Education Research and Educational Practice: The Qualities of a Close Relationship

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Abstract

The relationship between education practice and education research has a long history. In modern times, education practice and its relation to education research has been central to debates about the nature and quality of education as an academic discipline in universities. This paper reports an empirical study that investigated a new instantiation of the practice-theory debates – 'close-to-practice' research in education. The research, a) sought to define and further articulate the concept of close-to-practice research, and b) provide reflections on the quality of close-to-practice research. The orientation of the work reported in the paper is informed by theory on traditions of knowledge in the organisation of education that have contributed to the development of education as an academic discipline.

The main section of the paper reports the findings of the empirical study. The research design was a rapid-evidence-assessment (REA), and a series of interviews with education researchers whose experiences were highly relevant to understanding of close-to-practice research issues. The conclusions of the research are reported in relation to how close-to-practice research might be defined, including in relation to quality, but also implications for education as a discipline in universities subject to nation-wide assessments of quality.

Introduction

Debates about the links between practice, theory, knowledge and education can be traced back to Ancient Greece. In Plato's *Republic*, concepts of justice, truth and reason underpinned the practical suggestion that education should prepare the guardians of the ideal city through an education where music and gymnastics would be central. Plato and Aristotle articulated an important distinction between two kinds of knowledge: technical reason and practical reason. Plato described *technē* as the kind of craft knowledge required for the applied tasks of making things, such as carpentry or building (somewhat complicated by some overlap with the concept of *episteme*, another kind of 'knowledge'). But it was Aristotle who established an important distinction between technē and *phronēsis* (Dunne, 1997), the kind of knowledge required, for example, by professional people whose work includes praxis in public spaces, and hence knowledge that was more heterogeneous and contingent on interaction with other people than technē. As Greek society

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continued to develop there were further debates about the knowledge that should be central to education. For example, although Socrates had advocated the non-didactic teaching of fundamental values, the Sophists favoured value-neutral teaching of skills, (Preus, 1997). The ancient Greeks had established not only the importance of education, and of technical and practical reason, but also distinctions between practice and theory. The place of education in the history of human society is testament to its importance as an area of human thinking and development. However the formal establishment of education as an academic discipline in universities was not to happen until the 20th century.

This paper reports an empirical study that investigated a new instantiation of the theory-practice debates – 'close-to-practice' research in education, and the quality of this research. The study sought to, a) define and further articulate the new concept of 'close-to-practice research' (CtP) and, b) provide reflections on the quality of close-to-practice research. The orientation of the work reported in the paper is informed by theory on traditions of knowledge that have contributed to the development of education as an academic discipline. The next section of the paper introduces the origins of the term CtP, and also highlights another source of data about education as a discipline: the UK's Research Excellence Framework (REF). Having given an account of the methodology of the study, he findings from the Rapid Evidence Assessment (REA) and from the set of interviews are reported. The conclusions of the research focus on how close-to-practice research might be defined, including in relation to quality, but also implications for education as a discipline in universities subject to nation-wide assessments of quality.

Education, research and practice

It has been argued that three main clusters of traditions of knowledge have been part of the development of education as a discipline in universities:

Cluster 1. Academic knowledge traditions - those traditions that foreground academic knowledge. Academic knowledge traditions include the idea of education as a discipline in universities built on the 'founding subjects' of philosophy, history, sociology and psychology.

Cluster 2. Practical knowledge traditions - based primarily in the world of practice: this includes the ideas behind competences and standards, and ideas that are part of networked professional knowledge.

Cluster 3. Integrated knowledge traditions - those traditions that explicitly attempt to bring academic and practical knowledge into some kind of relationship with each other. Examples of Integrated knowledge traditions include "practitioner enquiry/action research" (Whitty and Furlong, 2017).

An example given of an academic knowledge tradition is the development of education in Germany, where education in universities was established earlier than many other parts of the world. It is suggested that "German educational

theory has not been concerned with influencing the world of practice in a direct way; its concerns historically have been primarily philosophical and ultimately moral … with most researchers focusing on what Stokes (1997) would characterise as 'pure basic research.'" (Whitty and Furlong, 2017). But German educational theory can also be linked with an 'integrated knowledge tradition'. The important concepts of *Didaktik* and *Bildung* have been fundamental to thinking in Germany since the emergence of public schooling in the fifteenth century (Hillen, Sturm & Willberg, 2011). Hudson (2016) has argued that *Didaktik* places the professionally autonomous teacher at the heart of the learning process and provides a frame for teachers to ask questions about their professional practice. The roots of Didaktik in Germany lie therefore not only in the origins of public schooling but also in hermeneutics. Hence, Didaktik could perhaps be seen as related to *two* traditions of knowledge: academic knowledge traditions deriving from Didaktik's roots in German hermeneutics but also practical knowledge traditions reflecting autonomous teachers making decisions in relation to curriculum derived from their selections of knowledge embedded in their conceptions or beliefs about education. As Whitty and Furlong acknowledge, the clusters of traditions are a heuristic rather than strictly categorical.

In the UK, education as an academic discipline has been described as being

> built on an enduring but unstable pragmatic compromise, a compromise between theory and practice, between knowing that and knowing how, in the commitment of the academy to make both an intellectual and a practical contribution to the advancement of the field. (Furlong, 2013, p. 5)

From the 1980s onwards two traditions in particular characterised the pragmatic compromise in education – *practitioner inquiry* and *action research*. Practitioner inquiry was the more diverse tradition. In the UK the most well-known example of practitioner enquiry was the teacher-as-researcher movement typified by the work of Lawrence Stenhouse and John Elliott however other trends, such as those related to work on the social construction of knowledge, were part of practitioner inquiry in the UK as Rosemary Webb's account showed (Webb, 1990). In the USA, diversity also characterised practitioner inquiry, noted in various trends: for example teacher-research in teacher education; the development of theories of teacher research; the development of critiques of teacher research; and the potential of teacher research to influence some aspects of university culture (Cochrane-Smith and Lytle, 1999). The influence of Stenhouse was also seen in the seminal text from the US, *Reclaiming the Classrooms: Teacher Research as an Agency for* Change (Goswami and Stillman, 1983), which noted that,

Over the past few years, an alternative research tradition has been evolving in this country. It goes by various names: 'teacher research,' 'classroom inquiry,' 'naturalistic research', action research,'. The notion of teachers as researchers can probably be traced to the influence of Lawrence Stenhouse and his successors in the United Kingdom. (*op. cit.* Preface, no page number) Action research has had a longer tradition than practitioner enquiry, dating

back in particular to a paper by Kurt Lewin in 1946. The main focus of Lewin's work was how groups interact, in particular the interactions of minority and majority groups, or "Intergroup Relations" the subject of the 1946 paper. In view of the many different interpretations of action research it is worth reminding ourselves of some of Lewin's ideas from the time. The key quotation where the phrase action research was first used by Lewin is this:

> The research needed for social practice can best be characterized as research for social management or social engineering. It is a type of action-research, a comparative research on the conditions and effects of various forms of social action, and research leading to social action. (Lewin, 1946, p.35)

Lewin made the point that action research need not be any less 'scientific' than "pure science in the field of social events." At the same time, for those engaging in action research, objectivity and generalizability are not always the principal research attributes of value (Kock, 2005). Instead action research has been valued for its transformational potential, since it can enable those who wish to enhance their own circumstances to learn how to generate knowledge that is seen as relevant, and that can be applied to improve their actions and the impact these actions have on others (Wood *et al.,* 2019). As a result, action research has been described as both democratizing and political as it can be used to challenge both existing social norms and the structures that perpetuate inequalities (Cain and Harris, 2013; Whitehead, 2019; Wood *et al.,* 2019). It has also been recognised that the democratizing impact of action research can potentially be lost the more it is adapted and distorted to fit within traditional understandings of academic research and change processes (Whitehead, 2019). And while practitioner inquiry at the current time seems to have a more uncertain place in education research the growth in the influence of Action Research globally is evidenced in an increased number of publications and conferences. These include the Collaborative Action Research Network (CARN), Action Research Action Learning Association (ALARA), Action Research Network of the Americas (ARNA), and Network Educational Action Research Ireland (NEARI) as well as in Action Research Journals and International Handbooks of Action Research (Whitehead, 2019).

