



THE ROLE OF RESEARCH IN TEACHER EDUCATION: REVIEWING THE EVIDENCE

INTERIM REPORT OF THE
BERA-RSA INQUIRY

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BRITISH EDUCATIONAL RESEARCH ASSOCIATION (BERA)



ABOUT BERA

The British Educational Research Association (BERA) is a member-led charity which exists to enhance the field of study, the growth of public knowledge and critical understanding, and the application of findings for the improvement of educational policy and practice. We strive to ensure the best quality evidence from educational research informs policy makers, practitioners and the general public and contributes to economic prosperity, cultural understanding, social cohesion and personal flourishing.



ABOUT THE RSA

The Royal Society for the Encouragement of the Arts, Manufacturing and Commerce (RSA) is an enlightenment organisation, committed to finding innovative practical solutions to today's social challenges. Through its ideas, research and 27,000-strong Fellowship, it seeks to understand and enhance human capability so that we can close the gap between today's reality and people's hopes for a better world.

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Foreword

This Interim Report marks a very important step in the future development of the teaching profession in the United Kingdom. At a time when virtually every government around the world is asking how it can improve the quality of its teaching force, the British Educational Research Association (BERA) and the Royal Society for the Encouragement of the Arts, Manufacturing and Commerce (RSA) have come together to consider what contribution research can make to that improvement. While many in society might simply assume that research should make some contribution to high quality teacher education, BERA and RSA set themselves the task of asking precisely what that contribution should be – to initial teacher education, to teachers' continuing professional development and to school improvement. They also wanted to know how different teacher education systems across the UK and internationally currently engage with research and, most important of all, what international evidence there is that linking research and teacher education is effective. Does it really improve the quality of the teaching profession and beyond that the quality of students' learning experience? It was with these questions in mind that BERA and RSA jointly launched an Inquiry into Research and Teacher Education in Spring 2013.

In this Interim Report we bring together the evidence that we have gathered so far, evidence that addresses each of those important questions. And what the Interim Report makes clear is that that evidence does have a vitally important and consistent story to tell. There is substantial evidence (both empirical and philosophical) that research has a major contribution to make to effective teacher education in a whole variety of different ways. There is also some robust evidence that doing so improves the quality of students' learning in schools.

The publication of this Interim Report marks the completion of the first part of the Inquiry. What we hope now is that a wide range of different stakeholders – teachers, parents, policy makers, university leaders, researchers, teacher educators – will, over the coming months, engage with it and with us, the Inquiry Steering Group. Following that discussion, stage two of the Inquiry will result in the publication of the Final Report in Spring 2014 in which we intend to set out some of the implications of the evidence here for the further development of high quality teacher education in the UK. These will include implications for Schools, for Universities, for Government and above all for the teaching profession itself.

John Furlong, Chair of the Steering Group
BERA-RSA Inquiry into Research and Teacher Education

Executive Summary

INTRODUCTION

High quality teaching is now widely acknowledged to be the most important school-level factor influencing student achievement. This in turn has focused attention on the importance of teacher education, from initial training and induction for beginning teachers, to on-going professional development to help update teachers' knowledge, deepen their understanding and advance their skills as expert practitioners. Policy-makers around the world have approached the task of teacher preparation and professional development in different ways, reflecting their distinctive values, beliefs and assumptions about the nature of professional knowledge and how and where such learning takes place. Recent decades have seen a general shift internationally towards greater professionalism in teacher education, with higher entrance standards and qualifying requirements. Over the same period, there has been an important counter trend away from conventional programmes led and administered by universities, and towards more flexible, school-based routes, including in some cases deregulated and accelerated 'fast-track' options (Musset 2010). At a time when teacher education is under active development across the four nations of the United Kingdom, an important question for all those seeking to improve the quality of teaching and learning is how to boost the use of research to inform the design, structure and content of teacher education programmes.

It is against this background of diverging policy and provision for teacher education and heightened attention to the use of evidence and research that BERA and the RSA are conducting a joint inquiry on the role of research and teacher education. The Inquiry aims to shape debate, inform policy and influence practice by investigating the contribution of research in teacher education and examining the potential benefits of research-based skills and knowledge for improving school performance and student outcomes.

It may be proposed that there are four main ways that research can contribute to programmes of teacher education:

- First, the content of such programmes may be informed by research-based knowledge and scholarship, emanating from a range of academic disciplines and epistemological traditions;
- Second, research can be used to inform the design and structure of teacher education programmes;

- Third, teachers and teacher educators can be equipped to engage with and be discerning consumers of research;
- Fourth, teachers and teacher educators may be equipped to conduct their own research, individually and collectively, to investigate the impact of particular interventions or to explore the positive and negative effects of educational practice.

To investigate the contribution that research can make to teacher education, seven academic papers have been commissioned from experts in the relevant fields: international and UK policy and practice on teacher education; philosophical reflections on the nature of teachers' professional learning; innovative programmes of initial teacher education based on the model of research-informed 'clinical practice'; the role of research in effective continuing professional development (CPD); the impact of research-based teaching on school improvement and student outcomes; and research engagement from the teacher's perspective.

This interim report brings together the findings from the first six papers published to date with a seventh paper to follow on research engagement from the teacher's perspective. Throughout the report evidence is also drawn from the submissions made to the Inquiry as part of an open call to all those individuals and organisations that are concerned with these matters.

1. UK POLICY AND PRACTICE: THE ROLE OF RESEARCH IN TEACHER EDUCATION

Professor Gary Beauchamp (Cardiff Metropolitan University), Professor Linda Clarke (University of Ulster), Dr Moira Hulme (University of Glasgow) and Professor Jean Murray (University of East London) review current policy and provision for teacher education across the four home nations of the United Kingdom. Their analysis highlights the increasing divergence in entry routes and policy discourse across the UK, as well as in the framework of standards and competences which have recently been revised in each nation. Whereas all initial teacher education in Scotland and Northern Ireland is led by higher education institutions, and provision in Wales is primarily university-led with a small component of employment-based provision, the range of approaches in England is great, with multiple providers and entry routes encompassing university-led, school-centred and employed-based programmes, and is set to diversify still further as a result of on-going reforms.

In line with these contrasting trends, the policy discourse around teaching and the position of research

in teacher education across the UK is similarly variable. In Northern Ireland, as in Scotland, there is clear recognition of teaching as a complex profession, together with a strong emphasis on critical reflection and active engagement in research for teachers across each phase of professional development. The situation in Wales is more ambiguous: research features prominently in non-statutory guidance for teachers and inspection guidance for ITE providers, though there is no explicit reference to the use of research in the revised teacher standards. In England, the nature of teaching is contested, while the value of research in teacher education has arguably diminished over time. In addition, critics of the recent reforms to initial teacher education have expressed serious concerns that the shift away from university-led programmes will diminish research capacity, by destabilising staffing and eroding funding for applied research. As yet, the full implications of the changes in provision for ITE are not clear; highlighting the need for further monitoring of developments to ensure high quality provision is achieved through all training routes.

2. INTERNATIONAL OVERVIEW: THE CONTRIBUTION OF RESEARCH TO HIGH-PERFORMING SYSTEMS

From an international perspective, Dr Maria Teresa Tatto of the University of Michigan considers the role of research in four contrasting examples of education systems: Chile, the USA, Singapore and Finland, representing 'fair', 'good', 'great' and 'excellent' school performance as classified by McKinsey (2010). For each country, Tatto examines the nature and organisation of teacher education and provides an overview of entry and qualifying requirements and quality assurance, before drawing out the contribution of research to each system. As comparative analysis shows, education systems such as Singapore and Finland that consistently 'come out on top' develop capacity from the bottom up, and rely heavily on methodologically rigorous research-based knowledge to inform their practice. What is striking about provision in both Finland and Singapore, as compared to the more diverse, fragmented and market-oriented provision in the USA and Chile, is the extent to which teachers' engagement with research and enquiry-oriented practice is embedded throughout the education system. Nevertheless, it is important to stress that a causal connection between specific features of the training programme (including the research components) and the success of the education system can only be inferred rather than directly proven. Indeed the Finnish Ministry for Education (2007) has called for research knowledge on teacher education to be strengthened through a better, more highly co-ordinated national research programme.

3. PHILOSOPHICAL REFLECTIONS ON THE CONTRIBUTION OF RESEARCH TO TEACHER EDUCATION

Some of the key philosophical issues arising in the role of research in teachers' professional learning and development are examined by Professor Christopher Winch (King's College, London), Dr Janet Orchard (University of Bristol) and Dr Alis Oancea (University of Oxford). The authors highlight three interconnected and complementary aspects of teachers' professional knowledge: practical wisdom, technical knowledge and critical reflection. Arguing against simply relying on common sense or 'what works' protocols, they show how research can make a positive contribution to each aspect of teachers' professional knowledge. The authors further distinguish between a simplified 'craft' view of teaching and a narrow technical view, elements of which are discernible in current policy debates in the UK context.

What is missing from these conceptions, they argue, is the capacity for critical reflection, i.e. the type of deeper insight and understanding that comes from interrogating one's practice based on the wider research evidence and making explicit the assumptions and values that underpin it. In contrast to any narrow or simplified view, the idea of the teacher as professional combines all three aspects of knowledge – practical, technical and theoretical – including knowledge derived through personal experience as well as research, analysis and critical reflection. Importantly, they suggest that research can play a complementary role in relation to each of these dimensions: for example, engaging in or with research can inform and enhance teachers' technical knowledge about particular instructional techniques, as well as equipping them for the rich reflection required in practical deliberation and professional judgement. At the same time, research itself can be enriched, through greater insight into the challenges and complexities of educational practice.

4. INTEGRATED ITE PROGRAMMES BASED ON 'RESEARCH-INFORMED CLINICAL PRACTICE'

Dr Katherine Burn and Trevor Mutton from the University of Oxford examine a small number of highly innovative and influential programmes, based in part on a medical model of 'clinical practice', which seek to integrate practical engagement in schools with research-based knowledge in carefully planned and sequenced ways. As Burn and Mutton articulate it, 'for beginning teachers working within an established community of practice, with access to the practical wisdom of experts, 'clinical practice' allows them to engage in a process of enquiry: seeking to interpret and make sense of the

specific needs of particular students, to formulate and implement particular pedagogical actions and to evaluate the outcomes'. Importantly, by making explicit the reasoning and underlying assumptions of experienced teachers, student teachers are encouraged to develop and extend their own decision-making capacities or professional judgement.

The evidence review focuses on established programmes in the UK and the USA, notably the Oxford Internship scheme in England and the US Professional Development Schools and Teachers for a New Era (TNE), as well as more recent developments led by the Universities of Glasgow and Aberdeen in Scotland and in Melbourne, Australia. Furthermore, the authors review the evidence on system-wide approaches in the Netherlands and Finland which are also informed by the principles of clinical practice. In terms of the impact of such programmes, there is evidence to suggest that clinical preparation helps to determine teacher effectiveness and clinical experience has a positive effect on beginning teachers' learning and confidence, while graduates of such programmes appear to be better prepared for their first teaching post. Crucially, however, it is the quality of the clinical experience that matters. Simply extending the amount of time spent by trainee teachers in the classroom is not associated with improved outcomes.

5. THE CONTRIBUTION OF RESEARCH TO TEACHERS' CONTINUING PROFESSIONAL DEVELOPMENT

Moving from initial teacher education to continuing professional development (CPD), Philippa Cordingley from the Centre for the Use of Research and Evidence in Education (CUREE) examines the key ways in which teachers engage in and with research as part of effective provision for CPD. Drawing together the findings from multiple systematic reviews, her analysis highlights a clear and consistent set of findings about the characteristic of effective professional learning activities, including the use of specialist advisors and external experts to help identify effective strategies and techniques. Also important is engagement in collaborative enquiry, structured observations and peer support, enhanced by the use of professional dialogue and reciprocal risk taking, which gives teachers the chance to 'learn to learn from looking' and to explore why things do and don't work in different contexts. The contribution of research to CPD is potentially highly significant: the use of research-based knowledge, theoretical insights and involvement in research processes all feature strongly in the evidence about professional development and in the selection and use of tools to aid teachers' learning. As emphasised by Cordingley, enquiry-oriented leadership is crucial to

create the conditions for enquiry-oriented teaching, which is associated with the greatest gains for pupils' learning and educational outcomes.

6. BUILDING COLLECTIVE CAPACITY FOR IMPROVEMENT AT A SCHOOL AND SYSTEM LEVEL

Finally, Dr Monica Mincu from the University of Turin investigates the contribution of research to improving teaching quality and hence enhancing learning outcomes for students. Drawing on the international research literature on teacher effectiveness and school improvement, Mincu makes three key arguments about the contribution of research: first, teachers matter and schools make the most difference for lower-achieving students, who disproportionately come from deprived backgrounds; second, teachers and school leaders are at the heart of school and system improvement, particularly when supported by specialist support from both inside and outside the school; and third, research has come centre stage as a pillar of school improvement. Practitioner engagement in and with research has been shown to contribute to successful school improvement in a variety of ways: through the sharing of information about effective practice; by involving practitioners in the testing of new ideas and in the design, delivery and monitoring of interventions.

