also been developing our conceptual understanding of research-engaged schools, and about the challenges of leading evidence-informed practice within schools and across networks (Godfrey, 2016b).

Further warrant for our arguments comes from an analysis of professional development schools (PDS) in the USA (Teitel, 1998) and work carried out in the last two decades in England, including the Cambridge School–University Partnerships for Educational Research (SUPER)

* Corresponding author – email: david.godfrey@ucl.ac.uk

network (McLaughlin *et al.*, 2006); the research-engaged school project (Sharp *et al.*, 2006); networked learning communities (Worrall and Noden, 2006; Katz and Earl, 2010); best practice research scholarships (Furlong and Salisbury, 2005); and the TTA school-based research consortia (Cordingley *et al.*, 2002). More recently, we support our arguments with evaluation of teaching schools (Bubb, 2013; Gu *et al.*, 2016) and reports on the role of research and evidence-informed practice in teaching (Furlong, 2014).

The context: The self-improving school system and the role of research and development

In England, schools are now increasingly positioned as the locus and drivers of changes that it is hoped will lead to systemic improvement.

Greany (2014) suggests that the government has four core criteria for the self-improving system:

- teachers and schools are responsible for their own improvement
- teachers and schools learn from each other and from research so that effective practice spreads
- the best schools and leaders extend their reach across other schools so that all schools improve
- government support and intervention is minimised.

These criteria signal the importance of partnerships between schools as a key feature of the self-improving system, and a range of partnership and system-leadership models have developed since 2010, two significant ones being:

- academy chains: groups of schools that are overseen by a single multi-academy trust (MAT) or, occasionally, an umbrella trust
- teaching schools: outstanding schools that are designated to coordinate initial and continuing professional development, develop leaders and provide school-to-school support.

The architecture of the self-improving system is very different to previous models of governance and improvement, and brings with it significant implications for both knowledge mobilization and the development of practice (Cooper *et al.,* 2009; Gough, 2013). Under the present government, it is very clearly schools that are now in the driving seat. As Greany (2014) observes:

- non-governmental organizations (working on behalf of the state) have been closed or stripped back
- local authorities have lost the bulk of their resources and capacity as over 4,000 schools have become academies
- schools are increasingly driving the content and design of initial teacher education
- teaching schools play a lead role in defining and disseminating effective practice through their R&D function and provision for continuing professional development (CPD).

In order to be eligible for teaching school designation, schools are expected to:

- show evidence of engagement in research and development that reflects agreed priorities, builds on existing external research/evidence, and contributes towards the alliance's overall priorities
- ensure that new initiatives within the alliance are based on existing evidence and include a rigorous evaluative focus, drawing on external expertise

- demonstrate an ability to work with other teaching schools on research and development activities as part of regional or national networks where appropriate
- ensure that existing evidence can be accessed and used by staff and that appropriate staff have the time and support needed to undertake research and development activities
- effectively disseminate learning from research and development work across the alliance and the wider school system (Brown, 2015: 87–8).

The extent to which these elements, and others, combine to create a strong and effective school-led ecosystem of R&D is the subject of this article.

The research and development ecosystem

One of the weaknesses of the concept of the self-improving system is its insufficient elaboration of the ontology of the 'system'. Thus it has been written about as involving 'building blocks' – an engineering analogy – and in terms of 'maturity' – a psychosocial analogy (for example, Hargreaves, 2011). One consequence of not making the system theoretically explicit is that the epistemology of such a system – that is, how it is proposed that knowledge will transform practice for the better – is not clear or may be flawed. Recent government approaches have involved a static, linear model that we argue does not capture the complexities involved in combining knowledge from research with other forms of practice-based knowledge in schools (see Godfrey, 2017). Our solution to this is to offer an ecosystem approach in which the elements and dimensions are dynamic, mutually constitutive and multi-levelled.

