Developing an ecological analytical framework for the exploration of teachers' lived experiences of professional development and professional learning in five UK secondary schools.

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Declaration

I, Kathryn Taylor, confirm that the work presented in my thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Kathryn Taylor

Word count

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Abstract

This thesis reports on my exploration of teachers' experiences of Professional Development (PD) and Professional Learning (PL) in five secondary schools across England and Scotland. I apply an ecological lens, drawing on Priestley et al.'s (2015) view that teachers' perceptions of their experiences cannot be understood in isolation because they are nested within micro- (personal life-experiences) meso- (organisational/interpersonal) and macro- (socio-political) contexts.

PD is understood as activities, events and interventions, and PL refers to changes in professional attitudes, knowledge, and practices (McChesney and Aldridge, 2019b). Although much described, problematised, and theorised (e.g., Clarke and Hollingsworth, 2002; Kennedy, 2005; 2014; McCormick, 2010; Sims et al., 2021) the unrealised potential of PD to sustainably transform teachers' attitudes, knowledge and practices (constituting PL) persists.

Strong teacher perceptions of eight environmental dimensions are associated with enhanced and sustained PL: agency (e.g., Eteläpelto et al., 2013), efficacy (e.g., Gray and Summers, 2015), logistics (e.g., Wolthuis et al., 2020), collegiality (e.g., Hargreaves and O'Connor, 2018), trust (e.g., Day et. al, 2011), resilience (e.g., Gu, 2014), reflection and reflexivity (e.g., Orland-Barak, 2006) and professional autonomy (e.g., Wilkins, 2011). My phenomenographic analysis (Marton, 1986) exposes equivocal language use around these dimensions. The resultant analytical framework

contributes depth and nuance to theorisation of these concepts. From this, I have developed a survey instrument which 156 teachers have engaged with. Response data were considered indicative proxies for teachers' openness to PD, and, by extension, their capacity for PL. I considered the inference from this framework to teacher PL a reasonable proxy because of the association in the literature of these cultural dimensions with pockets of sustained practitioner research activities and associated development of practice (e.g., Gray and Summers, 2015). Survey data was synthesised and reported to school leaders and then discussed in semi-structured interviews.

Qualitative data analysis suggests PD can be distinguished between training and information sharing activities (PD1), and opportunities for collegial sense-making, contextualization, and co-creation (PD2). Increased teacher PL capacities were inferred from data in schools where PD1 and PD2 were strategically and operationally supported. I suggest that this indicates a relationship between the presence of structured PD2 opportunities and high individual and collective teacher perceptions of PL supportive dimensions.

Impact statement

I have sought to elucidate teachers' perceptions and experiences of their Professional Development (PD) and Professional Learning (PL). Literature and data highlighting teachers' problematic relationships with in-school PD experiences drew me to explore these phenomena. The democratization of research evidence promotes the demystification of teachers' professional activities (e.g., Sachs, 2001), however this is nested within a managerial macro-context (Buchanan, 2015; Mockler, 2011), which is associated with de-professionalisation and performativity (Ball, 2003). For many, PD has been experienced as transmissive, technicalised and assuming their deficit (Kennedy, 2005; 2014).

Eight cultural dimensions are associated with teacher PL (changes in knowledge, skills and practices): agency, efficacy, logistics, collegiality, trust, resilience, reflection and reflexivity, and professional autonomy. Using complementary mixed methodologies (phenomenographic analysis, Heideggerian hermeneutic circles and drawing on Exploratory Factor Analysis (EFA) techniques, supported by a Content Validity Index (CVI) peer review process), I have developed an analytical framework and synthesized this into a survey instrument to elicit teachers' perceptions of these dimensions in their contexts. Survey data was considered a reasonable a proxy inferring teachers' openness to PD and, thus PL capacities because of the relationship between these cultural dimensions and pockets of sustained collegial, practitioner-driven, research

engaged activities that appear to drive and sustain adaptations to teacher practices, or PL (e.g., Gray and Summers, 2015).