In Scotland, following the Donaldson review of teacher education, it is now Government policy to develop a systematic and coherent approach to career long professional learning in which universities have a prominent role. However, across the rest of the UK there appears to be a rather more fragmented and piecemeal approach to the use of research than displayed by high-performing systems such as Finland and Canada. Although there have been examples of promising large-scale interventions in parts of England, notably the London Challenge, replicating this success in all parts of the country will be highly problematic in the absence of a co-ordinated strategy, particularly when faced with more constrained resources in the current climate. Furthermore, as emphasised by respondents to the Inquiry's Call for Submissions, there are still barriers to overcome in each part of the UK when it comes to promoting practitioner engagement in research, particularly around lack of time, capacity and commitment due to heavy workloads and pressure to meet the demands of accountability. As Mincu's analysis highlights, one of the key tasks for policy-makers in the UK is therefore to reappraise the balance between capacity building activity, on the one hand, and accountability mechanisms, on the other, to ensure that the foundations are in place for a research-rich system at all levels.

CONCLUSIONS

Thus, there is strong evidence that teachers and teacher educators need to engage with research, in the sense of keeping up to date with the latest developments in their academic subject and on effective instructional techniques to inform their pedagogical content knowledge. There is also strong evidence that teachers and teacher educators need to be equipped to engage in enquiry-oriented practice, which means having the capacity, motivation and opportunity to use research-related skills to investigate what is working well and what isn't fully effective in their own practice. High-performing education systems demonstrate that this type of enquiry-oriented practice requires clinical preparation, through carefully designed programmes of initial teacher education, which allow trainee teachers to integrate knowledge from academic study and research with practical experience in the school and classroom. The focus on clinical practice then needs to be sustained throughout teachers' professional careers, so that disciplined innovation and collaborative enquiry are embedded within the professional culture and become the established way of teaching and learning in every school.

Looking across the UK, it is evident that although there are pockets of excellent practice in teacher education, there is not yet a coherent and systematic approach from the beginning of teacher training that is sustained throughout teachers' working lives. While the use of data has increased over the past 20 years, there now needs to be a greater emphasis on creating 'research-rich' and 'evidence-rich' (rather than simply 'data-rich') schools and classrooms. It follows that there is an urgent need for all stakeholders (Government, national agencies, schools, universities and teachers' organisations) to work together to create a national strategy for teacher education and professional learning, based on the principles of 'research-informed clinical practice', which should be applied to all institutional settings where teacher education and professional learning takes place.

NEXT STEPS FOR THE INQUIRY

Following publication of the commissioned papers and Interim Report, the next phase of the Inquiry will focus on testing the implications of the interim findings with appropriate stakeholders, including teachers, teacher educators and policy-makers, to inform the formulation of recommendations for policy and practice, to be published in a Final Report in Spring 2014.

Introduction

THE IMPORTANCE OF TEACHING AND TEACHER EDUCATION

In recent years, politicians and educational leaders around the world have been energised by the results of international assessments of pupil achievement such as PISA, PIRLS and TIMMS.¹ Faced with challenges of demographic and technological change and global economic competition, exacerbated at the present time by low economic growth and high financial uncertainty, policy-makers are under greater pressure than ever to invest in the skills and capacity of the future labour force as a principal strategy for securing economic growth and prosperity (Schleicher, 2012). In line with broader EU and OECD ambitions, successive UK Governments have invested considerable effort and resources in the goal of improving educational outcomes for all students, at the same time as endeavouring to break cycles of poverty and intergenerational disadvantage.

The advent of international league tables has spawned a new wave of comparative studies seeking to discover the secret of other systems' success and to identify the distinctive features of those countries which consistently 'come out on top'.² Internal and external evaluations have reaffirmed the importance of 'effective' teachers and 'high quality' teaching, which is now widely acknowledged to be the most important school-level factor influencing student achievement (OECD, 2004, 2005; McKinsey, 2007, 2010).³ This in turn has focused attention on the importance of teacher education, from initial training, preparation and induction for beginning teachers, to on-going professional development to help update their knowledge, deepen their understanding and advance their skills as expert practitioners.⁴ Teacher education, along with strategies for recruitment and retention (with which it is intimately connected), is seen as 'the most direct and effective way of raising educational quality' (Darling-Hammond, 2005, cited in OECD, 2010, p. 12). Indeed, some have predicted that education reforms that fail to take teacher education into account are 'condemned to inefficiency' (OECD, 1998, cited in OECD, 2010, p. 12).

As a prime strategy to increase the quality of teaching and improve student outcomes, the challenge for policy-makers is to decide how best to organise provision for teacher education: that is, how much time to allocate to training at different 'life phases' of the professional career and how to structure programmes to make most effective use of that time; what are the requisite skills and knowledge for current and future teachers and what kinds of experiences are needed to develop them; and

importantly, how far all such decisions are based upon good knowledge of research on effective teaching and effective teacher education.

Comparative analysis reveals that educational decision-makers in different parts of the world have responded variously to the issues of teacher recruitment, retention and development, reflecting both the specific nature of the challenges faced in particular contexts (for example, teacher shortages or oversupply), as well as diverse beliefs and assumptions about the nature of professional knowledge and how such learning takes place. Whilst there has been a general shift internationally over the past three decades towards greater professionalism in teacher education, with higher entrance standards and higher qualifying requirements, there has also been an important counter trend, away from conventional programmes led and administered by university departments of education, towards more flexible, school-based routes, including in some cases deregulated and more accelerated, 'fast-track' options (Musset, 2010).

THE ROLE OF RESEARCH

As part of the political drive to improve the quality of teaching and learning, education policy-makers across the UK have sought to stimulate more evidence-informed approaches to educational policy and professional practice. Since the late 1990s, Government departments and national agencies have sponsored and supported a range of initiatives designed to stimulate the use of robust research to inform educational policy and encourage more systematic practitioner engagement with research.⁵

In the case of teacher education, although the connection between educational research and teachers' professional learning and development is widely recognised, the precise nature of the relationship is not yet fully understood (Whitty et al, 2012). At a time when teacher education is under active development across the four nations of the United Kingdom, an important question for all those seeking to improve the quality of teaching and learning is how to boost the use of research to inform the design, character and content of teacher education programmes.

Furthermore, while it is generally agreed that no education system can afford not to be informed by data and evidence from robust research (recognising that there are lively debates about what is meant by 'evidence' and what constitutes reliable and relevant research), it is less clear how far practitioners themselves need to be actively engaged in the research process – whether as discerning consumers or active producers of research-based knowledge. Hence, it is

important to investigate how far the process of engaging in and with research is associated with significant improvements in the quality of teaching and learning outcomes for students, and to consider the policy and practical implications for teacher education and continuing professional development.

ABOUT THE INQUIRY

Against this background of diverging policy and provision for teacher education and heated discussion about the use of research evidence to inform policy and practice, the British Educational Research Association (BERA) and the Royal Society for the Encouragement of the Arts, Manufacturing and Commerce (RSA) have come together to conduct a joint inquiry into research and teacher education (Further details about the Inquiry steering group and reference group membership can be found in the Appendix).

Aim, background and objectives

Building on the findings of the BERA-UCET joint review of prospects for education research in UK HEIs (Whitty et al, 2012),⁶ the overall objective of this Inquiry is to understand the contribution that research can make to teachers' professional learning over the course of their career, from initial teacher education to continuing professional development, and to explore the potential benefits for students' learning processes and outcomes.

The three key aims of the Inquiry are to:

- 1 Shape debate** – by collecting and reviewing evidence about the role which research-informed teacher education plays in promoting school improvement;
- 2 Inform policy** – within Government and the education sector by making recommendations to develop the relationship between research and teacher education;
- 3 Influence practice** – developing practical approaches to connect researchers, teacher educators, teachers and others.

The Inquiry therefore sets out to define and investigate the different ways that the use of research can inform and improve the design and content of teacher education, as well as exploring the extent to which direct practitioner engagement in and with research offers benefits for teaching and learning.

Scope of the Inquiry

The principal questions of the Inquiry, under four main areas of interest, are defined as follows:

- 1 Mapping provision:** How does policy and provision for teacher education vary across the UK and internationally, and what is the role of research in different entry routes and CPD programmes?
- 2 Philosophical reflections:** What *a priori* arguments can be made about the contribution of research-based knowledge in the development of teachers' professional expertise?
- 3 Review of the evidence:** What contribution does research make to teachers' professional learning at the beginning and over the course of their teaching careers; what is the impact of research-based and research-engaged teaching on the quality of teaching and learning, school improvement and student outcomes?
- 4 What are the implications for policy and practice?**

The scope of the Inquiry includes policy and provision for teacher education across the four nations of the United Kingdom, whilst drawing on lessons and findings from the wider international research literature and comparative analysis of trends and characteristics to examine the relationship between research and teacher education in the UK context.

Inquiry methods

Given the broad scope of the Inquiry and the constraints of capturing all the relevant literature in a single review, the steering group opted to commission academic papers from experts in particular fields relevant to the Inquiry: international and cross-national (UK) policy and provision for teacher education; philosophical reflections on the contribution of research to teacher education; innovative ITE programmes based on the model of research-informed 'clinical practice'; established features of continuing professional development (CPD); and the impact of research-based teaching on school improvement and student outcomes, with a seventh paper to follow on teacher engagement with and in research. A complete list of the commissioned papers and review teams is available in the Appendix.

To supplement the information and evidence gained through the commissioned papers, the Inquiry issued a Call for Submissions in July 2013, which ran for six weeks until August 2013. 32 responses were received in total, capturing a wide array of opinions from key audiences: higher education institutions, professional associations, training providers, policy analysts and teachers. A full report of the responses is available on the BERA website. Throughout this report, selected

quotes from the submitted responses are used to illustrate key points from the analysis.

The Inquiry process has been designed to allow for extended critical review of the emerging findings, through internal discussion of the draft papers by commissioned authors at an Inquiry seminar in July 2013, a joint presentation of the emerging findings at a spotlight session at the British Educational Research Association Annual Conference at the University of Sussex in September 2013; and through further presentations to the Universities Council for the Education of Teachers (UCET) Research Committee in October 2013 and at the UCET Annual Conference in November 2013.

The Steering Group has also benefited from expert advice and critical feedback from its special advisors, and from the Inquiry's Reference Group, comprised of representatives from 19 leading organisations involved in education, including experts in teacher education policy and practice from each of the four nations.

Following publication of the commissioned papers and Interim Report, the next phase of the Inquiry will focus on testing the implications of the interim findings with appropriate stakeholders, including teachers, teacher educators and policy-makers, to inform the formulation of recommendations for policy and practice, to be published in a Final Report in Spring 2014.

Defining key terms

When it comes to the role of research in teacher education, we suggest that there are four main ways that research can contribute to programmes of teacher education:

- First, the content of such programmes may be informed by research-based knowledge and scholarship, emanating from a wide range of academic disciplines and epistemological traditions (including, for example, educational psychological studies of teaching-studying-learning processes, child development, inter-disciplinary research and academic study of subject matter and pedagogical content knowledge, assessment practices and so on);
- Second, research studies into different models and approaches towards teacher education and professional learning can be used to inform the design and structure of teacher education programmes;
- Third, teachers and teacher educators can be equipped to engage with and be discerning consumers of research – that is, developing the

research-related skills and knowledge to be able to access and interpret different kinds of evidence and adapt it (with appropriate support) to their own settings and contexts (Bell et al, 2010);

- Fourth, teachers and teacher educators may be equipped to conduct their own research, individually and collectively, to investigate the impact of particular interventions or to explore the positive and negative effects of their own practice. As Bell et al (2010) define it, as well as engaging with research, education practitioners may also be involved in research, whether as active participants and co-designers, or as more passive subjects of larger-scale studies led by professional research teams.

The nature and quality of data sources

Until relatively recently, research in the field of teacher education and professional learning consisted mainly of smaller-scale studies, typically carried out by teacher educators individually and collectively, or in collaboration with schools or student teachers. For example, a review conducted in 2000 by the US National Academy of Science (Tatto et al, 2000, cited in Tatto 2013) revealed that at the time of the study, there were very few larger-scale studies providing system-wide and policy-oriented research evidence, with a notable lack of studies designed to provide a full (rather than partial) examination of the different dimensions of teacher education.

Over the past decade, investment in large-scale comparative studies and evaluations of teacher education by national and supra-national agencies (such as the UK's Economics and Social Research Council, the European Commission and the OECD) has contributed new insights and understanding about the characteristics of successful systems and effective provision. While comprehensive data about the nature of provision in different countries is now available from databases such as Eurydice, keeping such information up to date in this area is difficult in the face of widespread and rapid reform. Furthermore, there is still a dearth of large-scale longitudinal studies examining the trajectory of teacher education from entry to induction, through to assessing the impact on teaching quality in the classroom and measuring outcomes for students. As Menter et al observe, "lack of attention to contextual factors (for example pupil socio-economic status/ gender/support needs; level of teachers' education/subject degree; school type) and the scant funding available for longitudinal studies, large-scale efficacy studies or repeated measures helps to explain why the evidence base on teacher education is somewhat inconclusive as a

guide for policy” (Menter et al. 2010, 7). Nevertheless, there is much that can be learned from international comparative analysis of policy and provision for teacher education and the attempts that have been made to identify distinctive features of successful systems and programmes.