The research-practice issues that have been part of education's development as an academic discipline in universities have also been part of some policy debates and initiatives. In countries such as Australia, Netherlands, Norway, Canada and the USA education policy has focused strongly on promoting better links between research and practice (Coldwell *et al.* 2017; Whitty and Wisby, 2017). In these kinds of policy developments the issues of close-to-practice are bound up with the idea of research/practice partnerships (Malik, 2016). For example in Ontario the Knowledge Network for Applied Education Research (KNAER)[1] was established through a tri-partite agreement among the University of Toronto, Western University and the Ontario Ministry of Education. The aim of KNAER was to advance and apply robust evidence of

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[1] (http://www.edu.gov.on.ca/eng/research/knowledge.html)

effective practices through facilitating networks of educators and researchers to work collaboratively, to apply research to practice. Likewise, the Ontario Education Research Panel was established to facilitate discussion and collaboration among Ontario's school boards, faculties of education, and researchers, relating to opportunities for, and impediments to, the advancement of research and the potential for future partnerships (Malik, 2016). Similar are the notion of research-practice partnerships in the US. Here partnership approaches are viewed as 'long-term collaborations, which are organized to investigate problems of practice and generate solutions for improving district outcomes' (Coburn *et al.,* 2013: online).

The Close-to-Practice Research Project

A historically new variation of the theory-practice debate, and one that links with the status of education as a discipline, is the idea of 'close to practice' (CtP) research. One of the outcomes of the research reported in this paper was to offer a new definition: *Close-to-practice research focuses on issues defined by practitioners as relevant to their practice, and involves collaboration between people whose main expertise is in research, in educational practice, or both.* As will be seen, towards the end of the paper, the focus of the project on quality in CtP research also resulted in an additional definition, of quality in CtP research.

Close-to-practice research as a term can be traced to Cooke's (2005) exploration of Research Capacity Building (RCB) in relation to policy and practice in health services (and in particular how RCB could be measured more effectively). Cooke described the importance of practitioners building their research skills, with the aim of creating added value for research; a phenomenon that she described as "RCB close to practice" (Cooke, 2005, p.3). Hence, the notion of close-to-practice research is relatively well developed in the health sector where, like education, research informs professional practice. In the health sector, efforts to base research on problems in practice include building practitioners' research skills (Cooke 2005); practitioners commissioning research, or co-producing it with researchers (Frankham, 2009); and enhancing the value of research for decision-making by setting priorities with practitioners and service users (Chalmers et al. 2014). These efforts focus on research that is 'close to the coal face'; whether it is small scale or large scale, conducted by individual teams or institutional partnerships, and conducted independently or supported by a national infrastructure (Cooke 2005).

More recently, and more specifically in relation to education research, the UK's Research Excellence Assessment (RAE) and now Research Excellence Framework (REF) has addressed the issue of practice-focused research. The REF plays an important role in measuring research quality in all universities and in all academic disciplines in the UK. One element within the REF is the scoring of research outputs on a scale from 1* to 4*, with 4* equating to research that is deemed to be world-leading in quality. In the REF 2014 exercise (the last to be held at the time of writing), although the proportion of research outputs in education judged to be world-leading broadly matched

those of other social science 'units of assessment' (subjects or fields as defined within the REF), there were a significantly higher proportion of lower-graded outputs (that is, 2*, 1* and unclassified) in education than in others. Furthermore, of all units of assessment, education submitted the lowest proportion of higher education institution staff to the REF (as indicated by Higher Education Statistics Agency returns). The funding formula for research does not attribute funding to universities (Quality-Related (QR) research) for work rated as less than 3*, although the value of such outputs is acknowledged in the quality descriptors of the REF.

The report from the education panel in the 2014 exercise drew attention to areas of relative strength and weakness in education research. On practice-focused research, for example, the panel made the following observations.

> There were many examples of practice-focused research, the best of which drew on social scientific theory, method or both. Some of these were world-leading, particularly those featuring co-production or close collaboration between learners, teachers and researchers. Weaker outputs were often descriptive and were judged to be of modest originality, significance and rigour. Such research is a very important form of professional activity in the development of self-improving education systems but is, by its very nature, contextually variable. (HEFCE, 2015, p.109)

A more specific reference to close to practice in education in the REF education panel report noted that "Some studies, close to practice, lacked originality, significance and rigour" (underline added. Higher Education Funding Council, 2015, p. 195) and "Less strong research in the submission was often the small-scale professional research or action research which was frequently insufficiently theorised to make a contribution to knowledge and/or was low in rigour with poor use of statistical data or inappropriately selective reporting of qualitative data." (p. 107)

The importance of the issues in relation to practice, research, education and its scholars, and in relation to education as an academic discipline, was reflected in responses to the REF education panel report. The spring 2015 issue of the BERA's *Research Intelligence* magazine carried articles on the 2014 REF which included comments about the quality of CtP research (Pollard, 2015). BERA's responses also had their origins in previous work, for example the BERA–RSA inquiry that reported in 2013 that addressed research and teacher education (see Tatto & Furlong, 2015, for an editorial introduction to the papers that emerged from that project).

As a result of the history of debates, including those that were present at BERA's inception and that have recurred periodically (e.g. see Tatto and Furlong, 2015; Pollard, 2015), but also in relation to the issues identified in the REF report, The *BERA Close to Practice (CtP) Research Project* was commissioned by BERA to address the overarching research question: How can high quality CtP research be characterised and enhanced for UK education?

Methodology

The following account is a succinct outline of the methodology of the CtP research project – a lengthier account can be found in the project report. [2] To address the overarching research question two main elements were undertaken:

1. A rapid evidence assessment (REA) of published research papers that focussed on two areas:

    a. CtP methodology studies - research overview papers and systematic reviews of research that focussed mainly on methodological aspects of CtP research;
    b. CtP education studies – research papers reporting findings of education research that was close to practice.

2. Interviews with UK-based people with relevant knowledge and experience in relation to CtP research, in order to explore its value, complexities, qualities, and the potential for building capacity within the UK.

Phase 1: Rapid evidence assessment

The REA focussed on a term, CtP research, that was relatively new to the discipline of education, and that as a concept is very broad. As a result the REA had to break new ground at each stage of the process. Unlike more conventional systematic reviews that, for example, consider the evidence in relation to a tightly defined topic, such as the effectiveness of teaching methods in a specific subject area, the REA built its own definition for the concept that was an explicit focus of the investigation: CtP research. Furthermore, the research had to address methodology, and the study of methodology, as one of the ways to understand how CtP research was and might be defined. This focus on methodology was at first different from the use of methodology as a measure of the robustness of research findings, a use that is the norm in the ways that systematic reviews consider the research methods of the studies under their consideration. The overall process of the REA is illustrated in diagrammatic form in Figure 2.