In this article, research-engaged schools are conceptualized as meso-system elements of a wider school ecosystem. Nourishment of such schools requires leadership that builds capacity for knowledge creation, in effective learning communities that are connected to the wider system and underpinned by strong teacher professionalism informed by research. Research-engaged schools create the conditions for leaders, teachers and other school staff (or even students or other school stakeholders) to learn through conducting research or by using existing, published research. These schools are also distinguished by how research often informs decisions, policies and practices (see Figure 1).
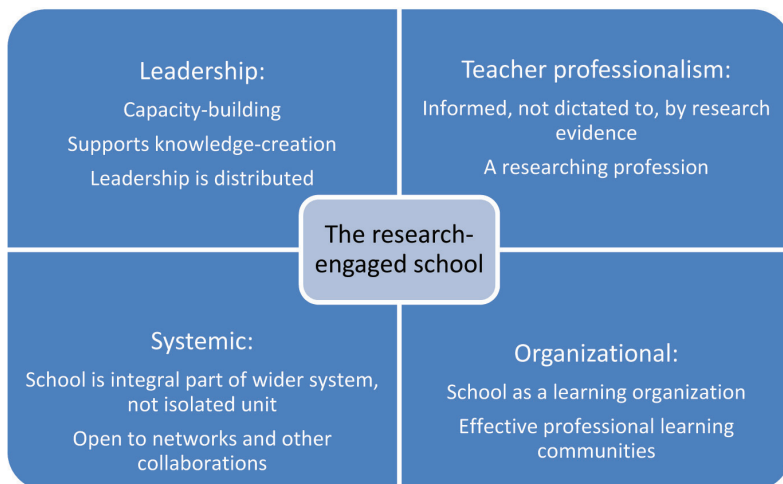

Figure 1: The research-engaged school learning organization

Source: Godfrey (2016b: 306)

A forthcoming book will expand the idea of an ecosystem for R&D in schools, through cutting-edge research and examples of innovative practice internationally, from the fields of teacher professional learning, accountability, leadership, data use and others (Godfrey and Brown (eds), forthcoming). While it is not the purpose of this article to expand significantly on this model, the ecosystem model has a rich, cross-disciplinary basis from developmental psychology (Bronfenbrenner, 1976), social-ecological systems (Rogers *et al.*, 2013), skills ecosystems (Finegold, 1999) and ecological leadership (Toh *et al.*, 2014).

Figure 1 focuses particularly on ensuring the *capacity* of schools to be research-engaged within a wider ecosystem. For the purposes of this article, we have expanded on two further elements: the extent to which R&D activities are carried out in ways that are likely to create positive transformations to practice (*impact*), and the extent to which elements of the ecosystem work together in mutually dynamic ways to maximise their potential (*alignment*). Each of these three dimensions is then subdivided into two features. Table 1 summarizes these three dimensions and six features, and the next section describes them in full.

Table 1: Dimensions and features of an effective research and development ecosystem

Dimension	Features	People and leadership aspects
Capacity	Schools that operate as learning organizations, in which research informs decision-making, policies and practices	University researchers with an understanding of research-engaged schools, school research leads, senior leaders
	School partnerships that build capacity to engage in and with research	
Impact	Agreed (but evolving) standards for school-based research and development	University and research staff to conduct evaluations and train school-based staff in models of effective professional learning
	Properly evaluated school-based research and development initiatives that ensure maximum impact on practice	
Alignment	Accountability arrangements that support (honest and open) school self-evaluation and enquiry	Inspectors, regional schools commissioners, policymakers. School-level leadership in action research/enquiry practices. Teacher-leadership through research

Dimensions of an effective school research and development ecosystem

Capacity

Systemic capacity for R&D depends on institutions having cultures that are strongly committed to research-informed practice. Research-engaged schools have a research-rich pedagogy, a research orientation; they promote research communities and put research at the heart of school policy and practice (Handscomb and MacBeath, 2003). For such schools to thrive, two features are needed: schools need to operate as learning organizations in which research informs decision-making, policies and practices (Kools and Stoll, 2016), and school partnerships need to build capacity (that is, ability) to engage in and with research.

Feature 1: Schools as learning organizations

Dimmock (2016) has described the research-engaged school as a unifying concept that provides a way to leverage the mobilization of knowledge across the school system. Concretely, this entails: facilitating research-engaged teachers and leaders; creating schools and networks as research-engaged learning communities (for example, see Stoll *et al.*, 2006); and using a methodology that enables research to underpin practice but is tailored to context (Stoll, 2015: 3). The most highly effective research-engaged schools are 'well led organisations within which "research use" [means] integrating research evidence into all aspects of their work as part of an ethos of continual improvement and reflection' (Coldwell *et al.*, 2017: 7).