Over the same period, there has also been a growing number of systematic reviews carried out in the UK and elsewhere, which have brought together the existing evidence on many aspects of professional learning, which have produced clear and consistent findings, for example on the characteristics of successful induction and mentoring, early professional development, continuing professional development and the role of specialists in facilitating such learning (see Cordingley 2013 for an overview of the main systematic reviews of evidence on continuing professional development).

As a result of these meta-analyses and systematic reviews, there is now substantial evidence about the key features of effective teaching education and professional learning. As charted below, this body of research indicates that research has a major contribution to make to effective teacher education in a whole variety of different ways, whilst there is also some robust evidence that doing so improves the quality of students’ learning in schools.

STRUCTURE OF THE REPORT

In what follows, we provide a summary of the first six papers to be commissioned by the Inquiry.

First, Professor Gary Beauchamp (Cardiff Metropolitan University), Professor Linda Clarke (University of Ulster), Dr Moira Hulme (University of Glasgow) and Professor Jean Murray (University of East London) review current policy and provision for teacher education across the four home nations of the United Kingdom. Their analysis highlights the increasing divergence in entry routes and policy discourse across the UK, as well as in the framework of standards and competences which have recently been revised in each nation.

Second, Dr Maria Teresa Tatto from the University of Michigan considers the role of research in four contrasting examples of education systems: Chile, the USA, Singapore and Finland, representing ‘fair’, ‘good’, ‘great’ and ‘excellent’ performance as classified by McKinsey (2010). For each country, Tatto examines the nature and organisation of teacher education, an overview of entry and qualifying requirements and quality assurance, before drawing out the contribution of research to each system.

Third, Professor Christopher Winch (King’s College, London), Dr Janet Orchard (University of Bristol) and Dr Alis Oancea (University of Oxford) examine some of the key philosophical issues arising in the role of research in teachers’ professional learning and development. They highlight three interconnected and complementary aspects of teachers’ professional knowledge: practical wisdom, technical knowledge and critical reflection. Arguing against simply relying on common sense or ‘what works’ protocols, they show how research can make a positive contribution to each aspect of teachers’ professional knowledge.

Fourth, Dr Katherine Burn and Trevor Mutton from the University of Oxford examine a small number of highly innovative and highly regarded schemes, based on the medical model of ‘clinical practice’, which have sought to integrate practical engagement in schools with research-based knowledge in carefully planned and sequenced ways. Their analysis explores the underpinning rationale and distinctive features of selected systems and programmes, as well as reviewing the evidence of the impact of such programmes on teachers’ professional learning and pupil outcomes.

Fifth, Philippa Cordingley from the Centre for the Use of Research and Evidence in Education (CUREE) examines the key ways in which teachers engage in and with research as part of teachers’ continuing professional development (CPD), drawing together the findings from a series of systematic reviews which have synthesised evidence from hundreds of research studies, which reveal a clear and consistent set of findings about the characteristics of effective CPD activities.

Sixth, Dr Monica Mincu from the University of Turin investigates the contribution of research to improving teaching quality and hence enhancing learning outcomes for students. Drawing on the international research literature on teacher effectiveness and school improvement, Mincu makes three key arguments about the contribution of research: first, teachers matter and schools make the most difference for lower-achieving students, who are disproportionately from deprived backgrounds; second, teachers and school leaders are at the heart of school improvement and that building the capacity of teachers and leaders is vital; and third, research has come centre stage as a pillar of the school improvement.

The final section brings together our reflections and conclusions on the interim findings, highlighting some of the implications for policy and practice that warrant further exploration, as well as outlining the next steps for the BERA-RSA Inquiry.

1. UK Policy and Practice: the Role of Research in Teacher Education

INQUIRY PAPER 1: POLICY AND PRACTICE WITHIN THE UNITED KINGDOM

Gary Beauchamp, Linda Clarke, Moira Hulme, Jean Murray

For this Inquiry, Beauchamp and colleagues review current policy and provision for teacher education across the four home nations of the United Kingdom. Their analysis highlights the increasing divergence in entry routes and policy discourse across the UK, as well as in the framework of standards and competences which have recently been revised in each nation. These changes have been facilitated by political devolution, which has allowed for greater cross-national variance in education policy, reflecting distinctive political values, conceptions of teaching and national identities in different parts of the UK.⁷ Further reform has been underway since the general election in 2010, with official reviews of teacher education commissioned in Northern Ireland (DENI, 2010a; DEL, 2013), Wales (Tabberer, 2013) and Scotland (Donaldson, 2011), as well as far-reaching reforms of initial teacher education in England.

As a result of on-going reforms, the already varied pattern of provision across the UK is set to become even more diverse. At present, ITE in Northern Ireland is provided through five higher education institutions (HEIs), two local universities, two university colleges and the Open University (OU),⁸ whereas in Scotland, ITE is provided through nine universities including the Open University in partnership with schools and local authorities. There are currently no school-centred (SCITT) or employment-based routes (EBITT) into teacher education in either country. In Wales, ITE is provided by three regional 'centres', comprised of collaborating HEIs, each of which provides an accredited teacher education course, as well as delivering employment-based training routes under the Graduate Teacher Programme (GTP) on behalf of the Welsh Government. In England, the range of options for prospective teachers is considerable, with multiple providers and entry routes into teaching encompassing university-led, school-centred and employed-based programmes.⁹ The introduction of the School Direct programme has extended the range of options still further and is set to increase the proportion of trainees in non-university-led courses significantly.¹⁰

The role of research in teacher education – Scotland

In Scotland, 'Teaching Scotland's Future', the official review of teacher education led by Graham Donaldson, has emphasised the need for teacher education to be viewed as a continuum of professional learning across teachers' careers, as well as requiring 'much better alignment across and much closer working amongst schools, authorities, universities and national organisations' (Donaldson, 2011).

Responding to the Donaldson report, the Scottish Government accepted all 50 recommendations in full or in part. In November 2012, a National Implementation Board was established, comprised of representatives of all constituent groups, to implement key proposals including new undergraduate degrees in all universities; an approach to practicum which is based on 'clinical model' principles; a coherent early phase of a teacher's career spanning ITE, induction and early years in post; new standards for registration, career-long learning and leadership; new approaches to professional review including a five-year update to remain on the register; direct support for practice-focused Masters with financial incentives; and the establishment of a Scottish College of Educational Leadership charged with promoting a distributive/hybrid leadership culture. Central to the reforms is the model of collaborative partnership working amongst universities, local authorities and schools and the goal of developing a research-aware and researching profession. As described by the OECD in its 2013 report for the Teachers' Summit, "Scotland has embarked on a systemic reform of the teaching profession. Partnership mechanisms involving national and local government and all stakeholder agencies were established to promote career-long growth of educators..." (OECD 2013).

Reform of teacher education in Scotland is part of wider changes that include a new school curriculum (the 'Curriculum for Excellence'), a new qualifications framework and deliberation on teachers' pay and conditions.

In line with these broader developments, the role of research in teachers' professional learning throughout their career has recently been strengthened, through a revised suite of Professional Standards, overseen by the General Teaching Council for Scotland, which came into effect in August 2013.¹¹ Under the new framework, beginning teachers are required to 'systematically engage with research and literature to challenge and inform professional practice', practising teachers are called upon to 'engage in practitioner enquiry to inform pedagogy, learning and subject knowledge', while leaders must demonstrate that they can 'apply

their enhanced knowledge and critical understanding of research and developments in education policy to support school development' (GTC, 2012, pp. 8-18). Overall, the Standards signal a movement away from involvement in small-scale research towards a more fully developed culture of 'professional enquiry', linked to Professional Update for all registered teachers.

The prominence of research in the revised Scottish Standards has been welcomed by stakeholders, although as submissions to the Inquiry reveal (see Box 1), there is still more to do to promote teaching as 'a research profession' and to ensure that the emphasis on research engagement in the revised standards framework filters through into practice. As the General Teaching Council Scotland observes, there is a 'mixed picture' in terms of research engagement across the system of initial teacher education (ITE) and continuing professional development, with some forms of provision (for example, four-year ITE programmes as compared to one-year post-graduate courses) addressing research much more fully than others.

BOX 1: SELECTED RESPONSES FROM SCOTTISH SUBMISSIONS TO THE INQUIRY

What do you see as the main strengths of **teacher education** in your part of the UK today, and why?

"A real strength of teacher education in Scotland is the coherent approach provided by having such a suite of Standards. The Standards provide a reconceptualised vision of what it means to be a teacher in Scotland and have within them a set of values based on the democratic values which are at the heart of Scottish society. Professional Values and Personal Commitment are at the core of this suite of Standards. They are integral to, and demonstrated through, all professional relationships and practices." General Teaching Council, Scotland

What do you think are the main barriers faced by teachers when it comes to engaging with research evidence?

"A key barrier to teachers engaging with research evidence is the lack of an appropriate professional ethos. Teaching tends not to be viewed as a research profession, which results in weak professional motivation to engage with research and research evidence. In part, this may be due to a lack of grounding in doing and reading research, which is not developed during ITE." Lecturer, Scotland

Northern Ireland

In Northern Ireland, as in Scotland, strong emphasis on critical reflection and active engagement in research for teachers across each phase of professional development is evident in the Code of Values and Professional Practice, which give special prominence to role of *teacher as researcher*:

The notion of the teacher as a researcher is complementary to the Council's concept of reflective practice. Teachers should engage in action research within their own classroom, school or institution and, in addition, they should take cognisance of research within the teacher education community (GTCNI 2007: 12).

Although the review of 'Teacher Education in a Climate of Change', initiated in 2003, has yet to be completed, the policy framework document, 'TECC: Way Forward' (TECC, DE 2010) calls for 'teachers to engage more actively with new knowledge and approaches' and for the findings of research on effective teaching methodologies to be 'reflected in all stages of teacher education'. There is also recognition of the need to do more to develop research priorities and ensure that these are 'taken forward in a comprehensive and coherent manner', with the Department of Education forming 'a closer relationship with the producers of research' (DE, 2010, p. 17). Despite this emphasis and encouragement, there may be difficulties in sustaining educational research capacity in the face of the withdrawal of two major US philanthropic institutes, and there is a need to ensure that practitioner research is better 'utilised in terms of knowledge production, teacher development and school improvement' (Leitch, 2008, cited in Beauchamp et al, 2013).¹²

Wales

As part of the Schools Implementation Plan published in October 2012, the Welsh Government announced a review of the quality and consistency of Initial Teacher Training (ITT) in Wales. The review, led by Professor Ralph Tabberer, followed reorganisation that was undertaken as a result of the Furlong review in 2006, which led to the establishment of three ITT Centres for the different regions in Wales. The final report of the Tabberer Review, published in July 2013, paints a mixed picture of provision in Wales: whilst it finds some evidence of good practice, it is also clear that there is significant room for improvement, particularly at a strategic leadership level across the ITT sector. The report therefore calls for 'better management and more effective collaboration as the foundations for improving ITT in Wales', with a warning to providers that 'if the current weaknesses persist', the Department for Education and skills and the Higher Education Funding Council for Wales (HEFCW) have the powers to reallocate training places to other providers (WG, 2013, p. 2).

The position of research in teacher education in Wales is more ambiguous than in Scotland and Northern Ireland. The revised Qualified Teacher Status Standards (WAG 2009a) themselves contain no explicit reference to academic (or indeed any) research, though there is

an expectation that teachers should be 'confident and authoritative in the subjects they teach', which perhaps implies a high degree of research-based knowledge of subject matter. Clearer reference to research is made in the non-statutory guidance document, 'Becoming a Qualified Teacher' (WAG, 2009b), which advises teachers that they should 'show an awareness of where to find, and how to critically engage with, evidence from sources such as research and inspection reports' (p.23), as well as suggesting that 'Trainees could also demonstrate their knowledge through written assignments, small-scale research activities and school-based tasks' (p.46). Moreover, research features much more prominently in the inspection guidance for initial teacher training given to providers by Estyn (2012), which asserts that 'Good teaching/training' should be 'well informed by research' (p.25), that the inspection team 'will consider the ITT provider's ability to be at the cutting edge of ITT through 'horizon scanning', collaborative ventures and educational research' (p.32).

al, 2013). The revised and slimmed down list of Teachers' Standards (reduced from 33 different standards to eight (albeit each with a number of bullet points) do not contain any explicit mention of the need for teachers to engage in or with research (DfE, 2013). However, as in Wales, the document does contain some implicit references to the use of research-based knowledge and research-related activities, such as critical reflection and collaborative inquiry (for example, teachers must 'reflect systematically on the effectiveness of lessons and approaches to teaching' and 'develop effective professional relationships with colleagues, knowing how and when to draw on advice and specialist support').

Nevertheless, it is important to recognise that the position of research is still precarious. Critics of the reforms have expressed serious concerns that the shift away from university-led programmes will have negative effects on research capacity, by destabilising staff and diminishing funding streams for applied research (Whitty et al, 2012). As yet, the full implications of the changes in provision for ITE are not yet clear, indicating the need for further monitoring of developments to ensure high quality provision is achieved through all routes.