The initial stage of the REA (1.a.) began with the identification of types of CtP research using published reviews of relevant studies. A purposive search to link one seminal document/study per type, and systematic reviews relevant to each type, was undertaken. For those types where there was no systematic review, key publications that included thorough reviews of relevant literature were considered. EPPI-Reviewer software (Thomas, Brunton and Graziosi, 2010) was used to manage all review data and to facilitate analysis throughout all stages of the REA.

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[2] The BERA CtP research project report can be found here:
https://www.bera.ac.uk/project/close-to-practice-research-project

For the second stage of the REA (1b) a systematic search by keywords was conducted (see appendix 1 for search strategy and terms). An electronic search of the British Education Index (BEI) initially identified 1,343 potentially relevant titles/abstracts. For reasons of time it was necessary to focus in on one of the types for the more in-depth work that would ultimately include reading of full publications and assessing their research quality. Findings that emerged from the interviewing process, and the ongoing work of the team with the steering group, revealed that *action research* was a particularly notable tradition related to how CtP research was perceived in general in the UK. Of the titles/abstracts within the action research in education studies subset, 155 had been published in peer-reviewed journals.

An additional search was carried out, within a selection of sources that it was anticipated would be rich in school-subject-focussed studies, which it was felt may not have been captured sufficiently by the more general search strategies. These were academic journals that were thought likely to specialise in one or more types of CtP research, and to include school-subject-focussed research among their articles. 115 sources were identified through this additional search. The journals searched were: *Educational Researcher*, *Reflective Practitioner*, *Literacy*, *Education 3-13, English in Education, Research Papers in Education*, and *Research in Mathematics Education.*

The output of the searches was inspected for CtP studies, categorised as classroom or subject practices, teaching or assessment practices, or teacher training. This selection resulted in 47 potentially relevant action research studies. These 47 studies were examined for two different purposes: a) to analyse CtP studies from any context (28 studies); b) to examine close-to-practice studies based in the UK (17 studies). Of those 17 articles/reports, five were ultimately excluded by the research team because they did not report implementation of CtP research as an empirical research project.

This part of the REA resulted in the selection of 12 UK-oriented studies that were subject to full text review. Information was extracted from the 12 articles based on four questions proposed by the steering group:

- What kinds of practices have been investigated in CtP research?
- What questions about these practices have been investigated?
- What kinds of claims have been advanced, and outcomes achieved?
- What theoretical tools have been drawn upon?

Having reviewed the four questions above in relation to the 12 UK-oriented studies the REA moved to its final phase: the assessment of quality. This final part of the REA involved assessing the quality of research in a selection of articles/reports that fitted the definition of CtP research established in phase 1a of the REA. The research team returned to the 28 articles, in order to have a set larger than the 12 UK-oriented studies, to consider questions of quality. The reports were allocated to one member of the research team to be reviewed for originality, significance and rigour, and to give an overall

judgement of 'low', 'medium' or 'high' research quality. All reviewers had expertise in REF reviewing processes and judgements.

Phase 2: Interviewing experts in CtP research

In consultation with the BERA steering group for this project, three types of interviewee were agreed to be important.

1. People who work and write in a CtP research tradition, and would have something to say on its value and complexities.
2. People who might have insights into the structural difficulties in the field that impact on capacity building.
3. People whose roles give them insight into the quality of CtP research.

These roles were used as the basis for recruiting the interviewees described in table 1.

The interview consisted of six questions that sought the opinion and thoughts of interviewees about the following dimensions of CtP research:

- definition of CtP research
- identification of traditions/types of CtP research
- factors that could determine and enhance quality criteria for CtP research
- comparison between experiences in different nations of the UK
- the role of CtP research in different phases of education and educational settings
- ways in which BERA could support the development of CtP research.

A total of seven semi-structured interviews, one with each interviewee, were conducted between March and April 2018.

The research project as a whole was subject to the university ethics review process and adopted BERA's research ethics guidelines. All interviewees gave informed consent, and received the schedule of the interview in advance. Interviews were undertaken using Skype or phone, or in-person. Digital recordings were transcribed in full by a professional transcriber. The duration of the interviews had an average duration of 40 minutes.

Analysis was conducted using QSR International's NVivo 10 qualitative data analysis software. A thematic approach to coding was adopted. Coding focussed on identifying the main and most recurrent themes in the different dimensions proposed in the interview schedule, as well as identifying other topics that were considered relevant and of interest in relation to the research questions. Interview data was then coded using NVivo 'nodes'. Each node reflected answers from different respondents to a particular theme. Likewise, node hierarchies were created in order to illustrate the relationships between topics and to differentiate between general themes (parent nodes) and more specific sub-themes (child nodes). These nodes and hierarchies are shown in figure 1, and table 2 provides a brief description for each node.

Findings

REA of CtP methodology studies (phase 1a)

Sixteen different types of CtP research were initially identified, which were then reduced to ten categories for the purpose of the first analyses (see Table 3 for categories and their definitions) As can be seen in table 3 seven articles were categorised as 'evidence-informed policy and practice', six as 'design-based research', six as 'knowledge mobilisation/exchange/transfer/K', and five as 'action research' (the same research document could be included in more than one category). Those studies categorised as 'evidence-informed policy and practice' did not refer to specific methodological approaches; in these studies emphasis was placed in general on the relevance of conducting practices and developing policies based on evidence from research.

On reviewing the selected articles the research team differentiated between those methodological approaches that were well-established, and the more incipient approaches. Action research was the most well-established approach in the UK, with origins dating back to mid-20th century. By contrast, examples of CtP research areas that had recently emerged included research learning communities and knowledge mobilisation.

As part of the work defining CtP research the following key characteristics were noted across nearly all CtP methodology studies that were reviewed:

- an emphasis on the cyclic and dynamic iterative process of research and its application;
- an emphasis on the relevance of practitioners reflecting on their practices;
- close collaboration and/or a strong relationship between academics and practitioners;
- an emphasis on solving specific problems identified by practitioners, or communities identified by practitioners, or other users of research;
- seeking to make an impact on practice, and sometimes to make a contribution to the theory and methodology;
- the need for an effective and supportive learning environment in order to engage in research and build capacity in research use.

Some common difficulties and challenges were also identified.

- In contrast with the normal activities of a professional (teachers' work, for example), doing research detracted from the time available for what was perceived to be core work;
- financial resources were required to create partnerships between practitioners and researchers;
- time was required for practitioners to acquire expertise in research methods, and for researchers to understand the contexts of practice;

- the transfer of research skills and knowledge from the trained practitioners to the rest of the actors involved in the organisation. As a result, CtP interventions relied on particular individuals to support the development of knowledge and skills.

None of the CtP methodology studies that were located as part of the search specifically addressed the research of academics with responsibilities for initial teacher education (ITE). This may have reflected a lack of scholarship focused on teacher education/training, that was relevant to our research questions, in spite of the important links between education practice and education research undertaken in universities.