Stoll *et al.* (2006) note characteristics of professional learning communities (PLCs) that make them suitable learning environments for research-use, including: (1) a shared vision and sense of purpose, centred on improving outcomes for children (Hord, 2004; Andrews and Lewis, 2007); (2) collective responsibility for student learning (for example, Kruse *et al.*, 1995; King and Newmann, 2001); (3) PLC participants collaborating in ways that go beyond mere superficial exchanges of help, support or assistance (Louis *et al.*, 1995); as well as (4) the promotion of both group and individual learning.

Senior leaders can help by: freeing up time within the school day to enable teachers to spend quality time engaging with evidence or in action-research activity; ensure there is access to evidence in its myriad of forms – from data to academic research; ensure experienced facilitation and appropriate protocols exist to enable discussion around evidence; and ensure there are formal and informal processes for upskilling teachers so that they are able to engage critically with research, data and evidence, including opportunities for postgraduate training (Datnow *et al.*, 2013; Goldacre, 2013; Micklewright *et al.*, 2014).

Leadership involvement in research use is also vital to ensure that it remains top of mind and therefore a priority. Senior leaders need to demonstrate their commitment by engaging in learning-centred leadership practices such as 'modelling', 'monitoring', 'mentoring and coaching' (dialogue), thus ensuring wider buy-in to research across the school (Southworth, 2009; Earley, 2013). Stoll (2015: 59) argues that a key characteristic for senior leaders to model is having an 'enquiry habit of mind': actively looking for a range of perspectives, purposefully seeking relevant information from numerous and diverse sources, and continually exploring new ways to tackle perennial problems.

Feature 2: School partnerships that build capacity (ability) to engage in and with research

The long-running SUPER (School–University Partnership for Educational Research) network of schools in Cambridge highlighted the need for universities to support school research capacity. The SUPER partnership matured from one that sought to drive a research programme to one that eventually focused on helping schools to become 'researching schools', following their own agendas (Black-Hawkins and McIntyre, 2006). This service role for the university included: seeking funding for the partnership; start up and maintenance support; helping in writing and dissemination of research; providing accreditation opportunities; supporting teacher research coordinators in their role; providing space for and facilitation of meetings; and maintenance of a website and other communications (Baumfield and McLaughlin, 2006). Universities are also uniquely equipped to provide critical friendship to schools working on research and development activities (Gu *et al.*, 2016). However, the building of a culture that allows for schools to become more research-oriented appears to take many years (Godfrey, 2017; Ebbutt, 2002). Accreditation for teachers' research activities can be a useful way of embedding the notion of a researching school by creating a sustainable funding source and aligning interests

between universities and schools (Baumfield and McLaughlin, 2006). However, it is likely that other sources of funding would be required to allow universities to participate in multiple ways with schools in order to embed a culture of research engagement.

Impact

It is essential to ensure that R&D activities lead to consistently high levels of impact on practice, particularly at the classroom level. If this is not the case, time spent on collaboration can be lost and it becomes difficult to justify the often time-heavy nature of such commitments. This requires agreed (but evolving) standards for school-based R&D, and proper evaluation of R&D activity.

Feature 3: Agreed (but evolving) standards for school-based R&D

An understanding of how knowledge may come to inform practice requires work by both educational professionals and academics who work alongside them. Academic researchers tend to value the contribution their work makes to a wider knowledge base. However, recognition of the different purposes of practitioner research can help focus decisions about its quality (Furlong and Oancea, 2008). Teachers often engage in research in order to help solve a practical problem, using academic research to back up their own trials of new strategies (Coldwell *et al.*, 2017). For school-based R&D, the challenge is to understand how types of knowledge, tacit and explicit, combine to improve practice (for example, Brown, 2013). Therefore, school leaders will need to learn how to run and train others to conduct effective joint practice development (Fielding *et al.*, 2005), such as lesson study groups and research learning communities. Middle leaders, in particular, have a strong role in this, including ensuring that these learning communities have open communication and a high level of relational trust (Edwards-Groves *et al.*, 2016). School leaders also need to shift the emphasis on outcomes-based accountability of teachers (performance management) towards judging processes. This 'process accountability' helps promote innovation and learning, rather than inhibition and conservatism (Wielkiewicz and Stelzner, 2005).