Despite the mixed messages from Government about the role of research, submissions to the Inquiry show that many providers in England are committed to maintaining a strong commitment to the use of research-based knowledge and promoting research-related skills in teacher education, although respondents

BOX 2: SELECTED RESPONSES FROM WELSH SUBMISSIONS TO THE INQUIRY

What do you see as the main areas for improvement within teacher education as a whole in your part of the UK today, and why?

"As part of the outcomes of the Tabberer review it is to be hoped that a new model of University/school partnerships can emerge in Wales, fully aligned to the devolved policy agenda and reform programme. For this to happen, Vice Chancellors and ITT Centres need to show far greater commitment to this vision than appears to be currently the case." Policy advisor and independent researcher, Wales

England

The position and value of research in initial teacher education in England is contested and has arguably diminished over time (Beauchamp et al, 2013). Under the English 2007 Standards, beginning teachers were required to adopt a 'constructively critical approach towards innovation' (TDA, 2007a:8), while more explicit research endorsement was given to Excellent and Advanced Skills Teachers, who were required to 'research and evaluate innovative curricular practices and draw on research outcomes... to inform their own practice and that of colleagues' (TDA, 2007a, p. 27).

Since 2012, the Teachers' Standards in England¹³ have been reconfigured, supporting moves towards a school-based and school-led system of teacher education, although losing the idea of teaching as an explicitly research-based profession and downplaying the ethical dimensions involved in learning to teach (Beauchamp et

BOX 3: SELECTED RESPONSES FROM ENGLISH SUBMISSIONS TO THE INQUIRY

What contribution does research currently make to Initial Teacher Education in your part of the UK today?

"In our own institution, research does play a role – balanced across several aspects which we consider 'research'. Students are required to engage with research literature, and to conduct evaluative and investigative projects. Some staff are actively engaged in research, and may have opportunities to share this with students." Teacher Educator, England

"...Our PGCE course is underpinned by research and taught by research-active professionals. Research is therefore core." University Lecturer, England

"Currently the role of research in ITE is limited and variable. Whilst the range and flexible nature of the various routes to teaching is welcome, it does mean that the scope and capability of providers to support research-informed / evidence-based teacher education is limited. A trainee following a QTS-only route will not get the same experience or advantages as a trainee following a Masters level PGCE at a research-intensive university." Teacher Educator, England

also highlighted the perceived variability in the role of research within different training routes (see Box 3).

Diverging policy discourse across the United Kingdom

As Beauchamp and colleagues observe, the differences in approach to teacher education across the UK reflect the distinctive values, beliefs and national identities in each country, which find expression in distinctive conceptions of the teacher and teaching. In England, the Coalition Government has sought to bring a 'sharper focus on the essentials of teaching, together with a shift in the balance of training routes' – away from 'long university courses', which are deemed to be 'too theoretical', and towards more flexible and fast-track employed-based routes which are capable of 'attracting into teaching people who would not otherwise have applied' (Ibid, pp. 9-10). According to Beauchamp and colleagues, such statements are underpinned by an understanding of teaching as 'essentially a craft rather than an intellectual activity' and 'an apprenticeship model of teacher training that can be located entirely in the workplace'. The authors question the related assumption that more time spent in schools inevitably – and unproblematically – leads to better and 'more relevant' learning.' The assumptions behind the 'craft' and 'apprenticeship' models of teaching are discussed further in section 3. These assumptions have been challenged in other parts of the UK. 'Teaching Scotland's Future' (Donaldson, 2011) argues against the idea that the answer to creating better teachers is simply to advocate 'more time in the classroom':

The 'craft' components of teaching must be based upon and informed by fresh insights into how best to meet the increasingly fast pace of change in the world which our children inhabit. ... The nature and quality of that practical experience must be carefully planned and evaluated and used to develop understanding of how learning can best be promoted in sometimes very complex and challenging circumstances (Donaldson 2011, pp. 4-5).

The view of teaching as 'a complex profession which requires high standards of competence, professional skills and commitment' has been explicitly endorsed by the General Teaching Councils for Scotland, Wales, Northern Ireland and the Republic of Ireland, in a joint statement issued in April 2013.

Nevertheless, despite the diverging policy agendas in different parts of the UK, the nature and indeed the quality of the actual provision for teacher education in the four jurisdictions may not differ as much as political rhetoric might suggest. Although inspection judgements provide some evidence of 'quality' (highlighting the wide

variation between different institutions but also within different types of programme), there is a need for more research to understand how far the prevailing policy discourses and formal instruction and guidance affect the lived realities of the many and various research-informed teacher education programmes across the UK.

Possible future directions for research-informed teacher education

Finally, it is worth highlighting a number of changes that are currently underway in England, which may help to build research capacity and strengthen the infrastructure for research and collaboration. Building on a model developed as part of the London and Greater Manchester City Challenges, the Coalition Government is developing a national network of new Teaching Schools in England, with responsibility for 'leading and developing sustainable approaches to teacher development across the country', as well as a wider remit including promoting research and professional development (DfE, 2010a, p. 23). As promised in the Schools White Paper (DfE, 2010a, p. 23), plans are also underway for the first university-led training school, which is due to be opened by the University of Birmingham in 2015. The requirement for Teaching Schools to engage in research and development work is helping to raise the profile of teacher engagement in research, though there is clearly much more to do to embed and integrate the use of research throughout teaching and professional learning in both the lead Teaching Schools and across their alliances.

Furthermore, as Cordingley (2013) observes, there are also attempts underway to promote a more 'evidence-based' approach to teaching (DfE, 2013), with an increasing emphasis on carrying out robust research to gain evidence about effective teaching interventions. For example, the Education Endowment Fund (EEF) is funding a large number of randomised control trials (RCTs), and the National College for Teaching and Leadership (NCTL) is attempting to build the evidence base on 'effective' interventions through funding RCT-style trialling of interventions to 'Close the Gap' across 740 schools, involving schools in both qualitative local research and larger scale meta-analyses of rigorous data. Although the strong emphasis on the use of RCTs is controversial, there is nevertheless some potential for these policies to build research literacy so that teachers are able to access, interpret and adapt research findings to their own settings. But it is still the case that policy is pulling in different directions. For this potential to be realised, it will be crucial to protect the research capacity that currently exists, as well as looking to strengthening the school-university partnerships that can help build capacity across the system for the future.

2. International Overview: the Contribution of Research to High-Performing Systems

INQUIRY PAPER 2: THE ROLE OF RESEARCH IN INTERNATIONAL POLICY AND PRACTICE IN TEACHER EDUCATION

Maria Teresa Tatto

The past three decades have seen a general shift internationally away from traditional school-based preparation for primary teachers and traditional academic instruction for secondary teachers in low-status training colleges, towards university-based teacher education in institutions with relatively high entrance standards and relatively high status in wider society (Musset, 2010). More detailed, comparative analysis of policy and practice reinforces the importance of this shift, highlighting a common set of practices and approaches among the top-performing and most improving school systems (OECD, 2011; McKinsey, 2010). Key features include a strong focus on subject content and pedagogical knowledge, with particular emphasis on the 'specific instructional techniques that are appropriate for the subjects that the prospective teacher will teach'; and greater emphasis on developing the capacity of prospective teachers to 'diagnose student problems swiftly and accurately', and to 'draw from a wide repertoire of possible solutions those that are particularly appropriate to the diagnosis' (OECD, 2011, p. 237).

According to recent analysis by McKinsey (Mourshed, Chijioke & Barber, 2010), it is possible to locate different countries' education systems along a trajectory of school and system improvement, moving from centralised, rigid standards, and even scripted instruction for schools and teachers at the lower end, to decentralised school responsibility for higher-performing systems, in which professional autonomy is accompanied by greater instructional flexibility and school-led collaboration. For this Inquiry, Tatto (2013) considers four contrasting examples of country systems, representing each of the levels defined in the McKinsey report: at the lower end of the spectrum, Chile is classified as 'fair' and as a 'promising starter' in terms of student assessment data (2001-2007); the United States is one of 22 countries classified as 'good'; Singapore is one of five countries classified as 'great' and Finland is the only country classified as 'excellent'. For each country, Tatto examines the nature and organisation of teacher education, an overview of entry and qualifying requirements and quality assurance (for example through

national or federal accreditation), before drawing out the contribution of research to each system.

Key features of the education system at different levels of performance and development

For education systems which are still at an early stage of development, such as Chile, the most important educational priorities are to secure basic levels of literacy and numeracy and to establish the system's foundations (such as building data gathering systems, organizations, financial systems and pedagogy). In Chile's case, the system has focused on achieving functional skills for the vast majority of their disadvantaged population (and their teachers), and on redeveloping the foundations of a teacher education system that was destroyed under the Pinochet dictatorship. Under the new regime, concerted efforts began to be made to develop the curriculum, resources and infrastructure for education, with the incorporation of teacher education into higher education institutions. However, the system is once again facing serious challenges as a result of policies that have opened up the market to private providers, which now dominate close to 60% of all teacher preparation programmes. In response, the government has recently moved to regulate the sector, instituting accreditation measures as an attempt to assure the quality of provision, as well as legislating to ensure more specialised knowledge of subject matter and pedagogy for future teachers within university-based programmes.

The context in the USA is rather different, the country having a long history of teacher education in colleges and institutions of higher education. However, substantial growth of alternative, flexible routes since the late 1990s means that the overall picture is highly diverse and decentralised, with more than 1,300 public and private colleges and universities, school districts, state agencies and private organisations now catering for approximately 150,000 future teachers (approximately a third of whom enter alternative routes). As Tatto (2013) describes, there is no guiding philosophy for teacher education to unify this highly variegated pattern of provision. While the federal 'No Child Left Behind' (NCLB) legislation mandates that teachers be 'highly qualified', it does not impose specific national curriculum requirements for teacher education, resulting in wide variation in entry and qualifying requirements in different states (as determined by individual states' legislature, education agencies, board of education and professional standards board).

In line with other high-performing education systems, the focus of teacher education in Singapore is on shaping the teaching profession, 'such that its requirements, practices, and career paths are as clearly defined as those in the established professions such as medicine and law' (Mourshed, Chijioke & Barber, 2010). In Singapore, this

is achieved through strict entry requirements, specifying high levels of academic as well as pedagogical knowledge, a well-monitored school practicum, plus a 'high-stakes' induction period where prospective teachers are carefully evaluated before they are declared ready to teach. Although the state and national agencies (notably the National Institute of Education) play a central role in determining the structure and content of the teacher education curriculum, there is also a strong emphasis on collaborative learning from peers within the teaching assistantship and teaching practice components, with supervision from specially trained mentors, as well as structured observation and feedback from experienced teachers during induction.

Similarly, the Finnish approach to teacher education is built upon high expectations for teachers, including a standard requirement for qualification to Master's level, highly selective entry to the profession and comparable salaries and status to other professions. Following 20 years of central planning and control, the system has more recently decentralised responsibility and instructional autonomy to schools and teachers, although still within a carefully structured system of teacher education. In Finland, teaching practice occurs either in Teacher Training Schools, which have a designated role in research and development (supervised by the eight universities with teacher education functions), or through the network of selected Field Schools. This close partnership within and between faculties and schools means that students are supported to develop and bring together knowledge from different sources in a coherent and integrated way.

The contribution of research to teacher education: four components of research-based teacher education

In the Finnish case, research is a constitutive part of teachers' pre-service training and preparation. As characterised by Toom et al, (2010), the research-based approach to teacher education in Finland has four main components, which correspond to the four dimensions of our definition of research-based teacher education:

First, the study programme is structured according to the systematic analysis of education. Secondly, all teaching is based on research. Third, activities are organised in such a way that students can practise argumentation, decision-making and justification while investigating and solving pedagogical problems. Fourth, students learn academic research skills (Toom et al, 2010, p. 333, cited in Tatto 2013).

Teacher education is therefore based on the idea of the teacher-as-researcher: "teachers are trained to reflect and analyse their work, think 'scientifically', examine their own world of values and adjust their teaching continuously" (Makinen, 2010, cited in Tatto, 2013).

Student teachers are expected not only to become familiar with the knowledge base on student learning and child development, but also to undertake research and write a research-based thesis to complete their Masters' degree. Both in the early stages and throughout their professional career, teachers are encouraged to make an active contribution to the knowledge base on effective teaching practices, as well as taking on significant responsibility for curriculum and assessment (OECD, 2011). As Tatto concludes, "The Finnish approach to inquiry-based learning permeates all institutions of education, including teacher education and teachers".

BOX 4: SELECTED VIEWS ON THE CONTRIBUTION OF RESEARCH TO TEACHERS' CRITICAL ENGAGEMENT WITH TEACHING

"With regard to the student [teachers], engagement with research as part of ITE offers them a platform for developing a range of deeper analytical and critical skills which are essential in making robust developments in your own practice and contributing as a professional person."

Lecturer/Researcher/Teacher Educator, Scotland

"We need teacher education research to both support and promote a critical engagement with teaching. Teachers need to be seen as practitioner researchers so that their teaching is enriched and schools and colleges are enhanced by research-informed classroom practice."