REA of CtP education studies (phase 1b)

The initial results of the BEI search of the CtP education studies (1,343 titles and abstracts) were ultimately reduced to full papers of 12 CtP research studies originating in the UK (consistent with the aims of the research commission). Table 4 presents a summary of the levels within the education system, and the subjects/disciplines, that were addressed in each of the 12 studies. No study focussed on early years education. Six of the studies focussed on school subjects such as maths, English or science, while the other six focussed on wider issues.

The most common types of focuses in the UK CtP studies (using action research methodology) were those concerned with school teacher development in order to produce knowledge about the nature of teaching and learning processes, and/or to develop effective teaching strategies that could help students' learning (see table 5). For instance, Cain, Holmes, Larrett and Mattock (2007) focussed on how action research could help trainee teachers to reflect about different dimensions of their practice such as behaviour management, monitoring and assessing, and pupil-centred education. Gibbs et al (2017) looked at the ways in which action research had been used in higher education both to improve diverse aspects of teaching practice and to promote students' engagement.

Judging the quality of CtP research

The final stage of the REA was a review of the research quality of 28 studies. Table 6 shows the frequencies of quality categories that were applied by members of the research team to these studies.

The six studies categorised by the research team as high-quality all featured practitioner-focussed CtP problems: the studies were Hourigan and O'Donoghue (2015); Lamberg and Middleton (2009); McDonnell and Curtis (2014); Ostinelli (2016); Piggot-Irvine, Rowe and Ferkins (2015); and Slavin (2008). Only one of these (McDonnell and Curtis, 2014) was UK-oriented research. Effective, appropriate and explicit use was made of the chosen research design, for example multiple cycles of action and research. The research typically included clear theoretical framing. The studies made explicit

the original contribution to knowledge and to an aspect of practice, and demonstrated robust use of methodology.

Eleven studies were categorised as 'medium quality' CtP research. In general, these articles provided more detail about their analyses and methodologies than low-quality studies. However, small sample sizes were not sufficiently enhanced through greater theorisation. Accounts of methods of data analysis were not comprehensive enough. Analysis was often of insufficient depth, findings were often too descriptive, and hence overall the studies lacked explanatory power.

Eleven studies were categorised as 'low quality' CtP research. In most cases, articles were found to be low-quality because of a combination of most the following factors:

- findings that were too descriptive
- research that was under-theorised
- small-scale of the study not offset by depth of analysis and/or theorisation
- lack of detail in the description of the methodology and methods of the study.

Findings, phase 2: Perceptions of CtP research in the UK

Some features of the high-quality CtP outputs identified in the REA were also reflected in some of the positive observations by the interviewees about CtP research. However, the interviewees recognised significant challenges facing those who undertake CtP research. The weight of comments about the challenges of CtP research reflected the aim of the interview phase, which was to explore such challenges.

The relevance of CtP research in education

CtP research was perceived by interviewees as an important type of research in education mainly because of its impact and applicability, and the opportunities it offers to connect theory and practice in order to develop richer understandings of educational issues in practice, but also at a policy level.

Kim: *'... and I think that it is about that really strong reporting of the contextual issues that are prevailing within that close-to-practice arena, because that's the bit I think that brings the richness that those researchers that are not working in the close practice field miss.'*

High-quality CtP research was seen by the interviewees as research that focussed on issues that are important for practitioners, providing them with tools to better understand their problems, and to find solutions to improve their practice and promote meaningful change. It was argued that CtP researchers recognise 'usefulness' and 'practicality', but in the best cases also know how theory can be applied in a particular context in order to help broaden understanding about practice (theory in the every-day sense, or perhaps in

the sense intended by Aristotle in relation to professionals in a public space). Although interviewees argued that the practice–policy relationship is complex, they pointed out that policy, research and practice are often concerned with the same problems, and CtP research is a relevant way to connect and contextualise theory and policy. It was reported that CtP research can contribute to the articulation of 'that space in relation to policy research and practice' (Kim).

While reflecting on the definition of CtP research that emerged during the course of the project, most interviewees pointed out that there was a distinction between what is considered 'academic research' and research conducted within school settings by practitioners. Four respondents conceptualised the latter as 'practitioner inquiry'. According to the interviewees one of the main elements that differentiates academic research and practitioner inquiry is the role of academic theory, which can enable generalisation across cases. It was acknowledged that the main purpose of academic research is a contribution to knowledge, while practitioner enquiry is linked to more practical aims, which are specific to particular education contexts.

Some respondents noted that the use of a strong theoretical framework to support and enable the generalisation of findings is a fundamental feature of rigorous research. Related to the role of theory was the view that a robust methodological framework that supports confidence in research findings, and therefore allows more acceptance of the generalisation of the research findings, was necessary.

Some of the interviewees saw academic research and practitioner enquiry as two ends of a continuum: on one side, practitioner inquiry which is more concerned with practical and contingent issues, and therefore usually based on small samples sizes or short-term interventions, or both. At the other end of the continuum is academic research, which seeks to contribute to knowledge.

Aida: *'But if it is going to be called research then ... the primary objective is to improve knowledge which may then be applied to the improvement of practice and policy, but its primary aim is knowledge itself ... For enquiry I think the primary aim is a more direct improvement [of practice].'*

Mike: *'I'm not sure that practitioners are particularly interested in originality and significance... certainly in the way that we would define them – they're more concerned about... How can this help my practice? How can this help us to make this a better school? How can we get better outcomes for the children?'*

However, the simple idea of a continuum from academic research to practitioner enquiry was complicated by perceptions that strong CtP research included features of academic research, such as robust theory and methodology. When these are present, more comprehensive and complex

understanding of practical outcomes, *and* a contribution to knowledge, was deemed to be possible.

Kim pointed out that the distinction between academic research and practitioner research involved an 'identity shift'. From the practitioners' side it was necessary to 'learn a completely different language' in terms of theory and methodology. We would add, for the researchers it requires sufficient understanding of how the context of practice might challenge the researcher's world-view.

Conceptualisation of knowledge and what counts as research

Some critical views arose in the course of the interviews regarding the role of the REF in establishing criteria for quality. All interviewees regarded the REF as the main driver for development of research within universities in the UK, particularly as at the time of the research the next REF review deadline was due in 2021. Not only was it felt that REF criteria were increasingly defining what 'good' research is, but interviewees also suggested that the REF was having an impact on choice of research topics, research methodologies and types of research publications that were regarded as desirable. An argument was made by some interviewees that the REF was narrowing what counts as research, and also entrenching the division between practitioner research and academic research. Furthermore, some interviewees felt that in this division there was a deficit model of CtP research, which it was predicted would typically attract lower star ratings in REF scoring.

There was recognition that each research output is assessed by the REF reviewers according to its merits in relation to a specific field of enquiry, but never-the-less that the association between 1* REF outputs and practitioner research was felt to be present. However, some interviewees appeared to have a misconception about 'what counts' in the REF – for example, that high-scoring REF outputs are only published in 'certain kind[s] of journals' with particular impact factors. The REF education panel reviewers are required to judge outputs on their merits in relation to the criteria of originality, significance and rigour, not in relation to general metrics such as journal impact factors and status, however it is possible that these such metrics may have some influence on reviewers' judgements.

An interesting point made by Mike was about the change over time, possibly influenced by REF, to how school-based research is conceptualised within universities. He mentioned that the work he was conducting as an academic in collaboration with a school was being defined by his university as 'consultancy', not as research. He highlighted how the role of academics in practitioners' research had changed, so that what was once considered school-based research was today conceptualised as consultancy.

