

Sheffield Hallam University

Professional learning and professional careers: theory, evaluation and practice

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Professional learning and professional careers: theory, evaluation and practice

Michael Russell Coldwell

Published works submitted in partial fulfilment of the requirements of Sheffield Hallam University for the degree of Doctor of Philosophy on the Basis of Published Work

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Contents

Abstract.....	3
Critical Appraisal	4

Table 1: Published work submitted in chronological order with contribution

Ref No	Details of the Published Work	% contribution	Digital Object Identifier
R1	Simkins, T., Coldwell, M., Caillau, I., Finlayson, H., & Morgan, A. (2006). Coaching as an in-school leadership development strategy: experiences from Leading from the Middle. <i>Journal of in-service education</i> , 32(3), 321-340.	20%	http://dx.doi.org/10.1080/13674580600841901
R2	Simkins, T., Coldwell, M., Close, P., & Morgan, A. (2009). Outcomes of in-school leadership development work: a study of three NCSL programmes. <i>Educational management administration & leadership</i> , 37(1), 29-50.	25%	https://doi.org/10.1177/1741143208098163
R3	Coldwell, M., & Simkins, T. (2011). Level models of continuing professional development evaluation: A grounded review and critique. <i>Professional development in education</i> , 37(1), 143-157.	50%	http://dx.doi.org/10.1080/19415257.2010.495497
R4	Willis, B., Clague, L., & Coldwell, M. (2012) Effective PSHE education: values, purposes and future directions. <i>Pastoral Care in Education</i> , 31 (2), 99-111.	35%	http://dx.doi.org/10.1080/02643944.2012.747556
R5	Coldwell, M. (2016) Career orientations and career cultures: individual and organisational approaches to beginning teachers' careers, <i>Teachers and Teaching: Theory and Practice</i> , 22(5), 610-624.	100%	http://dx.doi.org/10.1080/13540602.2016.1158468
R6	Coldwell, M. (2017) Exploring the influence of professional development on teacher careers: A path model approach, <i>Teaching and Teacher Education</i> , 61, 189-198.	100%	http://dx.doi.org/10.1016/j.tate.2016.10.015
R7	Boylan, M., Coldwell, M., Maxwell, B., & Jordan, J. (2017) Rethinking models of professional learning as tools: a conceptual analysis to inform research and practice. <i>Professional development in education</i> , 44(1), 120-139.	30%	http://dx.doi.org/10.1080/19415257.2017.1306789
R8	Coldwell, M., & Willis, B. (2017). Tests as boundary signifiers: level 6 tests and the primary secondary divide. <i>The Curriculum Journal</i> , 28(4), 578-597.	65%	http://dx.doi.org/10.1080/09585176.2017.1330220

Abstract

This thesis uses a set of theoretically informed approaches to understand aspects of the professional careers, development and practices of teachers, addressing three questions in particular. Firstly, how can models, and other theorisations, help illuminate the influence of professional development and practice on a range of outcomes? Secondly, how can focussing on the situated nature of professional practice and initiatives improve understanding of professional learning and practices? Thirdly what new empirical research evidence can the approaches described in the first two research questions produce in relation to professional learning and wider professional practice?

It does so via a set of eight papers published over eleven years, drawing on seven mainly mixed methods studies conducted over a six year period.

In relation to the first research question, the papers use realist understandings of the social world to build a set of path and level models of professional development alongside critiques of these and other models. Additionally, they provide theoretical constructs to support understanding of professional practice, in particular boundary theory and career constructs.

In relation to the second, the papers develop a set of features of context which are missing from earlier accounts, indicating that the context for programmes and change processes can be: dynamic, rather than static; agentic, acting causally not just as a backdrop; relational, operating at different points and in concert with or against other contextual factors; historically located; complex and systemic.

Finally, relating to the third question, the papers cover a wide range of studies; however, all focus on the relationship between outcomes and change processes in situ, and in particular the various relationships between the programme or change process; individual teachers or leaders; the organisations within which they work; and wider political and other contexts. The findings link to and illuminate aspects of these relationships.

Critical Appraisal

“Essentially, all models are wrong, but some are useful” (Box & Draper, 1987)

1. Introduction

Initiatives and policies that aim to improve teacher and school leader professional learning and practice are important since a significant body of research indicates leader and teacher practices are the largest school-level influence on pupils' outcomes (for example recent reviews by Hattie, 2009; Desimone, 2009; Cordingley et al., 2015). One way of examining such policies is to evaluate the influence of initiatives on school and pupil outcomes by modelling the process via a series of steps. Significant models that do so in the professional development field are level or path models, of which the most influential are those of Kirkpatrick (1983), Guskey (1999; 2002) and Desimone (2009) as well as Leithwood and Levin (2005) in relation to school leadership influences, in particular. Other approaches include theorising the role of school and wider influences on particular aspects of professional practice including, of specific interest to this thesis, Day and Gu (2010) in relation to teacher careers; Troman (2008) in relation to assessment; and Formby (2011) in relation to PSHE education.

The body of literature exemplified above can be critiqued as under-theorising change processes and the situated nature of professional practice. The research programme represented by the papers presented for examination in this thesis addresses these issues with the following overarching aim:

To use a set of theoretically informed approaches to understand aspects of the professional careers, development and practices of teachers.

The papers do so by addressing three Research Questions:

- RQ1. How can the critique and development of models, and other theorisations, help illuminate the influence of professional development and practice on a range of outcomes?
- RQ2. How can focussing on the situated nature of professional practice and initiatives improve understanding of teacher and leader professional learning and practices?

RQ3. What new empirical research evidence can the approaches described in RQ1 and RQ2 produce in relation to teacher and leader professional learning and wider professional practice (relating to assessment, PSHE education and teacher careers)?

This critical appraisal is structured to meet the requirements of the PhD by published work at Sheffield Hallam University, which are - within 5,000 to 10,000 words - to state the aims and broad description of the research programme (this section, and section 2), to analyse its component parts (section 3) and to synthesise the works as a coherent study (section 4), drawing out the significant and independent contribution to knowledge of the research programme throughout and summarising it in sections 4 and 5.

2. Situating the research programme: my position and development as a researcher

The papers discussed here were written over a relatively long period as I undertook a variety of roles in a particular context - a university contract research centre. This section shows how this context influenced the development of the research programme reported here to help illuminate the subsequent discussion of the papers presented.