Teacher Educator, England

Turning to Singapore, although the character and organisation of teacher education is quite different from Finland in many ways (notably in its more highly centralised model of governance and much greater use of summative assessment) there are nevertheless some striking similarities in the approach adopted in each country. First, as in Finland, Singapore draws upon research to inform the design, structure and content of its teacher education programme.¹⁴ Second, both systems are committed to ensuring that all teaching is based on evidence of effective practice, and revised in light of new ideas, research evidence and system data (for example, using the results of student assessment to fine-tune the system and the curriculum). Third, preparatory activities are organised so that student teachers can practice interrogation of their own and others' practice, based on the evidence from self-evaluation, peer-review and external research (Tatto, 2013). As a whole, the system of collaborative learning in Singapore represents a carefully planned and systematic attempt to create a culture of enquiry, critical reflection and deliberation within schools and classrooms, in which teachers' engagement with research (rather than active engagement *in* research) is deeply embedded.

The major difference is that student teachers in Singapore are not trained to be *researchers* in the formal

sense of being equipped with first-hand knowledge of how to design, conduct and present original research on practical and theoretical aspects of education. However, the combination of research on teacher education and enquiry-based teaching and learning has proved highly effective. According to the Singapore Ministry of Education, the significant progress that has been achieved in raising the academic performance of lower-attaining pupils, as well as improving students' reasoning reflects, above all, 'the impact of the shift in our curriculum towards more *enquiry-based teaching and learning* in schools over the years' (MOE, 2012b, p. 1-2, emphasis added, cited in Tatto, 2013).

BOX 5: SELECTED VIEWS ON THE IMPORTANCE OF ENQUIRY IN TEACHING AND LEARNING

"Research is essential in ITE and within CPD to ensure that we have a population of teachers with enquiring minds who can support and challenge inquisitive learners".
Lecturer/ Teacher Educator, England

By contrast, the highly diverse and decentralised system in the United States means that the contribution of research to teacher education varies by state, institution and programme. Thus, while there are some nationally and internationally acclaimed programmes such as the development of professional development schools (PDS), which have been designed according to the medical model of 'clinical practice', based on close integration between practical and research-based knowledge, and the highly regarded teacher education programme at Michigan State University (MSU), the picture as a whole is much more varied. According to Grossman et al (2008), there are no national requirements concerning the nature or quality of 'practicum' and field experiences (for example in terms of number of supervisory observations, explicit links between coursework and field experience, of level of experience for cooperating teachers).

Finally, in Chile, the use of national and international research within the teacher education improvement project (1997-2007) has helped to strengthen the curriculum and broaden the scope of field experiences for beginning teachers. Nevertheless, research suggests that the curriculum is being implemented unevenly in different institutions and that the 'practicum' is still largely a separate requirement, which is seen as the responsibility of schools rather than of the teacher education programme. The focus on enquiry-oriented practice or the use of research-related skills and thinking is not yet an established part of such programmes.

Conclusions from international comparative analysis

As summarised here, the wider research literature and individual country review shows that education systems

that consistently 'come out on top' develop capacity from the bottom up, and rely heavily on methodologically rigorous research-based knowledge to inform their practice. What is striking about provision in both Finland and Singapore, as compared to the more diverse and fragmented provision in the USA and Chile, is the extent to which teachers' engagement in and with research and enquiry-oriented practice is embedded throughout the education system.

Nevertheless, although the success of the Finnish or Singaporean model (as measured by comparative performance in international tests such as PISA) has focused attention on the characteristics of each country's education system, including the research-based approach to teacher education, it is important to stress that a causal connection between specific features of the training programme (including the research components) and the success of the education system can only be inferred rather than directly proven. Indeed the Finnish Ministry for Education (2007) has called for research on teacher education to be strengthened through a better, more highly co-ordinated national research programme.

Overall there is a lack of rigorous research on the relative effectiveness and outcomes of different models of initial teacher education. But there are some exceptions to this general picture, including the large-scale international TEDS-M Study in which Singapore, the United States and Chile participated (see Tatto et al., 2012 for the cross-country report) and the Teacher Pathway Project based in New York City. As these studies highlight, top-performing schools and systems are characterised by a common set of practices and approaches to teacher education and professional learning, such as strong emphasis on subject content and pedagogical content knowledge, carefully constructed links between theory and practice, and an 'enquiry' orientation, in which beginning teachers develop the capacity both to diagnose problems quickly and accurately, and also to draw on a wide repertoire of instructional techniques to identify the most appropriate solution.

Further evidence of the association between particular characteristics and successful outcomes are likely to be forthcoming from the second OECD Teaching and Learning International Survey (TALIS) (OECD 2013), the results of which are due for publication in 2014. The updated survey promises to add to the existing knowledge base on effective teacher education across the professional career, including the particular contribution of research-related activities and processes to improving initial teacher education and preparing prospective teachers to play an active and engaged part in enquiry-oriented activities throughout their career.

3. Philosophical Reflections on the Contribution of Research to Teacher Education

INQUIRY PAPER 3: THE CONTRIBUTION OF EDUCATIONAL RESEARCH TO TEACHERS' PROFESSIONAL LEARNING – PHILOSOPHICAL UNDERSTANDINGS

Christopher Winch, Janet Orchard and Alis Oancea

At the heart of understandings of 'research-informed teacher education' is a set of philosophical issues about the nature of teachers' professional knowledge, and in turn, the nature of research (Pring, 2004). For this Inquiry, Winch et al (2013) examine some of the key issues arising from the literature on the role of research in teachers' professional learning and development. Arguing against simply relying on common sense or 'what works' protocols, they show how research can make a positive contribution to each aspect of teachers' professional knowledge: practical wisdom, technical knowledge and critical reflection.¹⁵ At a time of lively discussion about the use of evidence and rapid reform to teacher education across the UK, their paper makes a valuable contribution to the debate by making clear and explicit the relationship between research and teachers' professional knowledge and practice.

As Winch and colleagues acknowledge, not all would agree that research does have a positive role to play in teachers' practice and development. While some argue that (good) research can make a significant and much-needed contribution to educational practice (Bridges et al, 2009), others are less convinced about the practical usefulness or relevance of empirical inquiry (see for example, Hogan, 2012; Carr, W. (various); Carr, D., 2003).

Problems with relying on common sense

Such scepticism about the role of research often stems from a conception of teaching which emphasises the practical know-how or tacit knowledge that teachers need and develop through their first-hand experiences in the classroom. Some describe this as a form of practical wisdom, which denotes the capacity to grasp the salient features of a situation and make sound judgements, without necessarily assuming that such knowledge can always be made explicit. In political and policy debates, this type of thinking often appears as a simplified view of teaching as a 'craft', similar to other

craft occupations such as pottery or blacksmithing. But by reducing practical wisdom to 'mere flair or common sense', such a view arguably fails to do justice to the complexities of teaching (or indeed to the complexities involved in mastering or becoming secure in a craft). As Winch et al (2013) express it, reliance on common sense often involves little more than 'using research of doubtful quality, filtered through staff room conversations and distilled into folk maxims'. As such, it is an inherently conservative and unreliable basis for judgement, which needs to be scrutinised closely and tested against established findings and new ideas from research.

Problems with relying on 'what works'

Just as there are problems with assuming that teachers can rely on purely tacit knowledge or intuitive reasoning, there are also problems with assuming that teachers merely need to follow protocols derived from empirical evidence about 'what works' or established 'best practice' elsewhere. Unlike the craft view of teaching, the conception of the teacher as 'executive technician' recognises the value and utility of research, but assumes that individual teachers do not generally need to be involved in interpreting those findings for themselves or deciding how best to apply them to their own setting. However, although there may be situations which call for a more prescribed approach (for example to address serious shortcomings in a school or system), there are serious problems in assuming that teachers do not need to reflect on what makes for good practice or to try to understand the rationale behind a suggested approach. Thus, far from following simple protocols, teachers arguably need to be equipped to interrogate their own practice in light of evidence from wider research, as well as drawing on new ideas for inspiration and looking to adapt them to their own settings and contexts.

Combined professional knowledge

As Winch et al (*Ibid.*) argue, what is missing from both the simplified craft view and the narrow technical view is the capacity for critical reflection: that is, the type of deeper insight that comes from interrogating one's practice and making explicit the assumptions and values that underpin it. In contrast to either view, the idea of the teacher as *professional* combines all three aspects of knowledge – practical, technical and theoretical – including knowledge derived through personal experience as well as research, analysis and critical reflection.

The contribution of research

Importantly, research can play a complementary role in relation to each of these dimensions and enhance

their joint effectiveness. For example, by engaging with research findings and processes, teachers will be better equipped for the rich reflection required in practical deliberation, strengthening their processes of reasoning and the exercise of professional judgement. At the same time, research itself will be enriched, through greater insight into the challenges and complexities of educational practice.

Furthermore, engaging in or with research can inform and enhance teachers' technical knowledge about particular instructional techniques: for example, it can offer them potential reference points in deciding when and how to adopt and adapt new interventions and practical toolkits for implementing them (though emphatically without assuming that effective practice merely consists in following a set of instructions or in 'teacher proof' maxims for action). Conversely, capturing teachers' reflections as they draw on evidence to revise their practice can be helpful for the interpretation of research, because it may validate or invalidate research-based readings of complex classroom situations and the multiple factors that affect the choice of appropriate instructional techniques for particular pupils.

What is more, engaging with the latest research or scholarship from the relevant academic disciplines helps teachers update their subject knowledge, while engaging critically with 'false' or discredited research as part of their professional development would enable teachers to refresh their knowledge of specific instructional techniques and revise their professional practice accordingly. These observations suggest that good teachers need to have an active relationship with educational research; rather than replacing the practical craft-based or technical elements of their work, this relationship can support and expand them.

Teacher engagement with and in research

There are, then, a number of compelling reasons for teachers and teacher educators to draw on research findings to inform and update their professional knowledge and also to engage in research-related activities and processes as a way of deepening and expanding their professional expertise. However, it does not necessarily follow that *all* teachers should be expected or required to engage *in* research as a matter of course.

Within education, there is a strong tradition associated with Lawrence Stenhouse amongst others, which upholds the idea of teacher as *researcher*: from this perspective, teachers are encouraged to undertake systematic enquiry in their own classrooms, develop their practice on the basis of research and share insights with other professionals, as a way of deepening and

embedding their own professional knowledge and understanding. And yet, on practical grounds, as Winch et al observe, it may be unrealistic to expect all teachers to develop the capacity to be expert practitioners of educational research, as well as being expert practitioners in the school and classroom.

Thus, as the authors conclude, there is scope for further, detailed research into how teachers exercise professional judgement and the role that educational research does or does not play in their decision-making. We will then gain a clearer idea of how and why research engagement matters for teachers' professional practice and the best ways of mobilising the knowledge generated by research so that it exercises a more profound impact on education policy and practice (Phipps et al, 2012, cited in Winch et al, 2013).

Implications for teacher education

According to Winch et al, (2013), 'the textured nature of teachers' professional knowledge requires a textured model of teacher education, using past experience and empirical and philosophical understanding to further develop creative and educationally meaningful partnerships'. As practical steps to ensure a mutually enriching relationship between educational research and educational practice, the authors call for:

- 1 Models of initial teacher education that develop professional teachers who have a good knowledge and understanding of educational research;
- 2 Developing post-qualification Masters level programs that endow teachers with the capacity to carry out practically based research and inquiry, either in partnership or through supervision with a higher education mentor;
- 3 Creating a track to a higher-level qualification for those teachers who wish to conduct, commission and evaluate research in educational settings independently and to advise on its implications for practice.

4. Integrated ITE Programmes Based on 'Research-Informed Clinical Practice'

INQUIRY PAPER 4: REVIEW OF 'RESEARCH-INFORMED CLINICAL PRACTICE' IN INITIAL TEACHER EDUCATION

Katharine Burn and Trevor Mutton

The recent 'practicum turn' in initial teacher education (Mattsson et al, 2011) places a much greater emphasis on the role of practical or 'field' experiences in the process of learning to teach. The move has been advocated both by external critics, frustrated by the perceived shortcomings of overly theoretical or academic programmes (DfE, 2010a), and also by internal critics within the university sector, who have been critical of the fragmented, uninspiring or superficial nature of traditional approaches (Darling-Hammond, 2006; Hagger and McIntyre, 2000). While the external critique has given rise to a variety of alternative options focusing on providing 'on-the-job' training, the internal critique has inspired the development of more innovative programmes, including 'internship' models aimed at strengthening the partnership between schools and universities and achieving a better integration between different sources of knowledge.

For this Inquiry, Burn and Mutton (2013) review a number of highly innovative and influential programmes, which are to some extent informed by a medical model of 'clinical practice' and which have sought to combine research-based knowledge with a more authentic practical learning experience for current and future teachers. In this section, we provide a brief overview of the underpinning rationale and distinctive features of such programmes, as well as reviewing the evidence of their impact on teaching and learning.

What is meant by 'research-informed clinical practice' for teachers?