Feature 4: Proper evaluation of R&D activity

Evaluation needs to consider the macro-level of R&D patterns and models and the micro-level of individual projects within schools or departments within a school. With regard to the former, much of the evaluation of school- and school-network-based initiatives has involved the publication of case studies (for example, Sharp *et al.*, 2006). These often take the perspectives of people strongly invested in a positive outcome of the initiatives and partnerships, such as school leaders, coordinators of research or university faculty members who work with school research networks. These often involve a wide range of strategies, interpretations and aims. It has been easier to see short-term gains for teachers in terms of their perceived professional learning than medium-term changes to practice or eventual changes to student learning. It may not be possible to isolate the impact of research engagement on student attainment, given the numerous overlapping initiatives in schools. Therefore, to evaluate schools as researching institutions future research needs to involve one or more of the following:

- A clear statement of the 'theory of action' (Argyris and Schön, 1974) that can be tested and evaluated at various stages. This might involve the stages that lead to particular outcomes for school leaders and teachers, and ultimately stated student outcomes,

and/or a clear theoretical basis for the research – for example, about the school as a learning organization.

- The involvement of a wide range of stakeholders in the data collection, including external views.
- Singling out aspects of research engagement alone that can be examined – for example, research use by teachers or particular knowledge-mobilization strategies.
- Mixed methods research designs to evaluate specific interventions, including direct observation of teachers and classrooms to validate claims made in interviews about changes in practice.
- Identifying patterns of research engagement that may be successful in one context, and assessing their potential for use in others.

At the micro-level, projects involving teachers too often have ill thought-out targets to increase attainment or progress, without exploring the baseline (that is, the current situation) and impact (the resulting situation) in more detail (Earley and Porritt, 2014). By spending more time exploring the evaluation of school-based initiatives, practitioners are more likely to be clearer about how their R&D work has helped students, and for what reason.

Alignment

For school leaders and other stakeholders to be able to act on the learning that comes from R&D, the elements of the ecosystem need to work dynamically to ensure the effects of this activity are maximised. This requires accountability arrangements that support (honest and open) school self-evaluation and enquiry, and structures, cultures and incentives that bridge the research–practice divide.

Feature 5: Accountability arrangements that support (honest and open) school self-evaluation and enquiry

The external accountability framework needs to avoid becoming too pervasive or punitive, as it risks deteriorating the delicate culture of professional learning that research-engaged schools need to thrive. High-stakes accountability may force schools to turn inward and focus on the externally mandated bottom line, and this may have an enervating effect on the broad spectrum of work assigned to schools in a self-improving system (Hargreaves, 2011). An excessive focus on meeting performance targets to improve inspection grades can negatively impact on staff morale and make schools less attractive places to work, increasing staff turnover (Daly and Finnigan, 2012). Recent research has also shown the primacy of trust in environments where effective research-based knowledge creation is present (Brown and Zhang, 2017). In an environment where teachers do not have enough time together to normalize a trusting culture, there tends to be diminished levels of collaboration and professional interchange and exchange (Daly and Finnigan, 2012).

Gilbert (2012) suggests that the national inspectorate of schools should have a greater role in validating a school's own self-evaluation, and that inspection should be prolonged only in cases where its self-evaluation seems inaccurate or insufficiently challenging. Given the overlap in personnel between inspectors and school leaders, such a system becomes more about peer review and less about top-down command and control of schools. An ex-chief inspector of schools in England, Gilbert also recommends that inspectors should put greater emphasis on acknowledging school-to-school support in their framework (ibid.).

A further point is that, in a system with greater professional autonomy and higher trust, a researching school can set and evaluate its own improvement agenda in a way most appropriate to its context. This 'criteria power' (Simkins, 2003: 216) or 'internal accountability' (Rallis and MacMullen, 2000: 770), also generates the ability of schools to work together to co-create solutions to local issues in ways envisaged in some of the earlier work on the self-improving system (Hargreaves, 2010).