From 1998, I worked first as a Research Associate then (from 2002) a Research Fellow and Senior Research Fellow and then - from 2008 - Head of the Centre for Education and Inclusion Research (since 2016 known as the Centre for Development and Research in Education) at Sheffield Hallam University. The centre's work focussed almost entirely on contract research and evaluations, usually commissioned by government departments and agencies, to evaluate programmes and initiatives, or conduct policy-relevant research studies. The studies reported here were of this type: commissioned by an external funder for a specific purpose with clear research or evaluation objectives and undertaken by a team. At the same time, I was involved in many other studies during this period, all of which influenced my thinking, alongside those presented here. My role in the teams began as a team member, and for later studies I was project director or co-director. The nature of work in a contract research centre is such that all of these are team-based studies. They included the following projects, in brief (fuller details are provided in the papers themselves and in Section 3 below):

*Table 2: Outline of studies undertaken relating to the thesis**

Project title	Methods	Associated paper
Evaluation of Leading from the Middle (National College for School Leadership, 2004-2006)	Two linked studies evaluating national programmes to improve the quality and supply of middle leaders in English schools, involving repeat telephone interviews with two panels of participants, coaches and tutors; terminal surveys of programme participants and coaches [24%, 32% rates] and 12 school case studies comprising interviews with participants, coaches and senior leaders.	R1
Evaluation of in-school components of Leadership Programmes (National College for School Leadership, 2006-8)	Evaluation of the in-school elements of three leadership programmes. Used a mixed methods design, with 12 school case studies [involving interviews with participants on three leadership programmes, school leaders, peers and other teachers]; six surveys [comprising interviews with participants on three programmes, and with participant overseers differing for each programme [coaches, headteachers and chairs of governors] with response frequencies of between 37 and 245, and rates of between 11 and 17%.	R2
The Newly Qualified Teacher Quality Improvement Study (Training and Development Agency for Schools, 2007-11)	A four year England-wide longitudinal combined methods study of school leaders and early career teachers, focussing on their recruitment, retention, quality and development. Included annual surveys [eleven in total], from an initial sample of c4000 schools and 49 longitudinal case studies, each of which included three school visits with interviews with at least three staff members at each.	R5
Mapping study of PSHE Education (Department for Education, 2009-10)	Mixed methods study, focussed on mapping approaches to Personal, Social, Health and Economic (PSHE) Education and their perceived outcomes. Based on surveys of 1540 primary and secondary teachers, Case visits in 14 schools with 248 individuals [teachers, pupils, support staff, parents] interviewed or engaged in focus groups.	R4
The Impact of Science Learning Centres CPD on Teacher Careers (STEM Learning, 2011-12)	Study of the effects of a set of CPD support provided by Science Learning Centres across England. Used an explanatory mixed methods design: detailed literature review, national survey of teachers [312 responses], telephone interviews with 25 teachers.	R6
Investigation into Level 6 Tests (Department for Education, 2010-12)	Mainly qualitative study focussed on the experiences of leaders, teachers and pupils in relation to Year 6 Level 6 tests, based on face to face interviews with teachers and leaders in 20 schools, telephone interviews with 60 other senior leaders.	R8

*Note R3 and R7 are theoretical papers, so not based on any particular study

In the period during which the first studies discussed in this review took place - the early 2000s - I would suggest there were roughly three broad approaches taken to addressing the kinds of issues looked at here, within the wider educational evaluation and research community. Firstly, there was a set of strongly theorised work, often informed by critical theory and critical policy sociology, typically focussing on uncovering dilemmas and inconsistencies (related to differences between government policy and professional practice,

for example). Such studies often took qualitative or mixed methods approaches and can be exemplified by the policy sociology of Ball (e.g. Ball, 2003) and others. Secondly, there was a set of approaches that focussed on mainly quantitative, methodologically rigorous development and testing of theory. This work is exemplified by school effectiveness and school improvement approaches, including the work - in relevant fields - of Muijs and Reynolds (e.g. Reynolds, Muijs and Treharne, 2003) and others. Thirdly, there was a set of approaches that developed as government departments and agencies began to commission specific policy and programme research and evaluation studies, which took a pragmatic focus on meeting client needs, drawing as relevant on other traditions. This work could be seen to be exemplified by studies undertaken for government departments and agencies by consultancy organisations such as MORI, NFER and PWC.

At the beginning of the research programme, the teams I was part of worked largely within this third pragmatic frame, drawing on and aiming to extend developing theorisations but with little consideration of social theory. Over time, though, this changed and moved into a space that aimed to bridge the gaps between critical, school improvement and pragmatic approaches. From about 2008 onwards, I began to draw more explicitly on social theory, beginning with my first reading of Pawson and Tilley's (1997) *Realistic Evaluation*. This enabled me to link my practice as an evaluator with the philosophy of science and social science I first studied as an undergraduate at the start of the 90s (including the work of Hume and Kant as well as 20th Century theorists such as Popper, Kuhn and Bhaskar). Strongly influenced by Pawson and Tilley (1997), I began to develop a realist-informed approach, and the research programme became underpinned by what was at the start an often unarticulated broadly realist conception of the social world, seeing it as amenable to understanding in relation to my underlying epistemological and ontological standpoints: that there are patterns and regularities in the social world that are related to a range of complex factors and processes, structured by and structuring actions, which are not generally directly observable. The elements of realist ontology that I felt chimed with me were as follows. Firstly, there are ontologically deep generative mechanisms that may or may not be enacted in reality, which when enacted lead to patterns observable in the social world. The mechanisms themselves are not observable. These mechanisms are enacted by complex interactions between the actions of individuals and groups influenced by social

structures, with such structures themselves being transformed in the process. Thus the social world is subject to persistent but not unchanging change processes (Manicas, 1998; Archer, 1995).

This contrasted with ontological perspectives that seemed to me to misalign with how I understood the social world to operate. On the one hand, strong social constructionist accounts which focussed on the construction of reality by actors appeared to me to be unsatisfactory, since they could not account for patterns in the social world that in my view were related to the underlying generative mechanisms operating at a deep ontological level that were created by interaction between external social structures and the actions and thinking of individuals as indicated in the last paragraph. On the other hand, positivist accounts that saw these patterns as representing the operation of change processes in law-like ways via a Humean 'constant conjunction' account of causation, seemed to misrepresent the dynamic, cyclical nature of change processes (referred to as their 'morphogenetic' character by Archer, 1995).