Although the precise terminology varies, the notion of 'clinical practice' in education essentially conveys the need to bring together knowledge and evidence from different sources, through a carefully sequenced programme which is deliberately designed to integrate teachers' experiential learning at the 'chalk face' with research-based knowledge and insights from academic study and scholarship. Inspired by the medical model, the goal is to refine particular skills and

deepen practitioners' knowledge and understanding, by integrating practical and academic (or research-based) knowledge, and to interrogate each in light of the other.

The meaning of 'clinical practice' is potentially ambiguous, since 'practice' can be understood both as a deliberate process of rehearsal for beginners or novices, and as routine or established ways of working for experienced practitioners. While this review focuses on clinical preparation for novice teachers in programmes of initial teacher education, it is also possible to apply the principles of 'research-informed clinical practice' to professional learning for experienced practitioners as well as new recruits.

What is the rationale behind 'research-informed clinical practice'?

As Burn and Mutton articulate it, "for beginning teachers working within an established community of practice, with access to the practical wisdom of experts, 'clinical practice' allows them to engage in a process of enquiry: seeking to interpret and make sense of the specific needs of particular students, to formulate and implement particular pedagogical actions and to evaluate the outcomes".

Importantly, by making explicit the reasoning and underlying assumptions of experienced teachers, student teachers are encouraged to develop and extend their own decision-making capacities or professional judgement – what Kriewaldt and Turnidge (2013) refer to as 'clinical reasoning', which serves to describe the 'analytical and intuitive cognitive processes that professionals use to arrive at a best judged ethical response in a specific practice-based context' (2013:106). Moreover, as summarised by Burn and Mutton (2013, p. 1) the intention of clinical practice is to 'facilitate and deepen the interplay between the different kinds of knowledge that are generated and validated within the different contexts of school and university.'

Where have such programmes been developed?

In the UK, USA and elsewhere, a number of different groups and institutions have established partnerships to allow for the clinical preparation of future teachers. These partnerships between university departments and practitioners have typically been located in innovative 'teaching schools', 'lab schools' or 'professional development schools', which are intended to play a similar role to teaching hospitals in medical education. While the focus has primarily been upon clinical preparation for beginning teachers, some partnerships have focused on clinical practice throughout the full continuum of teacher learning (NCATE, 2010).

Within the UK, one of the earliest models of an integrated programme was the Oxford Internship Scheme, developed in the mid-1980s in response to two sets of concerns: about the discontinuity between university and school (or between 'theory and practice'); and about the poor conditions for preparation and professional learning that tended to prevail in schools where many novice teachers were undertaking their pre-service teaching practice (McIntyre, 1990). The university and its partnership schools therefore developed a carefully sequenced programme, in which the two elements of course work and 'clinical practice' ran in parallel, which was designed to facilitate gradual introduction to the complexities of teaching and to integrate learning from multiple sources through the testing of *all* ideas (including those that the interns brought with them). As Burn and Mutton (2013) observe, this scheme was the only one identified by the Modes of Teacher Education Research team (Furlong et al, 2000) as a genuinely 'collaborative' rather than 'complementary' partnership. More recently, the principles of clinical practice have been taken up in collaborative and enquiry-based schemes elsewhere in the UK, notably in the Scottish Teachers for a New Era (STNE) programme in Aberdeen (Livingston and Shiach, 2010) and in the Glasgow West Teacher Education Initiative (Conroy et al, 2013).

BOX 6: SELECTED VIEWS ON THE IMPORTANCE OF INTEGRATING RESEARCH AND PRACTICE

"In particular, the involvement of universities is crucial for providing and promoting links to the research base. To make a comparison with a different profession: teaching hospitals are all linked to a university; one of their strengths is that they bring together research and practice. Medical students and doctors have the chance to see the relationship between the two and learn to understand the nature and importance of evidence. The ability to bring together research and practice is arguably the mark of a professional." Higher Education Institution, England

In the United States, a number of different partnerships have come together over the years to establish new, hybrid institutions, guided for example by the principles of the Holmes Group and the Standards for Professional Development Schools (PDS), with a strong focus on preparing teachers for work in urban schools with students from diverse backgrounds. Drawing on the teaching hospital model, PDS schools were developed as sites for both pre-service and in-service professional learning, where 'practice-based and practice-sensitive research can be carried out collaboratively by teachers, teacher educators, and researchers' (Darling-Hammond, 2006, p. 162).

Similarly, the Teachers for a New Era (TNE) initiative (Carnegie Corporation, 2001) focused on the use of research evidence to inform its programme design and on 'the alignment of key ideas and goals across coursework and clinical work' (Hammerness, 2006: 1244). As well as influencing developments in Scotland, the US model of clinical preparation and practice has also served as an important guide for the two-year Master of Teaching (MTeach) recently developed by the University of Melbourne.

A similar emphasis on integrated and embedded professional learning is evident in the Netherlands, where there has been a shift over recent decades away from traditional university-based programmes towards more integrated programmes based on 'realistic' or 'authentic' approaches to teacher education. In line with developments elsewhere, the Dutch reforms have been driven by the need to provide more adequate preparation for classroom realities, in response to the widely recognised problem of 'reality shock' experienced by beginning teachers. In the Netherlands, clinical practice is undertaken in special 'opleidingscholen' (training schools) linked to universities, with additional resources for coaching teachers and a commitment to providing appropriately graduated learning opportunities. In each type of higher education institution,¹⁶ teacher educators use a range of tools and techniques (including video-clips, role-plays and relevant research findings) to foster and facilitate students' learning and early professional development. The programme as a whole is therefore designed to create a more integrated set of learning experiences, which can offer a secure basis for continued professional learning. Thus, while there is no single or universal 'Dutch approach to teacher education', there is nevertheless 'a common framework and shared vision of teaching and learning', which is informed and inspired by extensive research into effective professional and student learning (Hammerness et al, 2012, p. 52).

In many ways, Finland can be seen as an entire integrated system in which teachers are regarded as researchers. As discussed in section 2, the Finnish system of initial teacher education includes schools which are specially designated and appropriately staffed as training schools, operating in partnership with universities. As in the Professional Development School programmes in the US, Finnish teacher training schools also pursue research and development roles in collaboration with university departments. Although there have been no specific Finnish initiatives to achieve more effective integration of university- and school-based contributions and no increases in beginning teachers' time in school, the coherence of the entire education system and its emphasis on the

research training and orientation of all prospective teachers, means that its approach is characterised by many key features of 'research-informed clinical practice'.

What is the contribution of research to clinical practice?

Research has been used to inform and inspire the development of 'clinical practice' programmes in each of the ways defined in the Introduction. First, research-based knowledge from a range of disciplines, including psychological research about the processes of professional learning, has been used to inform both the *content* and the *design* of clinical-based programmes, looking to find ways of integrating knowledge from different sources in the most effective ways (for example in the Oxford Internship Scheme, where the two elements of course work and 'clinical' practice ran in parallel, in a carefully sequenced pattern of activity). As Burn and Mutton (2013) observe, one of the distinguishing features of integrated programmes of ITE is that beginning teachers are supported to use insights from educational research which are most relevant to practice in their own particular contexts, and to bring those to bear on their decisions and actions as they begin to practice (Hagger and McIntyre, 2000). Thus, beginning teachers are trained and supported to adopt research-informed instructional practices, rather than merely imitating experienced teachers or proceeding through trial and error.

BOX 7: SELECTED VIEWS ON THE IMPORTANCE OF CRITICAL REFLECTION AND 'TEACHER AS INQUIRER'

"The strong research base to initial teacher education and early career development (through Masters level credits for research projects on the PGCE) enables student teachers and early career teachers to become critically reflective of their practice. Practice informed by research enables trainees to develop critical perspectives which go beyond instrumental objectives. This diversifies their professional learning experiences, combining pedagogical theories to real context placement and practice thus forming a mind-set of 'teacher as inquirer'. This offers sustained engagement with complex issues and progression routes for teacher education rather than a shopping list of short courses." Teacher Educator, England

Furthermore, many such programmes have deliberately taken what is described as an 'inquiry stance' (Cochran-Smith and Lytle, 2009), seeking to use the methods and thinking of enquiry-based teaching and learning to evaluate the impact of their teaching and promote continuous improvement in their schools. As discussed, a range of tools and techniques have been

used to facilitate learning (as illustrated, for example, in the US programmes and in the Netherlands), including simulations and case studies, as well as data from different sources. In this way, beginning teachers are equipped with the capacity for critical reflection in partnership with colleagues and mentors, again drawing on the evidence from their own enquiry and from wider research, rather than simply engaging in 'reflective practice' on the basis of their own subjective perceptions and personal experience (McIntyre, 1993).

What is the impact of 'research-informed clinical practice'?

In the Netherlands, tightly focused longitudinal studies within their 'realistic' ITE programmes have generated evidence about the effectiveness of specific features in supporting new teachers' conceptual development and classroom competence. Research indicates that a number of features were particularly effective, notably the alternation of student teaching and college coursework, the close cooperation of school- and university-based teacher educators and the careful graduation in the complexity of teaching demands.

Research on the effects of clinically-based programmes in the UK has tended to focus rather more on the contribution of the internship model to teachers' professional learning than on the impact on student learning and outcomes. Wide-ranging research on the Oxford internship programme, for example, has examined the effectiveness of particular mentoring strategies, different aspects of partnership working and the nature of interns' progression over the course of the year, as well as gathering views from pupils and teachers about interns' involvement in their classrooms. However, despite the perceived benefits, in the absence of systematic, quantitative analysis it is not possible to draw conclusions about the programme's impact on student learning outcomes.

US research on clinical experiences has been larger in scale, but still relatively limited when it comes to the relationship between ITE and pupil outcomes. While much of the existing research has simply examined teachers and trainees' *perceptions* of the learning process, there are nonetheless some potentially important lessons to learn from these studies. Burn and Mutton (2013) summarise the existing evidence in the following claims:

- 1 Clinical experience has a positive effect on beginning teachers' learning since they are better able to integrate theoretical and practical knowledge,

resulting in greater confidence in that learning (Hammerness et al, 2005).

- 2 There is some evidence that clinical preparation is a factor in determining teacher effectiveness (Boyd et al. 2008; Darling-Hammond et al, 2002).
- 3 Research suggests that graduates of programmes with a greater emphasis on clinical practice are better prepared for their first teaching post (Clift and Brady, 2005), but importantly it is the *quality* of the clinical experience that matters. Simply extending the amount of time spent by trainee teachers in the classroom is not associated with improved outcomes (Grossman, 2010).
- 4 Finally, graduates of programmes in which school-based practice is 'interlaced' with university coursework have been shown to have 'increased confidence, are more effective teachers and are increasingly committed to teaching as a long-term career' (Darling-Hammond and Bransford, 2005: 411, cited in Burn and Mutton, 2013).

To address the limitations of existing research, Burn and Mutton (2013) call for further research to examine the impact of programmes based on the principles of 'research-informed clinical practice', particularly into the effects of such programmes on student outcomes. Nevertheless, the authors add a note of caution, warning that the inherent challenges must be clearly acknowledged. As research from the Oxford Internship Scheme highlights, it is important to appreciate the variability of interns' experiences, even within a single small-scale, collaboratively planned programme (Carney and Hagger, 1996; Jubeh, 1997; Burn, 2006, cited in Burn and Mutton, 2013). On top of the usual difficulties of establishing causal relationships, the inevitable variety between schools means that robust claims of effectiveness are difficult to establish even at the programme level, while the range of programmes within large and diverse systems such as the UK and USA makes system-wide claims even more uncertain in these contexts.

5. The Contribution of Research to Teachers' Continuing Professional Development

INQUIRY PAPER 5: *THE CONTRIBUTION OF RESEARCH TO TEACHERS' CONTINUING PROFESSIONAL LEARNING AND DEVELOPMENT*

Philippa Cordingley

For this Inquiry, Cordingley (2013) examines the key ways in which teachers engage in and with research as part of continuing professional development (CPD),¹⁷ drawing together the findings from a series of systematic reviews which have synthesised evidence from hundreds of research studies into the components of effective CPD and the impact on teachers' professional learning and student outcomes. This body of research reveals a clear and consistent set of findings about the characteristics of effective professional learning activities, which encompass a mixture of specialist and collaborative coaching, collaborative enquiry, action research, teacher conferencing and research lesson study and 'joint practice development' (Hargreaves, 2012). Although labels vary (and not all are always illuminating),¹⁸ the list of effective CPD activities themselves represent a coherent set of practices which are closely related to or inspired by research methods and processes, and which are explicitly informed by internal and external research evidence.

First is **the use of specialist advisors and external experts** by schools and teachers to help them identify strategies or techniques that address their particular issues and concerns. By making use of external expertise (typically drawn from professional colleagues who sit outside day-to-day routines, the immediate school environment and accountability systems), teachers gain access to a much broader range of knowledge reflecting the wider research evidence than is available in any single school or staff room. As we might expect, reviews demonstrate that the use of external experts is no guarantee of success, their usefulness depending above all on the pedagogical content knowledge of specialist advisors (Timperley et al, 2007). But the overall effectiveness of such support is attributed to their objective viewpoint and broader knowledge base, which allows for the prevailing orthodoxies and 'taken for granted' beliefs and assumptions within the school culture to be challenged.