Other interviewees added a critical view about the distinction between researcher and practitioner activities, arguing for a more collaborative and horizontal partnership in which both partners contribute relevant knowledge.

Val: *'I'm particularly interested in how knowledge is created and translated within different communities, and my view is that actually they're [researchers and practitioners] both practice communities ... So the idea that one is and one isn't [research] is misleading, … they're different practices which intersect.'*

Related to the distinction between academic research and practitioner enquiry, most interviewees acknowledged that CtP research is usually undermined through comparison with other research.

Aida: *'But you know unfortunately I think the word 'research' has a certain kudos around it, which possibly 'inquiry' lacks ... and of course nobody wants to be told that they're not doing research, that they're 'only' doing inquiry, if you put it you know in a pejorative way like that.'*

Quality criteria in CtP research

One issue that was widely agreed upon was that the size of the sample, and the scale of the research, were important considerations in relation to the quality of research. The respondents signalled that the small size and scale of CtP research had been identified as an issue for the quality of this type of research. However, most agreed that sample and scale were not *necessarily* an obstacle to producing relevant and high-quality research, because the ability to link theory and practice could enhance the quality of research sufficiently to compensate for or address concerns about a small sample size and/or scale. Most interviewees agreed that CtP research was perceived typically as small scale, with small sample sizes, and as consisting of analysis that was usually not explicitly related to or supported by theoretical frameworks. This was linked to a perception that CtP research was more focused on seeking to provide a response to a practical problem. The interviewees recognised that practitioners have a rich knowledge of the contextual issues and cultural aspects of research sites. However, they may not know how to interpret the data using a robust theoretical framework, and the consequent research reports and papers could be descriptive and under-theorised.

Another feature related to quality criteria was the methodological rigour of the research. One of the difficulties that experienced academics mentioned was that practitioners struggled to identify the problem in research terms, and therefore the purpose and questions that would guide the research. Interviewees recognised that practitioners are often not familiarised with the variety of research tools available, and therefore have difficulties in selecting the most appropriate tools according to the purpose of the research. Relating research tools to theory was also seen as a challenge.

Val: *'There's no reason why close-to-practice research can't be rigorous in its methodology, there is no reason that you can't analyse that data, you know, with a rigour of a theoretical underpinning and a good theoretical framework*

for analysis. So it's almost again the lack of understanding of how you bring the theory and practice together.'

With regard to methodology, a 'positivist quantitative approach' was mentioned several times as a referent, but it was also recognised that this was not the only way to do relevant and high-quality research. Different interviewees argued that researchers must choose a theoretical and methodological approach that is relevant for the research purposes and questions, and they should report the reasons why they have chosen this approach, as well as its contribution to the research process and outcomes. Being transparent about methodology, it was felt, adds to the quality of the research.

Val: *'And... I always think that the qualitative equivalent to statistical analysis is transparency and replicability. You know you've got to be completely transparent about what you did, why you did it, how you did it, so that someone else can see – they can't run it through SPSS, but what they can do is say, "Right well I don't think that was a very good decision", or "Because you decided that, that happened".'*

Other relevant aspects concerned conducting a robust literature review to support the arguments presented in a publication, as well as in providing a detailed contextualisation of the practice being studied. Some interviewees mentioned the importance of being rigorous in defining the terms of the 'approaches'. One of the problems in CtP research is blurred methodological boundaries and lack of understanding of what different methodological approaches require – something that can undermine the quality of CtP research. For instance, Val pointed out that different terms are used in CtP research in education that describe essentially the same method, and that similarly different terminologies are 'nest[ed] within each other'.

Discussion and Conclusions

As a result of undertaking the research project, and further thinking as a result of the dissemination and engagement activities, we concluded that CtP research could usefully be defined as follows:

> *Close-to-practice research focuses on issues defined by practitioners as relevant to their practice, and involves collaboration between people whose main expertise is in research, in educational practice, or both.*

The research also enabled us to propose a definition of *high quality* in CtP.

> *High quality in CtP research requires the robust use of research design, theory and methods to address clearly defined research questions, through an iterative process of research and application that includes reflections on practice, research, and context.*

High-quality CtP research has the intrinsic benefits of the applicability to 'problems' in practice; the relevance to connections between practice and

policy; and, crucially, the potential for rigorously linking theory with practice in new ways – a link that, however, is insufficiently established in some CtP research, as we discuss below.

One overarching theme that linked the REA with the interviews arose through testing the definition of CtP research that had been established in the REA phase. Interviewees tended to regard CtP research as research undertaken by practitioners in schools and other education settings. It was less common for interviewees to refer explicitly to research undertaken by practitioners employed in universities, for example those whose main work was in teacher training. This perhaps reflected considerable uncertainty about the nature of practice and of research in relation to teacher-training roles. Those whose work involves teacher-training are frequently closer to practice than other academics, in many cases, literally as a result of recently moving from school employment to university employment, but quickly come under pressure to adopt the conventions of research such as those emerging as a result of the REF.

With regard to academic disciplines, the most important aspect of any research is the extent to which it makes an original contribution to knowledge. There were examples of high-quality CtP research that made a significant original contribution and also, crucially, explicitly identified the original contribution to knowledge that they offered. One important factor in a study's originality is the extent and rigour of the review of relevant studies in the field presented in its literature review. Weaker CtP research fails to survey previous research in sufficient depth, so is unable to provide sufficient warrant of an original contribution.

The best CtP research gives a full and rigorous account of whichever methodology has been selected. Fundamental aspects of chosen research designs are in place: for example, the strong presence of theory *and* empirical data (qualitative and/or quantitative). In weaker CtP research, methodology is not explained in sufficient depth. One methodological aspect that is frequently neglected is a sufficiently rigorous account of data analysis processes, particularly where research is qualitative. There is a need for a more explicit focus on methodology in much CtP research. In addition to enhancing the quality of CtP research papers, a more explicit focus on methodology is necessary to ensure that CtP research outcomes have relevance beyond the local if the work is to get the recognition that processes such as REF endow. This movement from more local relevance to national and international relevance will be achieved through greater understanding of quality in both empirical studies and in studies with conceptual or theoretical emphases. Wider relevance is necessary to make the outcomes of CtP research more likely to be judged by academic peer-reviewers as high quality.

The ultimate consideration for research is its significance and impact. The previous points made about originality and rigour are also relevant to research significance. If research is not of sufficient quality in general, it is not going to be deemed rigorous or significant, and therefore is unlikely to have positive impacts. Although the scale of research is very much a methodological

aspect, it also has a clear influence on the likelihood of the research being significant in and to its field. The strongest CtP research offered sufficient depth in its analysis and findings despite what some might regard as small sample sizes. The rigour of the theorisation was an important element of this depth of analysis. Much less common was CtP research with larger sample sizes, including quantitative analyses based on statistical probability. In the context of the more general weakness of quantitative methods in social sciences, education as a discipline needs to continue to attend to this, including supporting greater use of quantitative methods in CtP research.