Therefore, realist ontology felt increasingly well-suited to my approach to research and evaluation. Realist positions align with a fallibilist epistemological perspective, that empirical research cannot represent reality, since all empirical data is inherently partial. This is because the change mechanisms are hidden from view and may or may not be enacted. Therefore empirical data requires theorisation to make sense of it. As with the realist ontological position, I found that this perspective best represented my own view, in contrast with a strong empiricist perspective, which assumes a tight correspondence between what is observed and what is real.

Methodologically, the studies almost always involved mixed methods. Mixed methods approaches have been subject to a number of criticisms in recent years, in particular relating to the potential problem that such approaches can be seen to involve incommensurate paradigmatic positions (see, for example, the useful discussion by Denzin, 2010). Whilst there is a strong tradition of taking a pragmatic perspective within the evaluation literature on mixed methods that combine quantitative and qualitative methods (as exemplified by Greene and Caracelli, 1997), the approach taken in the studies presented in this thesis takes a paradigmatically coherent approach, based on the realist perspective

outlined above. The studies typically make use of quantitative data (mainly survey but also attainment and other school data) to uncover patterns and use qualitative data (typically interviews and school-based case studies) to understand and help explain the patterns uncovered. Given that - from the fallibilist epistemological position associated with most realist perspectives - such patterns and explanatory qualitative work can only ever be partial and limited, the interpretation of any data gathering requires theorisation, including the theorisations that have emerged throughout the research programme.

One way to present the programme is to consider the papers' key contributions to its research questions. Table 3 lays out these contributions, to set in context the paper-by-paper discussion in the next section. I will return to the key research questions in the discussion section.

Table 3: Key themes and contribution of the papers to the Research Questions (RQs)

Key theme	Paper	Contribution to RQ1: Theorisation	Contribution to RQ2: Situatedness	Contribution to RQ2: Empirical
Analysis of leadership development programmes	R1	coaching 4-quadrant model	in school context - untheorised	role of coaching in leadership development
	R2	new PD model	antecedents and moderating factors in model	influence of in school elements of leadership programmes on outcomes
Models of professional development	R3	critique of earlier models; development of new PD model	as above	-
	R6	PD model linking to teacher careers	set of dimensions of context	influence of PD on career outcomes
	R7	critique of PD models	one dimension examined across models	-
Wider professional practice	R5	career orientations, career cultures and fit between them	explicitly relating individual approaches with the school setting	evidence of individual career orientations [and changes in them over time], organisational approaches to career and intersections between these
	R4	place of PSHE in policy sphere	PSHE approaches in school context	evidence of relationships between PSHE approaches and perceived effectiveness
	R8	boundary signifier concept	role of policy and school relations in interpreting teacher views on KS2 tests	evidence of how schools respond to KS2 testing

3. Analysis of the component parts of the thesis

In this section, I address the papers in turn, in each case summarising the purpose of the paper, laying out my role in it, discussing its key argument in relation to the thesis and

where relevant presenting evidence of its significance or potential significance in the field. To present the arguments and their development logically, they are ordered thematically rather than strictly chronologically, in line with the ordering in Table 3. Author order was agreed in discussion in each case as is the usual practice in my research centre.

3.1: Analysis of Leadership Development Programmes

R1: Simkins, Coldwell et al., 2006

The earliest paper, R1, draws on two linked evaluations of a school middle leader development programme known as 'Leading from the Middle' (LftM). The paper claims to make a distinctive contribution by focussing the 'mentoring and coaching' debate on coaching, an area that was under-researched, and under-theorised, in the leadership development field at that time.

My main contribution to the study was in relation to the design of the interview schedules, conducting telephone interviews and case visits, and analysing the coaching elements of the interviews. This analysis led me to develop the two dimensional matrix, Figure 2 (p.336).

The empirical evidence - as with virtually all of the empirical studies discussed here - uses a mix of qualitative and quantitative data, in this case surveys of coaches and coachees, repeat telephone interviews with a small sample of 12-14 'panels' [each panel consisting of an [in-school] coach, a coachee and an external mentor] each interviewed three times; and a set of 5 case visits [including interviews with coach, coachee, other senior leaders and other teaching staff] in each of two LftM programme cohorts.

This analysis indicates an early important strand of my work, since the paper emphasises the situated, context-bound nature of programmes: although the programmes we investigated were designed to fit with what were at the time argued to be well-evidenced positive approaches (Hobson, 2003; Whitmore 2002), in practice, the power imbalance between coach and participant, with the coach often being appointed from the senior leadership team, led to differences in outcomes (a point picked up by Lofthouse and Leat (2013, p.10) in citing this paper: "Generalised coaching practices can drift into mentoring and supervision (... Simkins et al., 2006)"). This focus on the situated nature of programmes and projects was an important driver behind the development of the evaluation models used in subsequent studies presented here.

The paper has been cited in 49 publications.¹ Most of the citations focussed on the study as part of the general evidence base on the importance of coaching and coaching quality in the UK, for example, Bush, (2009, p380) writes that "Simkins et al. (2006), looking at NCSL approaches, conclude that three important issues affect the coaching experience: coach skills and commitment, the time devoted to the process, and the place of coaching within broader school leadership development strategies." and Grant, Green and Rynsaardt (2010, p.152) note that "Such coaching initiatives can be relatively sophisticated, with senior school leader/coaches receiving specific training in coaching skills and then delivering a structured coaching program that incorporates ongoing supervision and evaluation (for a useful U.K. example, see Simkins, Coldwell, Caillau, Finlayson, & Morgan, 2006)."

R2: Simkins, Coldwell et al., 2009

The substantive contribution of the paper - in relation to my work - was the development, with my co-author Simkins, of an analysis of the differing 'frames' of three leadership development programmes. The school improvement frame was more apparent for one programme, the National Professional Qualification for Headteachers (NPQH), and the personal development frame was more apparent in the others. These analyses are grounded in the specific contexts of the schools within which the programmes were enacted.

My contribution to the paper was in writing the section on LftM, and the discussion of how LftM contributed to changed leadership behaviours (p.46) and supported organisational capacity building and developing in-school staff progression routes (p47). This last element influenced subsequent work included for consideration in this thesis, both in relation to career cultures in schools (R5) and to the relationship between professional development and career development (R6). In addition, Simkins and I developed a new evaluation model that was first presented in this paper (p.36).