Second, successful professional learning is characterised by **collaborative enquiry and structured peer support**, especially the use of professional dialogue and reciprocal risk-taking as ways of opening up teachers' thinking and exposing them to new ideas and forms of practice. Importantly, professional conversations that are merely supportive without being challenging, and which entail simply reflecting on current practice without reference to data or evidence from a range of different sources, are not associated with improved student outcomes (Cordingley et al, 2005a, 2007). To be effective, collaborative enquiry needs to be based upon robust analysis and critical review, in an environment that encourages experimentation and reciprocal risk-taking, and thus helps teachers resist the irresistible 'pull of the status quo' (Desforges, 2003).

BOX 8: SELECTED VIEWS ON THE IMPORTANCE OF COLLABORATIVE RESEARCH PARTNERSHIPS

"I see significant potential for the wider development of collaborative work with schools in the form of research partnerships involving collaboration on curriculum development and action research projects."
Teacher Educator, England

Interestingly, taking part in collaborative enquiry and CPD with their colleagues has been shown to be as effective for conscripts (those required to attend) as for enthusiastic volunteers (Timperley et al, 2007; Cordingley et al, 2007 and Bell et al, 2010). However it is initiated, the process of working with a professional partner to tackle problems, review progress and offer continued moral support appears to be an effective catalyst for ownership of professional learning (Cordingley, 2013).

Third, through engaging in collaborative enquiry, teachers have a chance to explore **why things do and don't work** in similar and different contexts, gaining a better understanding of the underpinning rationale for key approaches and about the nature of their pupils' learning. This combination of research-related skills and research-based knowledge, theoretical frameworks and practical experience appears to be crucial, because teachers need an understanding of the principles and rationale behind different types of practice (knowing why it works and what might work, rather than simply *what works*) in order to learn from successful interventions elsewhere and apply those lessons to their own teaching (Cartwright and Hardie, 2012).

Fourth, research highlights how evidence from different sources, including pupils' own experiences and perceptions of teachers' practice, enables teachers

to look again at their own beliefs and assumptions, **challenging prevailing discourses**, particularly around low expectations of students, as well as prompting teachers to review and revise how they teach particular curricula most effectively (Timperley et al, 2007).

Fifth, the reviews point to the importance of **'learning how to learn from looking'** – that is, knowing how to use classroom observation and school 'learning walks' to focus on learning process for pupils, to examine teachers' sense of ambition or aspiration for their pupils, as well as seeking to make explicit the underpinning principles that guide teachers' practice, asking for further information and clarification rather than taking surface features for granted. As Cordingley (2013) highlights, this type of 'observation for learning' is fundamentally different from a monitoring or regulatory inspection. As Cordingley further observes, for teachers to benefit fully from this type of observation and peer review, they need to draw upon certain research skills, such as the careful articulation of research questions or problems, the selection of a sample (for example, of pupils to focus upon in early experiments), as well as designing data collection tools and observation frameworks.

How such activities are structured and organised is critical for their success. All of the research indicates that enquiry-oriented learning is not a quick fix, but needs to be sustained over time to ensure that learning (for both teachers and pupils) actually takes place. Although the time needed will depend on the specific context or setting in question, significant improvements in student outcomes typically depend upon a sustained period of teacher engagement, for example over a minimum of two terms or for at least one year (Timperley et al, 2007; Cordingley, 2013).

The role of leaders and senior managers in the school and wider system is particularly important here in helping to create the right conditions for effective professional

BOX 9: SELECTED VIEWS ON THE IMPORTANCE OF TRUST AND AUTONOMY IN TEACHING AND RESEARCH ENGAGEMENT

"Having been a teacher, a teacher educator, a researcher and an academic I can appreciate the different perspectives on this issue. It is only since becoming a teacher educator that I have been able to escape 'being done to' in relation to CPD. I have been able to extend the extent of my engagement with research, and have found the space to make my research legitimate and valuable. All teachers should have this space, and the trust, autonomy and respect to manage it appropriately."
Teacher Educator, England

learning to take place. Effective continuing professional development clearly depends on teachers having time to engage, as well as active support and encouragement to do so – active engagement in peer review and collaborative enquiry being most effective when it is established as a ‘normal’ and routine part of school life rather than a one-off or exceptional activity.

What is the impact of continuing professional development on student outcomes?

As summarised here, the use of research-based knowledge, theoretical insights and involvement in research processes all feature strongly in the evidence about professional development and in the selection and use of tools and techniques to aid teachers’ learning. The contribution of research to professional learning and development is potentially highly significant, given that the effect sizes for the activities described here range from .24 to .84, with the biggest effect sizes for enquiry-oriented learning. As emphasised by Cordingley (2013), the promotion and modelling of professional learning by school leaders has a powerful role in facilitating and shaping enquiry-oriented learning, which is associated with the greatest gains for pupils’ learning and educational outcomes.

What is the impact of research engagement at different stages of teachers’ working lives?

According to Cordingley (2013), the research literature on effective CPD does not identify differences in the benefits of using research to promote professional development at different stages of teachers’ working lives. It is worth noting, however, that wider studies have identified a number of ‘life phases’ across teachers’ professional careers, which are associated with particular concerns and challenges, and which suggest the need to give differentiated support to teachers at different stages: for example, giving appropriate support to beginning teachers, depending on their prior experience and background; helping mid-career teachers to navigate the watershed in professional development that typically occurs after 8-15 years of teaching; and helping to sustain motivation for older teachers (Day et al, 2006). Further research is therefore needed to examine whether

practitioner engagement in and with research has distinctive features or benefits at different stages.

How far does current provision meet the requirements of effective continuing professional development?

In terms of current provision, Cordingley (2013) observes that not all schools in England currently facilitate the key elements of effective continuing professional development for teachers at all career stages. Under the present system, outstanding schools are far more likely to do so (though not all will necessarily achieve this), whereas other schools typically invest their time and energy in the early years of practice or when teachers are struggling to meet pupils’ needs. However, rather than attributing success or failure in this matter simply to the schools themselves, it is perhaps more useful to review how far different education systems are able to provide effective forms of professional learning throughout teachers’ professional careers.

BOX 11: SELECTED VIEWS ON CURRENT PROVISION FOR CPD

“CPD in England has been in a state of decline for a number of years. Successive governments have reduced the funding for it whilst increasing the level of prescription in its content. The majority of easily accessible CPD for teachers is now more concerned with ‘delivery’ of Government approved approaches to teaching and learning, rather than CPD in its broadest sense, which would enable teachers to pursue their own interests and needs through research based activities”.
Higher Education Institution, England

Finally, as Cordingley (2013) observes, far from offering a continuum of professional learning, as recommended in much of the literature, opportunities to *learn from looking* through regular, structured peer observations appear to be much more prevalent at the early stages of teachers’ career than for more experienced teachers. Trainees and newly qualified teachers are expected, and often entitled, to carry out observations of experienced teachers. But this is not an expectation of those who have completed their induction year. Beyond this point, teachers may continue to be observed, and those who progress to middle and senior leadership positions take on responsibility for observing staff, but the focus of such activity is generally more about monitoring practice than observation for learning (Cordingley, 2013).

BOX 10: SELECTED VIEWS ON THE CURRENT ROLE OF RESEARCH IN CPD

“Research has very little role in CPD. I have taken to asking at various seminars and in staff rooms ‘what specific research influences you as a teacher?’ The most frequent answer is ‘None that I can think of.’”
Teacher Educator, England

6. Building Collective Capacity for Improvement at a School and System Level

INQUIRY PAPER 6: *TEACHER QUALITY AND SCHOOL IMPROVEMENT: WHAT IS THE ROLE OF RESEARCH?*
Monica Mincu

For this Inquiry, Mincu (2013) investigates the contribution of research to improving teaching quality and hence enhancing learning outcomes for students. Drawing on the international research literature on teacher effectiveness and school improvement, Mincu makes three key arguments about the contribution of research: first, teachers matter and schools make the most difference for lower-achieving students, who are disproportionately from deprived backgrounds; second, teachers and school leaders are at the heart of school improvement and that building the capacity of teachers and leaders is vital; and third, research has come centre stage as a pillar of the school improvement. In what follows, we provide an overview of the three main arguments, before concluding by asking how far current UK provision meets the requirements of school and system improvement.

The importance of high quality teaching and teacher education

It is now widely accepted that teachers are the most important school-level influence on student attainment.¹⁹ High quality teaching is particularly important for lower attaining pupils, who disproportionately come from disadvantaged family backgrounds, with fewer material and intellectual resources to draw on than their more advantaged peers. Thus, it matters more which teacher a child receives in schools in areas of high deprivation than in schools in more affluent areas (Nye et al, p.254, in Hattie, 2009, p.109). Wiliam (2013) reports that the most effective teachers are at least five times as effective as the least effective. Thus improving teacher effectiveness has become a hot topic for education policy-makers around the world.

Research has also identified the key characteristics of effective teaching including: pedagogical content knowledge; curriculum coverage; the judicious mixture of whole class teaching, group work and personalised learning; continuous and comprehensive assessment of pupil learning, combined with feedback about what has been achieved and what needs to be learned next; and promoting and extending meta-cognitive skills (or 'learning how to learn') (OECD, 2012; Hopkins, 2013).

It can be inferred that possessing a wide range of instructional techniques and assessment strategies, together with updating one's subject knowledge, requires teachers to have a good knowledge of the research literature on teaching and learning. Indeed, a number of studies (for example, Ko and Sammons, 2012; Cordingley and Mitchell, 2013; Earl and Timperley, 2008; Earl and Katz, 2006) suggest that the use of research is a characteristic of high quality teaching.

Furthermore, teachers can make an important contribution to improving teaching and learning through internal and external processes: internally, by working within their subject departments and contributing to the wider school culture; and externally, by making links with their counterparts in other institutions. Teachers and schools operate within local and national systems which in turn can promote or constrain improvement.

Teachers and school leaders at the heart of school improvement

A new vision of change as a top-down, bottom-up and outside-inside dynamic has informed recent large-scale school improvement projects in Alberta, as well as emphasising the centrality of the school context as it exists. This model of change, improvement and transformation draws on the premise that actors from inside can greatly benefit from resources, input and actors from outside. Collaboration, networking and partnership with external institutions and experts helps to drive school improvement, such that the infusion of, and the internal professional stimulation provided by, externally-sourced expert knowledge empowers a hitherto disempowered teaching community.

These 'outside' inputs might take the form of accountability measures, such as the introduction of a school inspection regime, and/or a range of more overtly supportive measures, for instance peer-to-peer based partnerships with other schools, advisory support from a local authority or input from a university department of education. On the one hand, inspections have a useful role to play in identifying weaker or failing schools and their need for support (see Sammons, 2007), and a 'poor' inspection can be a catalyst internally and externally in leveraging this support, but critics contend that inspection itself is a crude tool and that its usefulness is fairly limited to certain situations. On the other hand, a wide range of public and private actors can provide external support. This may take the form of peer-to-peer interaction between district leaders, school leaders, departmental heads or recently qualified teachers or it may involve interaction between departmental leaders, school leaders and district leaders or advisers on a more hierarchical or consultative basis.

Furthermore, Mincu (2013) highlights the importance of achieving the right balance between building the capacity of the teaching workforce, on the one hand, and enforcing accountability mechanisms such as inspection and regulation, on the other. Accountability mechanisms tend to be more dominant in lower-performing education systems. In countries deemed 'good' and 'great', the average proportion of professional learning and accountability activities was 78% and 22% respectively. Thus, what is needed is a paradigm shift, moving away from punitive or regulatory measures towards more supportive, capacity building initiatives. As described by one teacher in the Alberta Initiative (AIS), it means replacing 'a chain of command' with a 'chain of trust' between managers and professional colleagues.

The role of research as a pillar of the school improvement

Evaluations of successful and highly improved school systems highlight the contribution of research at a school and system level. As Mincu (2013) observes, the argument put forward in the 1970s by Stenhouse still has resonance today: the idea that educational practice can be improved if teachers are actively engaged in the joint investigation of problems relating to pupils' learning and in developing local solutions. Such ideas have been taken up, for example in the widely influential movement for Professional Development Schools in the USA, based on the use of school data and academic research to create 'data-rich' and 'research-rich' environments, involving self-evaluation at a teacher and school level, and the collective engagement of teachers and students as action researchers and enquirers. In Ontario, schools and districts were encouraged to use data and action research to guide their own improvement plans, informed by specially commissioned 'what works' papers by universities and external evaluations of the main provincial strategies. It is important to stress the use of 'outsiders' in this process – encouraging schools and teachers to move beyond interrogating data as an end in itself to exploring possible explanations and interventions. Meanwhile, in the Alberta Initiative, teachers and principals were trained to act as coordinators at different levels, collecting and disseminating research-based practices, planning meetings and workshops for schools and partners to share knowledge and promoting ongoing collaboration with universities and other external partners.