In addition to their intrinsic relevance to research and scholarship, the criteria of originality, significance and rigour are used in the assessment of research outputs in the UK's Research Excellence Framework (REF). Some of our interviewees raised significant concerns about the ways in which the REF was being addressed in university settings: it was reported that the REF is negatively influencing perceptions of research that is close to practice. Part of this argument was recognition that practitioners' understandings of the purposes of research often differed from researchers' perspectives. A key distinction was between the main research purpose of making a contribution to knowledge, and the main research purpose of making a contribution to addressing a practical problem. What's more, it was recognised that CtP research can have high value – to practitioners, for example – but may not make a contribution to knowledge in an academic field. Our research leads us to the view that contribution to practice and contribution to theory are not necessarily incompatible. However, in the context of the REF – which is a significant driver for university research, and hence has a direct impact on academic staff who see their research as close-to-practice – it is important that the distinctions of research quality, and the implications of engaging with these, are understood so that appropriate strategic decisions can be made by researchers when they consider the research projects they wish to engage with.

The limitations of the research reported in this paper included the relatively short timescale for completion of both the REA and the qualitative interviews. It was necessary to limit the initial multidisciplinary search of the literature early on, and it was necessary to select one of the traditions of CtP research, action research, in order to reach the end point of the REA which was the full peer-review of research quality of the final section of texts. Analysis of some of the other dominant types of CtP research may have resulted in different conclusions although our experience more generally suggested that this was not likely to be the case. However some of the more nascent types may well yield additional findings. The small number of qualitative interviews was a limitation in relation to confirmatory findings but the purposive selection of people with particular expertise, and long careers in education, resulted in significant observations of the state of educational research.

Future research could include further comparison with other academic disciplines and the links with associated professional practice. By using the definitions of CtP and of quality in CtP it would be interesting to see the extent to which the issues are replicated in other domains of social science but also

other disciplines such as arts or natural sciences. It would be important to take account of the very different histories of different disciplines if undertaking comparison of this kind. Given that in the end the outcomes of research result in publications there is also the possibility to compare the ways in which publication processes, including peer-review, shed light on the relationships between practice and research.

The evidence from this project provides empirical evidence to support the theory that education as a discipline still reflects a 'dialogue' between theory, research and practice. This dialogue does not reflect an inherent weakness but it is still a site of contestation and development. The participants in the research highlighted the tensions that have emerged as a result of education increasingly being categorised as a 'social science', including the influence of REF criteria. This is not simply a continuation of the coherence-of-the-discipline problem, it is perhaps a distinct shift engendered by stronger national and supra-national control of research quality, through mechanisms like the REF, in line with other socio-political moves to control the work of professionals.

Data availability statement
Research data are not shared.

Ethical guidelines
This research was reviewed through the UCL Institute of Education ethics approval process. The research was carried out taking due account of the BERA Ethical Guidelines.

Conflict of Interest
There were no conflicts of interest related to the research reported in this paper.

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Supplementary files:

Tables 1 to 6; Figures 1 & 2; Appendix 1.

Table 1 Interviewees and their expertise

Type 1. People who work and write in a CtP research tradition and would have something to say on its value and complexities	Pseudonym
Strong subject background related to secondary school teaching. Research-active. Still active in teacher training.	Alan
Strong primary education science background through teacher training. Has become research-active over a long period of time. Still active in teacher training.	Peter
Type 2. People who might have insights into the structural difficulties in the field that impact on capacity building	
Programme leader of a PGCE. Pursuing a doctorate. Insight into planning of research time for PGCE colleagues.	John
Senior researcher with research interests, and senior management expertise, in educational policy and practitioners' work. Knows Scotland's education systems very well.	Kim
Researches close-to-practice issues through professional learning.	Val
Type 3. People whose roles give them insight into the quality of CtP research	
Significant involvement in REF.	Aidan
Editor of key practice-oriented peer-reviewed education journal. Involvement in professional organisation of relevance to CtP research.	Mike

Table 2. Definitions of NVivo nodes derived from analysis of the interview data

NVivo Nodes	Definition
Definition of Close-to-Practice Research	**This node categorizes how interviewees understand Close-to-Practice research**
Relevance of Close-to-Practice research	Summarizes the positive and relevant elements of Close-to-Practice research in education
Research vs Enquiry	Refers to the distinction made by the interviewees between academic research and practitioner research
Contribution to knowledge	Main element that distinguishes research types
Applicability of research findings	The appliication of research findings to practice
Theoretical and methodological framework	Robustness of theoretical and methodological framework in research activity
Undermined research practice	general view of practitioners' research as a research practice
Quality criteria in Close-to-Practice research	**Views of interviewees about the relevant criteria to identify quality of Close-to-Practice research**
Rigorous and explicit methodology and theoretical framework	Importance of authors following rigorous methodology and theoretical framework and provide an explicit account of these in reports/papers
Reflexivity and thorough analysis	Importance of inclusion of reflexivity about the research process and findings and developed thorough analysis
According to type of research	Quality of research to be assessed according to particularities and aims of Close-to-Practice research
Sample size and scale of research	Sample size and scale of Close-to-Practice research as features of this type of research, and their impact on quality of Close-to-Practice research
BERA's support to Close-to-Practice	**Interviewees' opinions about the ways in which BERA could support Close-to-Practice research in Education**
Development and support of practitioner's research skill	Relevance of enhancing practitioners' research skills
Alternative platforms to disseminate Close-to-Practice research	The need to look for varied ways - different to academic journal publications - to circulate Close-to-Practice research
Expand and validate knowledge of Close-to-Practice in the field	The need for BERA to take an active role in stressing the relevance of Close-to-Practice in education.

Table 3: Types of CtP research and areas of knowledge in documents that met the inclusion criteria in phase 1a

Type of research	Description of category	Area of knowledge		
		Education	Health	Othe
Action research/participatory action research	Research focused on actions in social situations with the aim to make changes that result in improvement of practices. At least two cycles of action and research expected.	3	2	0
Capacity building initiatives	Initiatives focused on improving the capacity of researchers to carry out high quality research.	1	1	0
Design-based research	Research focused on the improvement of practice through the collaborative design (researcher and practitioner) of an intervention which is subject to systematic evaluation as an integral part of the research.	5	1	0
Knowledge exchange/ transfer/mobilisation/K	These categories of research all seek interactive exchange of knowledge to improve policy and practice through collaboration between research users and research producers.	2	3	1
Lesson study	A practice of reflection on classroom lessons based on teachers jointly planning, observing and discussing lessons. Has origins in Japan.	3	0	0
Practitioner research	Research initiated by a practitioner, or group of practitioners, to address problems identified as part of their professional practice. Significant variations in topics, research designs and methodology. Has origins in the UK.	0	1	2
Research-informed teaching practice	An approach to educational practice informed by practitioner expertise combined with robust research evidence.	2	0	0
Research learning communities	Research learning communities (RLCs) are groups of teachers who come together to engage with research in order to enhance both their practice and also the practice of their colleagues.	1	0	0
Evidence-informed policy and practice	Systematic use of evidence, including nationally available pupil data, to inform changes in policy and/or practice.	5	2	0

Table 4: Level of education and subject focus of close-to-practice studies in the UK

Study	Level of education	Subject/discipline
Biza, Jaworski & Hemmi (2014)	Higher education	Maths
Boon (2016)	Primary education	English
Brindley & Bowker (2013)	Higher education	Ethics in school-based action research
Cain, Holmes, Larrett & Mattock (2007)	Higher education	Teaching training practices
Coates (2009)	Primary education	Science
Gibbs et al (2017)	Higher education	Higher education pedagogy and students' engagement
Grace, Rietdijk, Garrett & Griffiths (2015)	Secondary education	Science
Jaworski (1998)	Secondary education	Maths
Lofthouse, Flanagan & Wigley (2016)	Higher education	English
McDonnell and Curtis (2014)	Higher education	Assessment and feedback in higher education
Pearce (2014)	Higher education	Entrepreneurship in higher education
Wyse and Spendlove (2007)	Primary and secondary education	Creativity and creative learning