The model was used to frame the study of the in-school components of three school leadership development programmes, which used a mixed methods approach. This included six surveys to programme participants and their senior leaders of between 42 and 245 respondents in each case and case visits in 12 schools each of which was involved in one or

¹ Numbers of citations from Google Scholar, March 27th, 2018

more of the programmes. The programmes considered were Leading from the Middle (by this point in its 5th cohort); the NPQH, a programme for aspiring headteachers, enrolment of which was - at the time - a prerequisite for appointment to headship; and the Leadership Programme for Serving Headteachers (LPSH) a programme to help development of experienced headteachers.

Kirkpatrick's (1983) model of training outcomes - seeing four levels from participant reactions via learning and change in behaviour to desirable results - was used to frame the two LftM evaluations referred to above. As we discussed in R2 (p.34), the Kirkpatrick model "assumes away the influence of the environment within which the [professional development] activity takes place", and so we developed a new model that includes contextual features as "moderating factors" and "antecedents", as well as allowing for feedback loops between outcomes and context (ibid, p.36). Although not clear from the paper, R2's model actually emerged at the analysis stage and was heavily influenced by our recent reading of Leithwood and Levin's (2005) work on modelling the influence of school leadership on pupil outcomes. This heuristic approach - using a model to frame the evaluation, and reflecting and developing it at the analysis stage - is one I used more formally, and described much more fully, in R6 as I will go on to discuss.

The paper has been cited 33 times to date, with other authors drawing on the described impacts of leadership programmes on various outcomes (Moorosi and Bush, 2011; Okoko, Scott and Scott, 2015) as well as noting the importance of in-school components of leadership programmes (Crawford and Cowie, 2012; Pegg, 2010) and of blended learning (Pillay and James, 2015), with a reflection on the approach and findings presented by Smylie and Eckert (2017).

3.2: Models of Professional Development

R3: Coldwell and Simkins, 2011

At this point, the programme of work in this thesis moved from a focus on evaluation of particular initiatives to a more detailed consideration of models of professional development. In R3, we aimed to situate the model developed and presented in R2 within the broader family of what we referred to as 'level models' of professional development, and reflect on the strengths and limitations of these designs drawing on our work reported

in R1 and R2 as well as other programme evaluations. The critique of models in this tradition forms one of the main elements of the paper that subsequently influenced further work that considers and proposes accounts or models of professional development.

R3 was a joint authored paper in which large parts derived from collaborative thinking and writing. However, the consideration of the underpinning ontological and epistemological assumptions of 'level models' (p. 148) was an aspect I contributed. As far I can tell, this was the first time such models were explicitly discussed in this way both in the field more broadly, and in my own work - an issue I returned to in more depth in R7.

In R3, we further explicated the role of the context within which professional development programmes play out, drawing on the categorisation in Leithwood and Levin's (2005) paper to distinguish between antecedents - factors linked to participants and their engagement with the programme - and moderating factors - those linked to the "organisational and wider context within which they occur" (R3, p.148). I abandoned this distinction in subsequent work, since I now believe it wrongly conflates causal priority with aspects of context (as it is not necessarily the case that the influence of participant-related factors is causally prior to the introduction of a professional development programme or that other factors influence the working of the programme only once it is in place).

Explicitly influenced by Pawson and Tilley's (1997) realist evaluation approach, the paper draws out how level models are generally consistent with a positivist perspective but can be modified to support a realist position if their tendency to under-theorise the causal processes involved is addressed. This argument is developed in the subsequent paper reviewing professional development models below (R7).

Finally on the content of the paper, whilst a learning perspective - which I would now articulate as aiming to use and build theory to improve both understanding of the social world and subsequent evaluation and research - underpins R1 and R2, it is for the first time described in R3. Here, we describe "a major concern for 'learning' about the programmes we study, placing them in context and, in so far as this is possible, generating understanding that can be extended beyond the case at hand" (R3, p.155).

The paper has been cited 50 times, and these citations suggest that the paper has had influence in the field in a number of ways. Firstly, the critical review of the level models literature has been used in a number of publications (for example, Earley and Porritt, 2014; Perry and Boylan, 2017; McChesney and Aldridge, 2018; and an extended consideration by Grammatikopoulos et al., 2013). The critique of Guskey's model in particular has been quite widely used (e.g. Lindle, 2016; Boulton, 2017; Chaaban and Abu-Tineh, 2017; Zeggelaar, Vermeulen and Jochems, 2017). Other writers (e.g. King et al., 2017; King, 2014) draw on the call for a more critical approach, captured by King (2014, p.99): "In this way, the framework aims to contribute to a more complex and nuanced approach to understanding PD and its impact on teacher learning and may be more reflective of the complexity of the social world (Coldwell and Simkins 2011)." Finally, the evaluation model influenced the evaluation designs of studies including McMillan et al. (2012), Grammatikopoulos, Gregoriadis and Zachopoulou (2013), Townsend, Cushion and Smith (2017) and most directly Griffiths and Dubsy (2012) who utilized a modified version of the framework presented on p.148 to evaluate a professional development programme for SENCOs.

R6: Coldwell, 2017

R6 follows R2 and R3 in developing an argument about the potential usefulness of the family of professional development models that I now begin to refer to as path models rather than level models. The reason for this change (not articulated in the paper) is a shift in emphasis. Whilst the emphasis was on differing types or levels of outcomes (related to the programme participant and the organisation by Kirkpatrick, 1983 and additionally pupils by Guskey, 1999) in earlier papers, R6 focuses on the causal path(s) linking the intervention to these and other outcomes. The term path model is aligned with the language used by Desimone (2009) whose work, I suggest in the paper, is the culmination of this tradition.

The approach taken in R6 is more formally developed than in earlier studies. Rather than starting with a design drawing on an unpopulated "adaptable frame for constructing a variety of specific models" (R3, p.152), this study began with a review of relevant literature which was then used to create an initial populated model of the potential relationship between professional development and teacher career and retention outcomes (R6, p.191). The initial model was then used to design data collection instruments for an empirical study and was subsequently reviewed and modified during the analysis phase (p.196). This was

both the first time such an approach to path/level models is described in the literature, and the first time a path/level model approach has been articulated that links professional development to career outcomes.