As these examples illustrate, practitioner engagement in and with research contributes to successful school improvement in a variety of ways: through the sharing of information about effective practice; by involving practitioners in the testing of new ideas and in the design, delivery and monitoring of interventions. Furthermore, as Mincu argues, involving teachers in collaborative processes of enquiry and peer review can

be an indispensable way of securing teachers' morale and sense of professionalism and fuelling whole school improvement processes that heavily depend on human and social capital. However, building individual and collective capacity for enquiry-oriented practice depends on the time and resources being available for teachers to explore options and to plan, trial and reflect on practice together, which may require additional funding and organisational provision. It also requires a national commitment to such an approach, reflected in teachers' terms and conditions of employment. Such measures are in place in Boston, Japan and Finland, where teachers are given release time for joint planning and analysis of teaching practices (Mourshed et al, 2010).

Conclusion: How far does current UK provision meet the requirements of school and system improvement?

Compared with the high-performing systems reviewed above, the situation in all the constituent parts of the UK seems to offer a much more fragmented and piecemeal approach to the use of research and professional learning (Cordingley, 2013) although recent developments in Scotland should be noted (see Chapter 1). While there are examples of promising large-scale interventions, such as the London Challenge, rolling these out across the UK is problematic in the absence of a co-ordinated strategy and with more constrained resources in the current context.

As outlined in Box 12, respondents to the Inquiry's Call for Submissions identified a number of barriers to practitioner engagement in research, the most common of which were lack of time, capacity and commitment due to heavy workloads and pressure to meet the demands of accountability.

BOX 12: SELECTED RESPONSES ON THE MAIN BARRIERS TO RESEARCH ENGAGEMENT

What do you think are the main barriers faced by teachers when it comes to (a) engaging with research evidence and (b) undertaking their own research?

"Obvious barriers are lack of time and difficulties with access to research. Teaching is a demanding and time consuming job and teachers often report feeling guilty about finding time to read research when they should be getting on with the 'real work' of preparing for classes or marking." General Teaching Council Scotland

"Conflicting demands on school leaders in terms of improving standards at the same time as trying to balance school budgets can also be an issue. Whilst they might appreciate the potential benefits of involvement in research for their staff, these may be over-ridden by the more pressing demands of test and examination performance targets and tables and/or securing sufficient staff for the school to be able to operate." Teaching Union, UK-wide

Conclusions

KEY FINDINGS ABOUT EFFECTIVE TEACHING AND PROFESSIONAL LEARNING:

- International comparative analysis highlights the importance of a common set of practices and approaches to teaching and professional learning among top-performing and most improving school systems.
- Key features of effective teaching include a strong focus on subject matter and pedagogical content knowledge, as well as the capacity to diagnose problems quickly and accurately and draw from a wide repertoire of instructional techniques to identify the most appropriate solution.
- Key features of effective professional learning include engaging in collaborative enquiry, peer review and observation, so that teachers can explore why things do and don't work, using data and information from different sources (including feedback from colleagues and specialist advice outside the school), as well as engaging in disciplined innovation to test new ideas and evaluate the impact on teaching and learning.

THE ROLE OF RESEARCH IN EFFECTIVE TEACHING AND PROFESSIONAL LEARNING:

- Thus, there is strong evidence that teachers and teacher educators need to engage with research, in the sense of keeping up to date with the latest developments in their academic subject or subjects and with developments in the discipline of education – i.e. having relevant knowledge of the latest educational research from a range of disciplines, including evidence on effective instructional techniques to inform their pedagogical content knowledge.
- There is also strong evidence that teachers and teacher educators need to be equipped to engage *in* enquiry-oriented practice – i.e. having the capacity, motivation and opportunity to use research-related skills to investigate what is working well and what isn't fully effective in their own practice. Using data from a number of different sources teachers can identify problems together with interventions which are likely to lead to improvements.
- For teachers to benefit fully from this type of observation and enquiry, they need to draw upon certain research skills, such as the careful articulation of research questions or problems, selection of a sample (for example, of pupils to focus upon in investigations), as well as designing data collection tools and frameworks to record and classify their observations. Teachers also need to be 'research literate', in the sense of knowing how to read

and interpret findings from research and knowing how much weight to accord evidence from different sources.

- There is also good evidence from high-performing education systems to show that this type of careful, deliberate, *clinical practice* requires *clinical preparation*, through carefully designed and structured programmes of initial teacher education, which allow trainee teachers to integrate knowledge from academic study and research with practical experience in the school and classroom, based on a clear understanding of the rationale behind different types of approach so that they understand *why* different ways of working are more effective than others in their particular setting and context.
- Research shows that the focus on clinical practice then needs to be sustained throughout teachers' professional careers, so that disciplined innovation and collaborative enquiry are embedded within the school culture and become the normal way of teaching and learning, rather than the exception. Thus an enquiry-based school system is the hallmark of high performing countries.

IMPLICATIONS FOR TEACHER EDUCATION IN THE UK:

- At present, there are pockets of excellent practice in teacher education in different parts of the UK, including some established models and some innovative new programmes based on the model of 'research-informed clinical practice'. However, in each of the four nations there is not yet a coherent and systematic approach to professional learning from the beginning of teacher training and sustained throughout teachers' working lives.
- Although there has been a strong focus on the use of data to inform teaching and instruction over the past 20 years, there now needs to be a sustained emphasis on creating 'research-rich' and 'evidence-rich' (rather than simply 'data-rich') schools and classrooms. Teachers need to be equipped to interrogate data and evidence from different sources, rather than just describing the data or trends in attainment.
- The priority for all stakeholders (Government, national agencies, schools, universities and teachers' organisations) should be to work together to create a national strategy for teacher education and professional learning that reflects the principles of 'research-informed clinical practice'. Rather than privileging one type of institutional approach, these principles should be applied to all institutional settings and organisations where teacher education and professional learning takes place.
- Further consideration needs to be given to the best ways of developing such a strategy, in consultation with all the relevant partners.

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Notes

- 1 Perhaps unsurprisingly, the pressure to improve school performance has been particularly intense in those places where aggregate pupil attainment in standardised tests has been lower than other nations (or lower than expected in the countries concerned – see Spencer et al, 2013 for an account of the reforms triggered in Germany by the ‘shock’ of the PISA 2000 results). Although questions have been raised about the accuracy of such tests as measures of educational performance (and indeed about the reliability of presuming a causal connection between investment in education and increased economic growth), there is nevertheless wide recognition across Europe and the OECD of the need to learn from the best performing systems and build capacity to support increasingly diverse student populations (FIER, 2009; OECD, 2013).
- 2 Although questions have been raised about the accuracy of such tests as measures of educational performance (and indeed about the reliability of presuming a causal connection between investment in education and increased economic growth), there is nevertheless wide recognition across Europe and the OECD of the need to learn from the best performing systems and build capacity to support increasingly diverse student populations (Toom et al, 2010). Ironically, given the widespread external interest in the reasons for its success, Finland is one notable exception to the general picture, in that its leading educational figures have publicly rejected the fixation on comparative performance data and on adopting managerialist responses to perceived educational problems (Sahlberg, 2013).
- 3 Nevertheless, there are some dissenting voices, notably amongst those who emphasise the importance of understanding the *learning* processes for students and the interaction between teachers, students and their peers rather than simply focusing on ‘teaching quality’ in isolation; and also amongst those who continue to challenge the fixation on school-level processes, highlighting the importance of understanding and addressing the wider context.
- 4 Throughout this report we refer to programmes for the pre-service preparation of teachers as *initial teacher education* (ITE) rather than *initial teacher training* (ITT), recognising that the former is widely associated with a broader range of professional knowledge, awareness and understanding (Tomlinson, 1995), while the latter is sometimes associated with a view of teaching as ‘performing a set of mechanical tasks’ (Stephens et al, 2004). The terms ‘trainee’ and ‘student teacher’ are used interchangeably, to refer to those following different kinds of ITE programme. Following Hobson et al (2009), the term ‘beginning teacher’ is used more broadly to relate to the whole period from ITE to the end of the fourth year of teaching (inclusive), which includes the period of induction for newly qualified teachers (NQTs). Programmes of in-service training are described throughout as ‘continuing professional development’ (CPD).
- 5 For example, the large-scale Teaching and Learning Research programme (TLRP), centrally funded and spanning nearly a decade (2000-2009) involved researchers working closely with practitioners (and in some cases, learners) in a variety of learning environments on a large number of teaching and learning projects.
- 6 The full report of the BERA-UCET Working Group on Education, *Research Prospects for Education Research in Education Departments in Higher Education Institutions in the UK* was published in January 2012.
- 7 Of course, although policy divergence has increased since political devolution in the late 1990s (especially in the case of England and Wales, which for many years were broadly similar), Scotland has had autonomy in most aspects of education policy for three centuries since the Act of Union (1707).
- 8 Although the Open University is currently operating in all parts of the UK, it has recently announced that its provision of teacher education is to close.
- 9 In England in 2010/11, pre-service teacher education for approximately 37,300 entrants was supplied by 227 providers including 74 HEIs (the vast majority of which were University Education Departments), working with their partnership schools, 55 SCITTS and 98 EBITT programmes (some of which had tiny numbers of students, for example one EBITT with only one student).
- 10 In 2010/11, nearly four-fifths of new recruits were recorded as entering university programmes, with 16.6% in EBITTs and 4.6% in SCITTS (Smithers & Robinson 2012, cited in Beauchamp et al, 2013). At the time of writing, it is not possible to quantify the number and type of providers accurately for the current academic year 2013/14.
- 11 These include Standards for Registration (SFR) – Provisional (ITE) and Full Registration (end of induction) and Career Long Professional Learning (SCLPL).

- 12 Please note that although eight responses to the Inquiry were from UK-wide organisations (including Northern Ireland), there were no responses received offering specific comments on the situation in Northern Ireland.
- 13 The revised Teachers' Standards in England define the minimum level of practice expected of trainees and teachers from the point of being awarded Qualified Teacher Status (QTS). As stated in the document, the standards 'need to be applied as appropriate to the role and context within which a trainee or teacher is practising'. Thus, ITT providers should assess trainee teachers against the standards according to 'what could reasonably be expected of a trainee teacher prior to the award of QTS', while headteachers (or appraisers) need to assess teachers' performance against the standards at a level consistent with their role and relevant stage of their career (DfE 2013, p. 3).
- 14 In Singapore, the teacher education degree programmes have been revised three times, most recently in 2005 in response to new ideas about teacher education from international trends and to meet changing demands of the education system.
- 15 Please see Winch et al, 2013 for a full list of references.
- 16 There is a distinction in the Netherlands between research universities (such as those in Utrecht and Leiden) that are involved in teacher education for higher level secondary and pre-university teaching, and universities for the applied sciences (such as the Amsterdam School of Education) involved in preparing teachers for primary, lower secondary and vocational education (Burn and Mutton, 2013).
- 17 Cordingley (2013) herself uses the term 'continuing professional development and learning' (CPDL) to capture all forms of professional learning, both formal programmes of continuing professional development, which typically occur in specially planned sessions and activities, and the informal processes of professional learning that happen on a daily basis as part of teachers' professional lives.
- 18 See Department of Education (2013) Review of Evidence-based teaching, which is critical of some of this language and terminology.
- 19 Please see Mincu (2013) for a list of references.

Appendix

FURTHER INFORMATION ABOUT THE BERA-RSA INQUIRY ON RESEARCH AND TEACHER EDUCATION

STEERING GROUP

The Inquiry Steering Group is comprised of:

- Professor John Furlong, University of Oxford – Chair of the Inquiry
- Professor Ian Menter, University of Oxford
- Professor Pamela Munn, University of Edinburgh
- Professor Geoff Whitty, University of Bath
- Joe Hallgarten, RSA Director of Education
- Nick Johnson, BERA Executive Director

The Inquiry Special Advisors are: Graham Donaldson, Dr Carmel Gallagher, Sir Alasdair Macdonald, Lord David Puttnam and Sir Alan Steer. The Secretariat is comprised of Dr Louise Bamfield and Selina Nwulu from the RSA.

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The Inquiry Reference Group is comprised as follows:

- John Craig, Higher Education Academy
- James Noble Rogers, Universities Council for the Education of Teachers (UCET)
- Darren Northcott, National Association of Schoolmasters/ Union of Women Teachers (NASUWT)
- Karen Robinson, National Union of Teachers (NUT)
- Hank Roberts, Association of Teachers and Lecturers (ATL)
- Peter Kent, Association of School and College Leaders (ASCL)
- Carmel Gallagher, General Teaching Council for Northern Ireland.
- Karen Evans, General Teaching Council for Wales
- Ken Muir, General Teaching Council for Scotland
- Anthony Finn, former General Teaching Council for Scotland
- Greg Wade, Universities UK
- Bob Burgess, Teacher Education Advisory Group
- Bob Davies, Scottish Teacher Education Committee
- Matthew Martin, College of Teachers
- Tom Middlehurst, Schools Network (SSAT)
- David Weston, Teacher Development Trust
- Deirbhile Nic Craith, Standing Conference on Teacher Education North and South
- Linda Evans, British Educational Leadership, Management and Administration Society (BELMAS)
- Harry Torrance and Ellie Johnson-Searle, Academy of Social Sciences
- Dennis Hayes, Standing Committee for the Education and Training of Teachers

BACKGROUND PAPERS

All the background papers referred to in this report have been published in full on the BERA website. Please go to www.bera.ac.uk

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