Feature 6: Structures, cultures and incentives that bridge the research–practice divide

Researchers and teachers need to operate in a shared space for learning that helps bridge the research–practice divide (McIntyre, 2005). However, there are key differences between the worlds of research and practice:

- Time: Both university and school staff are expected to engage in research activity alongside other commitments, with no adjustments being afforded to their workload. Teachers are bound by the timings of the academic year and the school day; researchers are bound by project funding, publication and completion timelines. Teachers and school leaders also tend to want to see impact in relation to improvements to their school within a short time, whereas researchers tend to want to measure changes carefully over longer periods (Galassi *et al.*, 2001).
- Rewards: While teachers find rewards in improving the situation for their children, for researchers, individual scholarship is incentivised.
- Resources: Schools have no direct funding allocated for research, while in universities, the funding that is available often underestimates the extent to which partnership work requires additional resources (Ross *et al.*, 1999).

There are good examples in the UK of support for research in schools, such as best practice research scholarships (Furlong and Salisbury, 2005) and networked learning communities (Katz and Earl, 2010). The latter gave access to system-wide training and support materials that were useful for both university faculty members and schools (Black-Hawkins and McIntyre, 2006). However, such initiatives tended to dissolve after funding stopped. Bridging the research–practice divide further requires changes to the way that teachers are paid, and increasing their research-literacy. On the other side, universities need to provide the means to disseminate research and to use networks to mobilize knowledge in ways that are accessible to school staff – in seminars, meetings, teaching and learning days, conferences and publications.

How we measure up in England

Capacity

A number of recent initiatives have increased capacity for research engagement in schools:

- the establishment of the EEF's teaching and learning toolkit (http://educationendowmentfoundation.org.uk/toolkit/) has increased the accessibility of externally published research
- the government's White Paper *Educational Excellence Everywhere* (DfE, 2016) has also promised the publication of a new journal for all teachers, based on the model of the *British Medical Journal*, with this now being managed by the newly established Chartered College of Teaching

- many schools have created research leadership roles, especially in teaching school alliances, but also in some multi-academy trusts (MATs) (for example, Christodoulou, 2014)
- there are more events aimed at school research leads and other teachers interested in research, such as the annual ResearchEd conferences.

However, many teachers are still insufficiently research literate and this can lead to the misinterpretation or misuse of research data to perpetuate poor pedagogic practice (Datnow *et al.,* 2013; Katz and Dack, 2013).

In terms of schools providing the type of learning environment that encourages research, teachers are still not allocated adequate time to explore and share what research exists on a particular issue (NTRP, 2011). Timetabling also frequently makes them unable to work collaboratively with others to identify and trial ways to address an issue of teaching and learning (Godfrey, 2016b). While there has been a notable growth in the influence of lesson study in English schools (Hammersley-Fletcher *et al.,* 2015), the benefits derived from this approach depend on having sufficient time and structures for teachers to capitalize on the learning gained from this professional collaboration.

The evidence so far from evaluations of the work of teaching schools is that their capacity for R&D is still patchy:

> The **challenges** so far have been securing the time and involvement from other schools (including the active involvement of class teachers), accessing academic journals and papers, accessing materials about what other teaching schools are doing and getting involved in national R&D activity. Senior leaders in some schools still find it difficult to engage with the R&D agenda. Achieving a school-wide and alliance-wide understanding of research in a school context is still to be developed in the majority of case study alliances (Gu *et al.,* 2016: 128).

Where this has been more successful, alliances with local universities have been particularly helpful in supporting projects (Gu *et al.,* 2016). However, such partnerships are insufficiently developed systemically and the fragmented school system is not helping these to develop coherently (Greany, 2014). There is little sign that university–school links to support R&D are moving towards a more sustainable position.

Impact

In respect of impact, schools in England have arguably made great strides over the last few decades. Many schools are now familiar with learning walks, peer review, professional learning communities and lesson study groups. Properly implemented, these can all be highly effective vehicles for converting research into changes to practice. However, such groups are not always embedded in ways that ensure the kind of high-quality learning experiences that teachers are required to make meaningful changes to practice. For instance, in lesson study projects, *kyozai kenkyu* (engagement with what is already known about the issue) is often omitted from the process (Seleznyov, 2016). This limits the valuable learning from the study of previous research evidence that can lead to a better-informed enquiry (Lewis, 2006). As lesson study is further introduced, we will need to establish clear criteria and standards for processes such as these in order to avoid dilution to narrow, short-term performativity goals.