The critique of such models that began in our earlier theoretical work (R3, p.154) that offers the view that they can be useful "in uncovering the workings of well-defined development programmes" is taken on in this paper. R6 takes forward this perspective, arguing that such models are limited in relation to their usefulness with regards to clearly defined professional development interventions rather than broader professional learning identified by Webster-Wright (2009, p.711) as "constructed and embedded within authentic professional practice". Moreover, in relation to career, two further issues are identified. Firstly, what we think of as career outcomes are highly individualised, to the extent that they may be diametrically opposed (in that for some teachers, leaving the profession may be a positive outcome; whereas for others the opposite may be true). Secondly, career outcomes change over time and so in depth, longitudinal work is needed - which is usually not possible for path models.

These critiques informed both my work on professional development models (R7) and on teacher careers (R5).

The substantive contribution of the paper is to provide evidence that engagement in professional development can influence stated likelihood of staying in teaching by "improving or validating teachers' professional knowledge, making them feel more confident and capable as science educators, and by improving motivation and job satisfaction." (R6, p.195) and can be perceived to influence career outcomes by influencing knowledge, skills and other attributes and changing career aspirations. As with previous work, a series of contextual issues or what I called in this paper "influencing factors" were associated with these outcomes. A new element introduced to the path/level model approach used here was to acknowledge that these factors could "have differential effects on different points in the posited path" (ibid) for example, mediating outcomes around knowledge appeared to be related to quality of the professional development activity, and the opportunities provided by schools for progression could influence career aspirations.

R7: Boylan, Coldwell et al., 2017

R7 rounds off the work conducted as part of this research programme in relation to models of professional development.

Whilst in earlier work I referred to models of professional development or continuing professional development, we use the term models of 'professional learning' here, since the models analysed in the paper used differing terminology. We state (R7, p.121) that "We use the term professional development activity to refer to activities or experiences that may lead to professional learning and/or development." In general, in the earlier papers, I tend to use PD or CPD programmes to refer to the activity leading to what was usually referred to as professional development rather than professional learning.

The main contributions I made to the paper were analysing the two path models of Guskey (2002) and Desimone (2009); identifying the importance of analysing philosophical paradigms, and subsequently leading authoring of text of this section; as well as contributing more broadly with the whole writing team on building the overarching focus and framework and the final arguments about the limitations of the models, and the argument for using the models as tools for differing purposes, rather than attempting synthesis.

The key argument I make in relation to the philosophical foundations of the models is that, in the path models, these are unclear and therefore claims to knowledge are unclear. The exception, Desimone, explicitly presents her model as a positivistic one, which - I argue - is problematic since it uses non-recursive pathways but does not specify the circumstances under which the paths operate in law-like ways (operating in such law-like ways being a key feature of a positivist view of the social world) which "blunts the model's utility" (R7, p.132).

The 'reconsideration' section includes a development of a number of themes present in my earlier work including under-theorisation of change processes, which continues a line of argument I began in R3, p.152 - "models tend not to provide enough detail of the theory or mechanisms underlying the levels of the model, and therefore are inadequate in explaining why particular outcomes occur in particular contexts. The processes indicated by the arrows that link the boxes in such models remain largely opaque". R7 also notes the lack of attention paid to the situated nature of professional learning, which draws on and extends

the recurring feature in my work of a focus on the importance of the context within which programmes take place. A further criticism of such models in the paper is that path models tend to be situated in a restricted time period, whereas professional learning takes place over the professional life course of teachers (Day and Gu, 2010). This echoes an argument made in R6 about problems in linking such models to career noted above, and links to R5's more detailed focus on career.

I noted earlier that from 2011 onwards my work has been influenced by realist accounts of the social world, and this is apparent in the philosophical analyses in R3 and R7. An illustration of this influence is found in the conclusion to R7: "their [the models'] weaknesses – or perhaps more accurately their incompleteness – is (sic) not simply a matter of a need for a better defined, better researched model. It is about the complexity of the social world, which is such – we argue – that no single model, no matter how well defined, can ever be universally applicable." (R7, p.137).

The key argument of the paper develops the focus on learning I note above: in this case, moving the debate from aiming to understand the uses and otherwise of a particular model type (the level and path models discussed and used in earlier papers, more or less in isolation) to focussing on how to make choices between models and deploy them as tools.

The paper received very positive reviews from the editor and reviewers, including the managing editor, Professor Ken Jones, who wrote "This is a very interesting article and complements existing literature really well. I expect it to be widely read and to influence thinking at a number of levels." This was followed by a comment made on twitter (January 19th 2018) that "this article provides a new approach to thinking about models of professional learning. It's essential reading for students and leaders of PLD. Policymakers would also benefit."

3.3: Wider professional practice

R5: Coldwell, 2016

In this paper, I return to the substantive area of teacher careers, drawing on a major mixed methods study of early career teachers that involved mainly longitudinal data from 49 school case studies and a survey of third year teachers (more details of which are provided on p.613).

The paper makes the case that whilst there is a large body of work on the careers of teachers as individuals, there is very little on how schools as organisations deal with careers. So, borrowing from the Human Resources field, the study explores how schools approach careers and examines the intersection between these approaches and what I describe as the 'career orientations' of teachers across three dimensions: orientation towards teaching as a career; towards promotion; and towards work/life prioritisation. Both the focus on school approaches to career, especially the development of the "career culture" concept, and the linking of these with teacher orientations were novel in the field at this point. In addition, the evidence that career orientations can change rapidly in the first three years of teaching and the explanation provided - linking this to Hall's (2004) "protean career" concept - were new contributions.

The paper highlights the relationship between teachers' practices and orientations with the wider organisation context, arguing that both these practices and the context are liable to change, both in the shorter and longer term. This argument forms part of a wider theme in the research programme, in relation to the situated nature of teacher change. Whilst the papers described in sections 3.1-3.5 all focussed on these relationships in the context of the evaluation of teacher professional development, R5 moves the approach into the field of teacher practices and orientations in situ (i.e. outwith any particular change or development programme). The next two papers outlined below explore these themes in two further teacher practice contexts.

A focus on drawing out theorisations at teacher and organisation levels - career orientation and career culture in particular - is a feature of the paper. In addition, the application of a theorisation from outside the education field (protean career) to illustrate the relationship between wider social change processes as context for changes in education develops from an (unarticulated) approach influenced by realist accounts.

R4: Willis, Clague and Coldwell, 2012

Like R8, this paper moves the focus to an aspect of professional practice not directly related to professional development - PSHE education. Drawing on a mixed methods study of PSHE education in England, R4 presents data on the factors associated with what is perceived to be more effective provision of this subject (more objective measures of effective provision

were not able to be used due to the huge range of potential outcomes that could act as indicators of this, as noted in endnote 3 on p.109.)