Table 5 Types of practices investigated in UK CtP studies

Study	Type of practice investigated	Research focus/objective/ questions
Biza, Jaworski & Hemmi (2014)	University mathematics education as social activity	To gain more insight into the nature of teaching and learning
Boon (2016)	Peer assessment in formative assessment	How to increase children's uptake of feedback during peer assessment in primary school writing
Brindley & Bowker (2013)	Ethics in school-based action research in the UK	Explore policy within schools regarding school-based action research ethic
Cain, Holmes, Larrett & Mattock (2007)	The ways in which action research assignments have been carried out by trainees in their practice in relation to (a) behaviour management, (b) monitoring and assessing, and (c) pupil-centred education	The efficacy of action research in encouraging self-reflection on teaching practices
Coates (2009)	Science teaching	Development of strategies that would enhance science teaching for gifted children
Gibbs et al (2017)	Teaching practice in higher education and student engagement	How action research has been used in higher education
Grace, Rietdijk, Garrett & Griffiths (2015)	Physics teaching	Explore the impact of the Action Research for Physics programme
Jaworski (1998)	Teachers researching their own mathematics teaching at secondary level	How do teachers formulate their research? What is the nature of the evolution of the teachers' research? What is the role of the project in motivating and sustaining teachers' research? In what ways does the research influence mathematics teaching: how is the nature of the subject (that is, mathematics) significant to this research?
Lofthouse, Flanagan & Wigley (2016)	Development of CPD program to meet needs of diverse communities	Develop a video coaching approach to teach English in multicultural settings

Table 6 Close-to-practice quality of 28 reviewed articles

Close-to-practice quality	Number of articles
Low	11
Medium	11
High	6
Total	**28**

Figure 1: Overview of REA

Systematic reviews
From Campbell Library, EEF, EPPI-Centre

Excluded all: with no reflection on CTP

BEI search
1,343 titles/abstracts: practitioner research (252); action research in education (204); design-based research (147); evidence-based research (135); evidence-based research AND education (123); developmental research (121); knowledge transfer research (36).

Research team drew on CtP expertise to identify:
31 seminal papers/methodological systematic reviews about CtP

Education research
155 titles/abstracts of peer-reviewed 'action research' from BEI

Excluded if not:
• CtP
• research (e.g. editorials)

Education research
115 titles/abstracts from journals or team/steering group

Review of
40 seminal papers/systematic reviews about CtP

Excluded if not:
• 2007 or later (4)
• CtP (2)
• Describing research tradition (6), or its strengths and limitations (2)

47 titles/abstracts

Excluded if not:
• CtP (19)

Excluded if not:
• UK CtP (30)

Review of
26 seminal papers/systematic reviews about CtP

Full reports of 28 CtP studies
Quality assessed for originality, significance & rigour

Full reports of UK CtP
5 maths
6 science
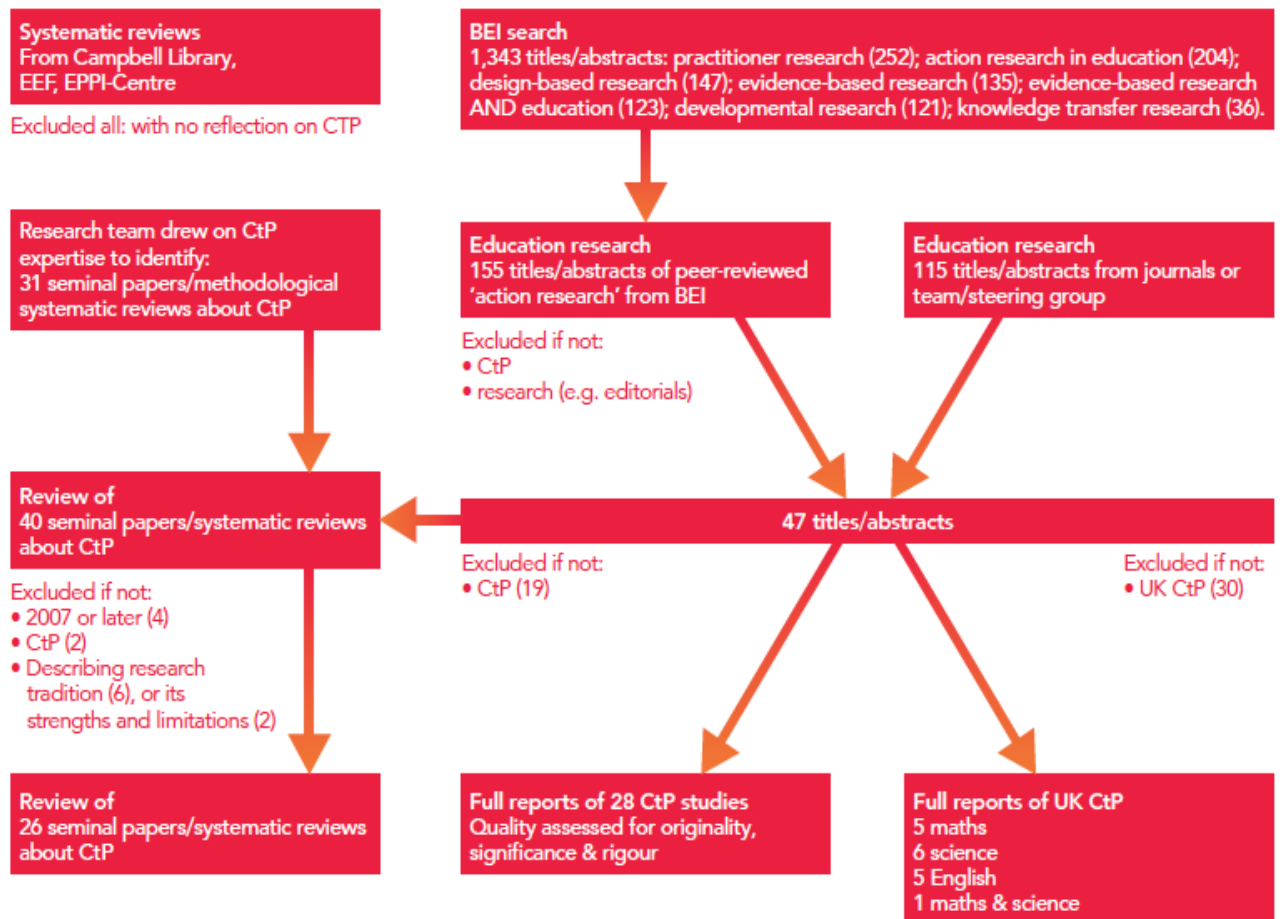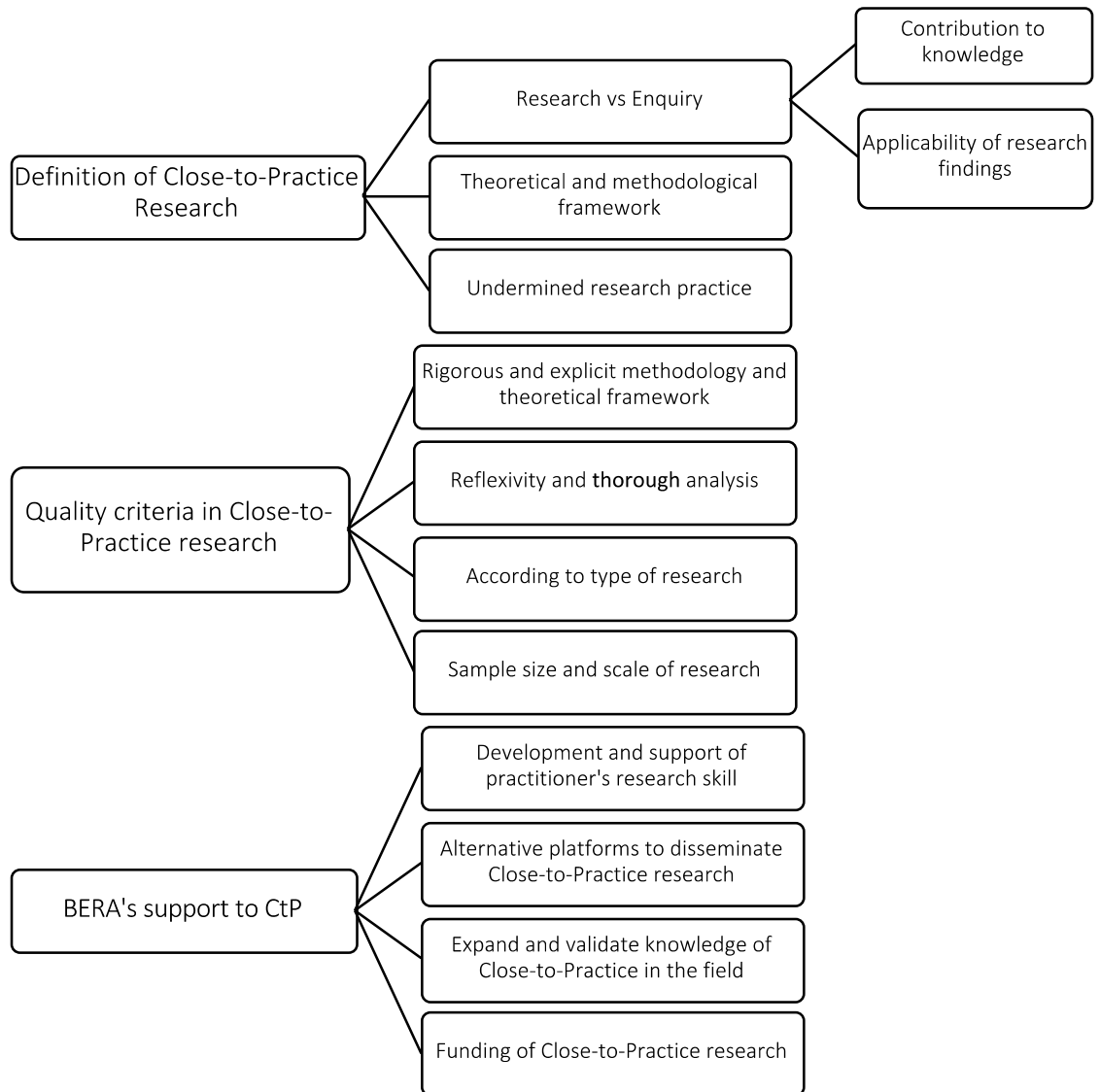5 English
1 maths & science