In Singapore, there is a national commitment for all schools to become PLCs and to promote action research (Dimmock, 2012). While there have been difficulties in the implementation of this policy (Hairon and Tan, 2017), approaches taken at English schools are likely to be even more widely variable and determined by the choices of individual head teachers. The nascent

Chartered College of Teaching will have a role in drawing up clear standards for such R&D and professional development activities, but the effects of this are yet to be seen.

Alignment

There is some evidence that teaching schools are more engaged with evidence than other schools and that this may be on the increase (Coldwell *et al.*, 2017). However, while the inspection framework has been changed to allow for new 'light-touch' inspections for schools deemed 'good' or above, fear of straying from the bottom line has led some to observe a distinct lack of innovation among teaching schools (Ainscow, 2015). There is also a conflict with the idea of teaching schools as hubs of R&D. Given their need to become self-funding in the long-term, teaching schools need to see themselves as providing a model for effective practice. Teaching schools, as well as MATs, may therefore look to protect their interests, become inward-looking and monetize their models of practice on the types of short courses that are not conducive to R&D collaboration (ibid.).

The two-tier local authority/school academy system means that multiple layers of accountability are in danger of limiting any attempts by schools to work together. For MATs, this means an obsession with individual school inspection grades rather than a focus on network-level improvements (Ehren and Godfrey, 2017). For teaching schools, there is no accountability framework to hold an alliance responsible for its joint work in terms of school-to-school improvement, teacher training and leadership development. While schools have been given additional responsibilities to close the achievement gap between disadvantaged and advantaged students, there are no incentives to cooperate with other schools locally to achieve such an end more effectively. At present, the National College for Teaching and Leadership, while having a role in quality assuring the work of teaching schools (EGFL, 2011), has no established framework for evaluating the effectiveness of these collaborations or holding them accountable as a network. The R&D work of teaching schools could easily fall by the wayside if this is not addressed.

Progress in terms of structures, cultures and incentives has been limited. While, as mentioned earlier, there are some examples of research roles coming into teachers' and school leaders' job descriptions, this is piecemeal. From the research side, while England's new Research Excellence Framework (the system for assessing the quality of research in UK universities and higher education colleges) emphasizes 'impact' and public engagement, academics still have insufficient incentives to work with schools. Substantial research points to lack of time and funding being key inhibitors to school-based practitioner research (for example, Everton *et al.*, 2000; Cordingley *et al.*, 2002; Everton *et al.*, 2002; Rickinson, 2005; Cordingley, 2008, 2011; NTRP, 2011). This has not fundamentally changed. Bodies such as the Education Endowment Foundation have focused on increasing the use of research in schools, but this research-to-practice 'push' model has been tried – and failed – before with the Teaching and Learning Research Programme (Pollard, 2008).

Conclusions

How does the English system emerge from our stress test? While we are making moderate progress towards growing capacity and ensuring impact, and the forces militating against these outcomes are less troublesome, alignment is weak. Unless full attention is paid to what we know about leading an effective school-led R&D ecosystem, attempts to promote research engagement in English schools are likely to fall the same way as earlier initiatives. We need look no further than the laboratory school programme. This reached its pinnacle in the 1960s,

when there were over two hundred such schools across the US, but it had subsequently fallen to around one hundred by the early 1990s (Hausfather, 2000). There were many reasons for this decline, including the expectations by parents of a traditional curriculum as opposed to the innovative, experimental approach of the laboratory school, and increasing demands to train teachers in schools that exceeded the capacity of laboratory schools to fulfil them (ibid.). Eventually innovation through research fell away and most laboratory schools took up the label in name only (Tanner, 1997).

Despite the freedom that schools – especially academies and free schools – have, in theory, to innovate in terms of the curriculum, very few have taken up these freedoms to date (Cirin, 2014). This raises the question of whether school leaders are trying to learn from research in a way that leads to cutting-edge education or simply trying to emulate existing good practice.

What more can be done?