My contributions to the article were to lead the design, interpretation and discussion aspects of the paper.

The method used in R4 - to present the results of multiple regression modelling and aim to explain these using data from more in depth qualitative work - focuses on the context of PSHE education. It does so by presenting an argument that the status of PSHE underpins several of these features. The article then goes on to discuss the differences in status of the subject in primary and secondary schools. The paper relates the value and status of PSHE to key policy agendas, with an argument being made that primary and secondary schools see their work as having differing purposes, with primary schools linking PSHE to purposes including developing the whole child including personal development, social development and learning, whereas secondary schools tended to focus on life skills without linking to learning. This lack of linkage in secondary schools to learning and importantly attainment meant PSHE was not valued as highly in secondary schools (due to the strong policy drivers around demonstrating attainment in both primary and secondary schools).

The paper indicates some important steps in my developing thinking, especially in relation to my consideration of the situated nature of professional practice and change in two main ways. Firstly, the presentation of school case studies at the end was helpful in demonstrating the importance of school context. However, I subsequently reflected that the case studies were too disconnected from the argument in the paper. This led me to integrate similar accounts more fully into the core arguments in other papers, in particular the discussion of Sarah and Daisy in R5, p.620-621.

Secondly, as noted above, I interpreted the differing value placed on PSHE education in primary and secondary schools as being related to different perspectives on the role of PSHE in supporting the core mission of different school types, which was then, in turn, related to accountability pressures. The role of accountability pressures in shaping differing responses to the curriculum in primary and secondary schools was therefore surfaced for me by this paper. The 'primary secondary divide' and the role of accountability pressures in shoring up

the boundary between the two was developed to form the central argument of R8, as I go on to discuss in the next and final subsection.

R8: Coldwell and Willis, 2017

The focus of this paper is on a further element of the professional work of teachers and its relationship to organisational and wider context: responses of primary and secondary teachers to upper primary tests.

I was the lead author of this paper, and contributed the bulk of the policy review and research background, the theoretical framing, organisation of the findings and some of the analysis of findings and the concluding discussions.

The substantive contribution of R8 is to identify tensions in relation to the primary/secondary divide emerging from a substantial and systematically developed sample of 20 school case studies, and 60 other interviews (fully detailed on p.583-585) in relation to (p.586):

- (1) Narrowing the curriculum and teaching to the test
- (2) The role of the test in positioning the school with stakeholders
- (3) Concerns around interpretation of 'level 6'
- (4) Test preparation practices
- (5) Selection practices

The tensions are analysed using a new application of boundary theory to consider the test investigated as a type of boundary object referred to as a 'boundary signifier' a term used "for objects that operate to reveal tensions around boundaries [...] but that do not usually help overcome these tensions." (R8, p.593). One reflection on this is that I now feel the concept would have been clearer if we had used the term "boundary marker", since signifier is laden with meaning via semiotics.

Although dealing with quite a different field from other work presented here, it addresses many of the same themes, in particular the situated nature of professional practices, influenced by the organisational and - as with R4 - policy context (since the source of many of these tensions is identified as the strong accountability regime in England that expects both primary and secondary schools to demonstrate progress as discussed on p.582).

The study on which the paper drew received press interest from The Daily Telegraph shortly after publication and the paper itself was covered in The Guardian in 2017. Evidence of the paper's potential significance is provided by reviewer comments that it is potentially significant in "both a theoretical (boundary signifier) and substantive (a qualitative perspective on assessment reliability at the transition between primary and secondary schools)" regard, and that it is of "timely relevance to England and other high stakes assessment contexts."

4. Discussion of the research programme

In this section, I discuss the three Research Questions, synthesising the contribution of the papers as a whole. I go on to present the limitations of the research programme, and finish with a short reflective conclusion.

4.1 Synthesising the responses of the papers to the three research questions

RQ1. Theorisation: theorising and modelling professional development and practice

The papers presented for examination and discussed above draw on and build theories, which are almost always 'middle range theory' in Merton's (1968) sense - modifying and applying them in context. This is why my work tends to include models: the models of professional development presented in R2, R3 and R6; the matrix model in R1, alongside other theorisations including the concept of career culture in R5 and the boundary signifier concept in R8. These theorisations aim to help understand the change mechanisms that underlie the patterns and regularities observed. Such change mechanisms always and can only take place within specific contexts. This approach to the social world is aligned with versions of realism, which I take to be the positions that the social world is socially constructed within the context of constraining social structures which create and are influenced by underlying, complex, interacting generative mechanisms which only and always operate in specific contexts. These are not law-like - they can change over time and are not likely to be constant spatially either, but they do recur and whilst they cannot be directly measured their workings can be understood by interpretation of careful empirical data gathering. Thus the approach taken accords with the critical realist theory of Bhaskar but more pertinently for most of the research here draws on the application of realist theory in the evaluation field of Pawson and Tilley (1997).

In summary, then, the papers' theoretical contributions focus on using realist understandings of the social world to critique and develop models that aim to explain the relationships between professional development and professional practices; outcomes; and the contexts within which they take place, via two main strands.

Firstly, the work models the influences of professional development on outcomes including the role of coaching in PD (R1). More generally, it includes the development of what I refer to in earlier papers as level models (R2, R3) and later path models (R6) of professional development. Linked to this, the papers provide a set of critiques of models of professional learning including such level and path models (R2, R6) and others (R7).

Secondly, beyond such models, the papers provide theoretical constructs to support understanding of how the context of professional practice influences practice, in particular boundary signifiers to understand how primary and secondary teachers respond differently to the results of high stakes tests at the end of primary schooling (R8); a consideration of career orientations encompassing considerations of commitment to teaching as a career; orientation to promotion; and work/life orientation (R5); and career culture as a concept to understand how schools engage with and support the career orientations of their teachers (R5).

RQ2. Situatedness: the role of the context within which professional development, learning and practice takes place

It is difficult to extract the role of context in relation to the theorisations I have outlined above, since I believe that change processes are always enacted in context. Yet it is important to do so, because analytically I do wish to treat change and context as both inter-related and distinct. Considering change to be situated in context is important in relation to one wider aim of my project, which is to develop learning for future evaluation and practice, and my perspective on this is a straightforwardly realist one: I believe any change mechanisms or processes will only be enacted in some circumstances for some individuals. I follow Pawson and Tilley (1997, p.57) in taking context to be the social and cultural conditions within which change processes occur. Such conditions include both the structural - organisational, spatial and temporal - setting and the individuals involved, including their personal characteristics and inter-personal relationships, further developed by Pawson (2013, p.37) as 'the 4 I's': individuals; interpersonal relations; institutional settings; and

infrastructure (the cultural, economic and social aspects of the setting). Context, in this sense, has been of importance to my work since I started to feel that the Kirkpatrick-influenced Leading from the Middle evaluation frames we used in the early days were missing this.