Figure 2: Themes/NVivo nodes derived from the interview data

Appendix 1: Search Strategy

1. Systematic Review Sources (scanned all titles)
   – Campbell Library: search date; 24/10/17 (since inception)
   – EPPI-Centre: search date 25/10/17 (since 2007)
   – Education Endowment Foundation search date 25/10/17 (since inception)

2. Electronic databases
   - *Web of Science (WoS) Core Collection (search date, 11/11/17)*

3. British Education Index (search date; 14/11/17)

4. Journals for subject based searches:
   – *Educational Researcher*
   – *Reflective Practitioner*
   – *Literacy*
   – *Education 3 to 13*
   – *English in Education*
   – *Research Papers in Education*
   – *Research in Mathematics Education.*

Electronic searches applied key terms to titles and abstracts published in English between 2007 and 2017. Typical search terms were:

   – Action Research AND Education
   – Action Research in Education
   – Action Research
   – Applied Research in Education
   – Design Based Research AND Education
   – Design Based Research in Education
   – Design-Based Research
   – Developmental research
   – Developmental Research in Education
   – Evidence based research
   – Evidence based research AND education
   – Evidence Based Research in Education
   – Knowledge transfer research
   – Participatory Action Research
   – Practitioner Research

5. Coding

Studies were included if they met at least one criterion in each of the following sets regarding the purpose, content and study design:

Purpose:
- Investigations by/with practitioners
- Investigations of the research-practice interface

- Investigations of structures (and underpinning standards) supporting Close-to-Practice Research

Study Design:
- Analysis addressing research quality by drawing on a body of literature (e.g. systematic review, critical review)
- Conceptual documents. These could be journal articles, book chapters or reports which provide theoretical overviews of the research areas
- Empirical studies in education that addressed classroom or subject practices teaching or assessment practices, or teacher training, explicitly referred to a particular Close-to-Practice tradition, without necessarily commenting on the strengths and/or limitations of the research tradition.

For seminal papers and systematic reviews:
- The study provides a definition/description of the research tradition (not just mentioning the approach used) AND
- The study indicates the knowledge areas and contexts in which it is applied AND
- The study identifies strengths and/or limitations of the research tradition.

Furthermore, exclusion criteria were defined in terms of particular content and research traditions. Studies were excluded if they:
- Investigated service learning (because such studies are designed for local learning with limited reach)
- investigated citizen science (because the core aim of such research is to accumulate knowledge about science, not about improving educational practice)

The articles were entered into the EPPI software and coded as follows:

- Authors

- Area of knowledge
  - Education
  - Health
  - Other

- Domain of Close-to-Practice research
  - Investigating research-practice interface
  - Investigating by/with practitioners
  - Addressing support for Close-to-Practice research

- Type of Close-to-Practice research
  - Action research/ participatory action research
  - Capacity building initiatives (e.g. TLRP)
  - Close-to-Practice support networks
  - Controlled trial

- o Design-based research
- o Implementation science
- o Improvement science
- o Insider research
- o Knowledge exchange/ transfer/ mobilisation/ K*
- o Lesson study
- o Practitioner research
- o Research engaged schools
- o Research schools
- o Research informed teaching practice
- o Research learning communities
- o Research use
- o Evidence-informed policy and practice
- o School improvement
- o School effectiveness
- o Systematic review
- o Transdisciplinary research
- o What works centres (e.g. EEF)

- Subject of teaching
  - o Maths
  - o Science
  - o English
  - o Humanities

- Findings
  - o Purpose of article
  - o Origins of approach
  - o Core characteristics
  - o Definition of Close-to-Practice research
  - o Quality criteria
  - o Strengths
  - o Limitations

- Level of Education

- Subject/discipline

- Close-to-Practice Tradition

- Focus of the investigation

- Close-to-Practice quality
  - o High
  - o Medium
  - o Low