School and system leaders need to be braver in building effective cooperative and collaborative cultures. Daly and Finnigan (2012) argue that reciprocal relations, underpinned by trust, can form a bulwark against one of the key challenges facing self-improvement – high-stakes accountability. That is, rather than respond to such accountability by playing safe and sticking to tried and tested methods, in high-trust schools, individuals feel supported to engage in risk-taking and innovative behaviours associated with efforts at developing or trialling effective practice in a safe learning environment (Bryk and Schneider, 2002; Mintrop, 2004; Stoll *et al.,* 2006; Mintrop and Trujillo, 2007).

While institutions can promote research engagement, a strong occupational dimension is also needed (Dimmock, 2016). In other words, teachers in England will need to view research engagement as underpinning their professionalism. They will also need to be clearer about how professional responsibilities and standards stretch beyond the confines of the school, so that wherever teachers move they will have a shared sense of purpose and a research-informed mentality. Looking at the issue internationally, three domains for teacher professionalism have been suggested: (1) professional knowledge; (2) teachers' autonomy in decision-making; and (3) high peer networks (OECD, 2014). As part of the first domain, the TALIS report highlights the role of practitioner and action research to deepen professional learning. We can take this further by saying that research and enquiry underpins all three domains, by aiding (evidence-informed) decision-making and by providing the structures around which to engage in high-quality peer networking. The government should pay heed to what the academic community in England has stated about the need for teachers with the triple qualities of: (1) subject and pedagogical knowledge; (2) practical experience; and (3) research literacy, involving both research-based knowledge, theory and scholarship, and research-related skills and enquiry (Furlong, 2014). A highly skilled, autonomous, research-literate professionalism is also unlikely to be encouraged within a policy narrative that too often tries to push a static, top-down knowledge base on to teachers and school leaders (Godfrey, 2017).

School leaders have a vital role in building evidence-informed practices in their schools. A recent report found that 'whether schools are completely disengaged or highly engaged with research evidence, school leaders can make positive changes to increase engagement' (Coldwell *et al.*, 2017: 9). School leaders can send staff on MA programmes and short courses that increase knowledge and skills of research literacy and leadership.

There is also the potential to look at other roles in schools and in universities that structurally break down the traditional practice–research divisions. Examples include embedded doctoral researchers who base their research in a school and in return perform some research

or evaluation functions for the school (McGinity and Gunter, 2012; McGinity and Salokangas, 2012, 2014; Rowley, 2014), and researchers in residence, who teach on a limited timetable while completing doctoral or other research while promoting research engagement at the school. Ways to go further could include a career path for teachers as researchers, running in parallel with other leadership pathways.

We need to be more innovative and intelligent about the accountability system. This should rely much more on lateral responsibility, networked-level evaluation and school-to-school peer review (Munby and Fullan, 2016). Schools will also need to be judged at network level so that they can share the burden of accountability. This 'polycentric' model for inspection (Janssens and Ehren, 2016) will be much more context-dependent and requires Ofsted and other bodies such as Regional Schools Commissioners to agree on such things as how schools and school networks should work together to tackle local educational issues.

In terms of building a commitment to enquiry and research engagement throughout the professional life-course, from initial teacher training to continual professional development and headship training, Burn and Mutton (2015) cite some good examples in the Netherlands and Australia and, in particular, in Finland, with its focus on teaching as a research-based profession. However, it is likely the case that no country has fully exploited the potential of research to improve education at all levels of the school ecosystem. By addressing some of the points in this article, we argue that England could make significant improvements to the quality of its education for all students.

Notes on the contributors

David Godfrey is a lecturer in education, leadership and management, co-director of the Centre for Educational Evaluation and Accountability and programme leader for the MA Leadership at UCL Institute of Education. An advocate of research-informed practice in education, his projects include research-engaged schools, school peer review, inspection systems and lesson study.

Chris Brown is Professor of Education at the University of Portsmouth (School of Education and Childhood Studies). With a long-standing interest in how evidence can aid education policy and practice, he has extensive experience of leading a range of funded projects to help practitioners to identify and scale up best practice. He has also written and edited four books on the subject, including *Leading the Use of Research and Evidence in Schools* (IOE Press, 2015), and has presented on the issue at a number of international conferences in Europe, Asia, and North and South America.

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