The papers presented here develop some features of context which are missing from other path and level model-based accounts, which much of this research programme is in conversation with. As indicated in R7, most of the level and path models present the context for CPD programmes in a rather static way, as a feature of the setting within which the intervention occurs - as part of a set of "contextual factors at the classroom, school and district levels" (Desimone, p.185). Yet we know that school processes and cultures are both complex and likely to change: R2 shows how some interventions - in this case school leadership programmes - can lead to changes in organisational capacity to effect further change within the setting, which itself can lead to cultural change. Thus the context for change is not static but dynamic, and, furthermore, sometimes agentic: In R8 (p.586), we discuss the role of accountability pressures as having 'causal power' - borrowing the term from critical realism.

This indicates another feature missing from other accounts: contextual factors such as school culture are relational. They act in particular ways in relation to change processes as moderating influences on the success or otherwise of the intervention; as independent agents of change; and as potential outcomes of the intervention. R6 argues that contextual factors can also act at different points in the change process and can act in concert with or against other contextual factors. Another development in my thinking about the situated nature of change draws on R5. Since literature on teacher development identifies that teachers develop their identities over long periods of time, moving through what Day and Gu (2010) call 'professional life phases', and their attitudes and responses to professional development are likely to vary in relation to these, then the context for practice and professional development programmes is not only spatially located but temporally historically located, and may be subject to wider change processes that can occur over a very different time span to that of the programme subject to evaluation.

Finally in relation to this thesis, and linked to this latter point, Opfer and Pedder's (2011) framework discussed in R7 brings to the fore that the complexity of the social world is such that there will be significant change processes occurring over different time scales, at different system levels, that interact with short term change programme effects to lead to differential outcomes. R6 takes this on in relation to teacher careers and development, using work from the field of Human Resources to trace a complex relationship between longstanding, significant changes in economic production practices (such as deindustrialisation), and changing patterns in consumption and markets (emerging marketisation and consumerism) to changes in individuals' approaches to their careers leading to Hall's (2004) 'protean' career orientation: individuals taking charge of their careers. These larger scale change processes and teacher responses to them were opaque to senior leaders who often responded to the 'protean' teachers in a frustrated way: "they expect more. They need to be reminded they are lucky to have what they are given!" in the words of one (R5, p.618).

RQ3. Empirical knowledge

As indicated in Table 2, the papers here draw on seven distinct research projects with differing methodological approaches, aims and focuses, conducted over a six year period, with my role varying from team member to project director. This means that the substantive areas covered are quite wide ranging, and therefore the empirical contributions are certainly broad rather than deep as well as difficult to synthesise in a meaningful way. However, some commonalities emerge. All focus on the relationships between programmes or change processes and their outcomes in situ, and in particular the various relationships between the programme or change process; individuals as recipients of change processes or programmes; the organisations within which they work; and wider political and other contexts.

These relationships took varying forms.

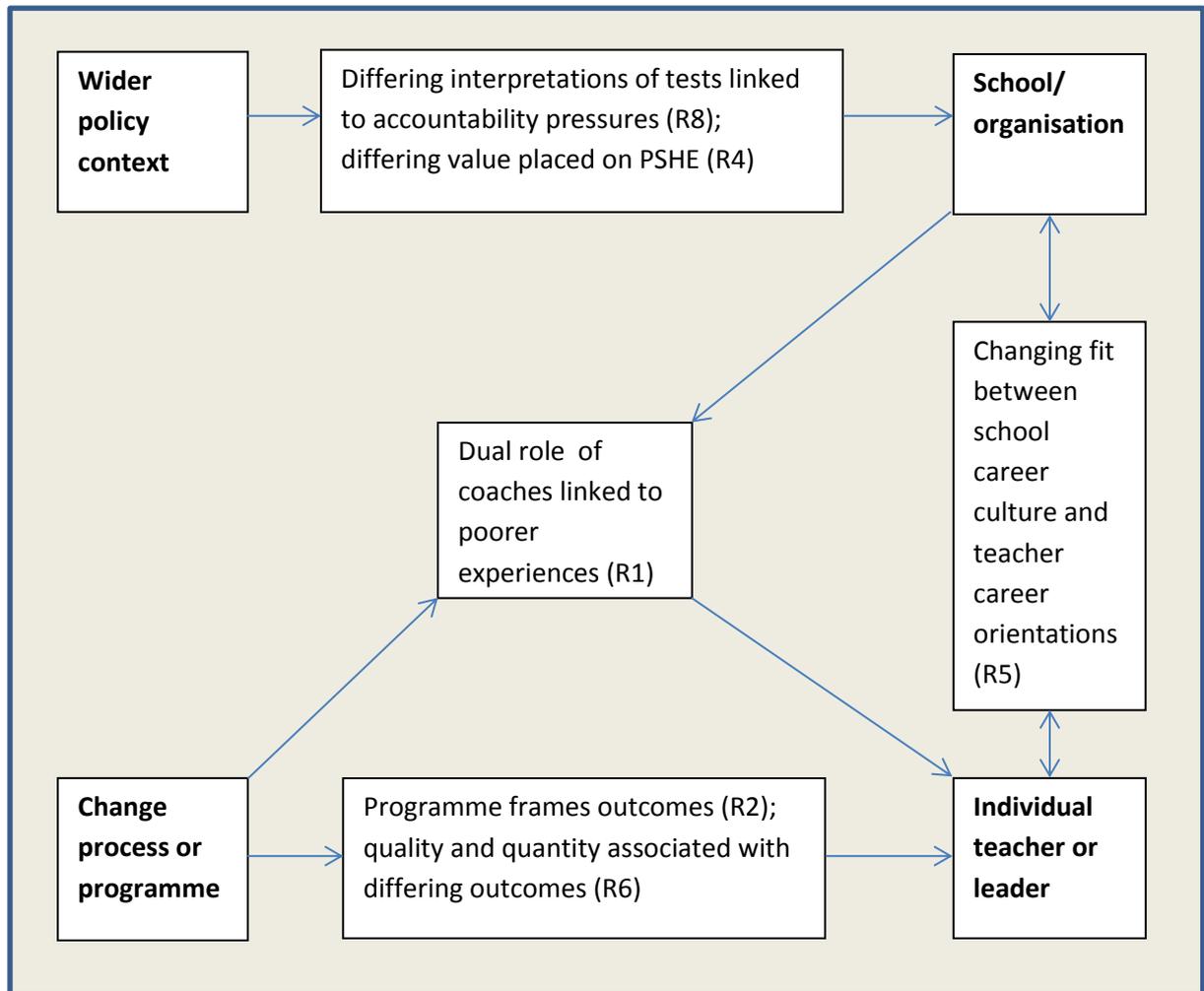
Looking firstly at the differing ways in which change programmes worked in context, in R1, the dual role of the coach as both part of the programme and representative of the school senior leadership team meant that in some cases less positive experiences for the individuals were found. In R2, the programme focus framed potential outcomes for participants (with some programmes focused on school improvement and others of

personal outcomes for leaders). R6 traced the relationships between professional learning programmes and teacher career outcomes via teacher knowledge, motivation and aspirations, with differences found relating to both quality and quantity of professional development activity, as well as opportunities and support afforded by the schools.

The set of papers focussed on wider professional practice examined the relationships between individuals and the school organisation. R5 showed that teachers' career orientations change over the first three years, and that these changes can enhance or diminish the relationships with the school in relation to schools' expectations regarding career development. R4 indicated that there were differences between primary and secondary schools in relation to the status of PSHE, linked to the differing purposes of schooling in the two phases; R8 found that responses to upper primary tests and their results differed for primary and secondary schools, and these differences were related to the differing accountability pressures in each phase.

These sets of relationships are outlined in Figure 1 below:

Figure 1: Summary of empirical findings from the papers: linking policy, school, individual and programmes



4.2 Limitations

The models and theorisations presented in the papers mainly derive from studies focussed on particular programme evaluations funded by organisations including the (then) National Centre for School Leadership (at the time, an arms-length government agency); the Training and Development Agency for Schools (a government agency); the Department for Education; and STEM Learning, an independent organisation mainly funded by government grants. In such evaluations and research projects, the research questions and indeed methodological approaches are highly circumscribed by the funder. This has several implications.

Firstly, whilst they have been built over the course of several studies in different fields as I go on to discuss in the conclusion below, some of the models would benefit from further

development in different settings. The model presented in R3 has been used in several other arenas as noted in 3.3 above, and this helps provide evidence of its usefulness (and limitations) in professional learning evaluation more broadly; and the other models and constructs would be strengthened by similar testing.

Secondly, some of the models - for example that presented in R6 - would be improved by further work using other methodological approaches such as analysis of longer term school workforce deployment data. Conversely, more detailed qualitative work at the level of the school would be useful in testing in more depth the empirical claims made in some of the papers.

Thirdly, it is legitimate to argue, given the bias of funders towards wishing to see success, that the findings should be challenged by research studies that are not funded in this way to examine whether they are overplayed or even subject to bias in themselves. My position as an academic independent of government is that, working within a learning frame, I aim to present findings and my interpretation of them in a way that is unbiased by funders, but it would be untruthful to claim that I and my colleagues have not had to defend ourselves against challenges from funders on a regular basis. In any case since (my epistemological position is that) objectivity is impossible, there will always be an argument for the need for further scrutiny and testing of any research claims made from studies funded by those that have a stake in the findings of the research.

A final limitation is associated with the nature of the research programme presented here, which developed in a largely unplanned way, moving between commissioned projects often at speed. The disparate nature of the studies, uneven presentation of theorisations and breadth rather than depth in empirical findings in the papers is a result of this: whilst I have aimed to build a narrative in this critical appraisal, it is clear that there is less coherence in the programme than would be the case for a typical PhD: yet this variety also provides benefits as I discuss in the final section below.

5. Conclusion

Given the limitations outlined above, the large, varied body of work represented here provides a strong basis for the theorisations presented and discussed. The path models and level models that theorise the influence of CPD on teacher learning and careers, along with the discussion of their limitations and benefits, draw from several studies conducted over a number of years for different funders and using differing datasets. Therefore the claims made have been subject to a high degree of trialling and development in the studies discussed here, and many others I was engaged in. This wider testing is discussed in R3 (p.149) in our explanation of how we uncovered the limitations of level model approaches in two other evaluations. The Multi-Agency Team Development Programme evaluation "led us to revisit antecedents and moderating factors from a team perspective" and the evaluation of the 14–19 Leadership and Management Development Programme, which involved multiple disparate strands, helped us to recognise that "it was not possible to create a model for the programme as a whole", and that "it was possible and useful to use the model for examining individual coaching interventions, but not for exploring impacts of combinations of coaching and other interventions." This type of testing and learning is not possible for most doctoral studies, or indeed many other studies based on single projects.

Similarly, my analysis of the features of the context within which programmes and change initiatives take place developed over many years of undertaking research and evaluations in different settings. These evaluations often uncovered a very similar set of features of the context in which programmes operated in each case, yet the learning that accrued was limited, at least in the early days. So, for example, it was usually the case that well-motivated participants in programmes benefited more than others, and senior leader support was a key factor in any initiative's success. Taken on their own, these are pretty trivial points that seemed to me to lead to limited learning. By thinking through this unease about learning whilst working on many projects over several years I developed my understanding that path and level model designs in particular can often treat the situated nature of programmes simplistically. Thus, gradually, I developed the view, discussed above, that the context of change can be:

- dynamic, changing shape over time
- agentic, creating not simply moderating change

- relational, acting both as context for and outcome of the work of initiatives; and acting in concert with or against the work of the initiative
- historically located, involving change processes over a much longer time period than the initiative at hand
- systemic and complex, leading to changes that arise out of complex change processes at different system levels that interact with programme processes.

Finally, and reflecting on the programme of work as a whole, the realist orientation taken implies that the models and concepts discussed here are necessarily partial and cannot represent reality. This is the force of the first part of the quotation from Box and Draper (1987) that I placed at the start of this piece, that "all models are wrong". I have presented an argument in this critical appraisal that whilst this may be the case, the models and concepts that I have developed help move on our understanding, and meet what is perhaps a more realistic aim than that of being right: they are useful.

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