I interviewed school leaders, sharing a synthesised report of survey data gathered in five secondary schools and conducted a cross-case analysis. I noted a distinction between PD1 (information sharing and training) and PD2 (collegial sense-making opportunities). My data analysis leads me to conclude that structurally supported PD2 arrangements are associated with elevated teacher perspectives of the eight PL-promoting environmental dimensions. This insight has the potential to influence leaders' strategic PD planning and inform decisions concerning the direction of teachers' time and resources. Further research would benefit understanding of the dynamics of embedded PD2 arrangements over time.

I offer my survey instrument, underpinned by my evidence-informed analytical framework, as a means of eliciting teachers' perspectives on PL-promoting dimensions. My work offers enhanced theoretical granularity, adding depth and nuance to the language available for describing phenomena in the fields of organisational culture and teacher PL. Synthesis of survey data report artefacts within systematically reflexive PD2 structures can contribute to pre-intervention audits (Schein, 2017) and support implementation processes (Sharples et al., 2024).

Over the past 18 months I have begun to exercise my professional voice. The Chartered College of Teaching's *Impact* journal has published three of my articles (Taylor, 2023; Taylor, 2024 and Taylor 2025). I have presented at three researchEd events, and the BERA annual conference, 2023. In addition, volunteering as a Teachers Talk Radio host has provided opportunities to interview a wide range of education professionals and authors of PD books. I have also peer reviewed an article for The Language Learning Journal. These activities have developed my confidence as an informed and credible voice. I hope to publish further from my thesis, contributing to academic debates and policy development. I would especially like to develop useful and accessible content for teachers. My utopic wish is to influence recognition of the time and resources required to make PD enjoyable and empowering, and to persuade policymakers that the investment is not only desirable, but a moral imperative for a thriving workforce.

Reflective statement

Undertaking my EdD studies has been intellectually, professionally and personally enriching. My initial proposed research interest focused on the implementation of EdTech and digital learning strategies. However, as my studies proceeded, I realised that my experiences in this area were symptomatic of a much broader issue. I have increased in professional maturity and confidence in my understanding of the systems that promote or inhibit teachers' PD engagement and PL capacities.

EdD studies are often motivated by personal experiences of a problem (Hawkes, 2016), and mine is no exception. I applied to UCL after successive missed internal promotions, which always seemed 'ear marked' for someone else. I was frustrated; I did not understand what I should do to improve, and no-one appeared willing to tell me. I might have benefitted from strong professional mentorship, but this was not offered or available on request. I secured a role over-seeing digital learning, but struggled to influence teacher practices, and the benefits I perceived went unrealised. I was advised that teacher apathy was 'normal' and that the school was not ready for change.

I also found in-house PD opportunities unsatisfactory. Many were impractical to implement, and some were bizarre - on one occasion we were directed to mime moving a fridge! I loosely separate my PD frustrations into two categories. Firstly, as a leader of digital learning, I have encountered implementation barriers in my attempts to engage colleagues with educational IT platforms (EdTech), despite the timesaving and

efficiency benefits they can offer. Why? Secondly, as a recipient of PD, I have experienced negative emotional responses to PD delivered by school leaders, consultants and speakers whose rhetoric has felt disconnected from my lived classroom experience. Reflecting that I might have enjoyed certain speakers had I seen them present at an education conference I had voluntarily paid to attend, the circumstances of PD delivery on audience reception seems significant.

Recognising that I was developing an unhealthy mindset towards my school leadership and available PD, I reached the point where action of some kind was inevitable; I could resign or do something more proactive and positive. I chose to apply for the EdD at UCL because I feel aligned with the values of social justice; I want to make a difference. I was also accepted on the programme at Oxford Brookes, but I chose to accept UCL's offer because I was drawn by the reputation of academic success. I thought, "I will understand this problem, I will try to address this problem, and my voice will mean something."

My journey from Foundations of Professionalism (FoP) to thesis submission has been, at times, both enlightening and unsettling. I felt vindicated upon reading the work of educators including Ball (2008; 2016), Evans (2008), Hargreaves and Fullan (2012), and McChesney and Aldrige (2018a; 2019b), but also angry. Not only were my frustrations (at least partially) created by my passage through this education system, but these effects were well documented over at least two decades. I also realised that

I was not alone. My Institution Focused Study (IFS, Taylor, 2021) revealed multiple teacher testimonies of righteous indignation against various PD initiatives. The strength of negative emotional responses is concerning because little can be learned by a hostile audience.

My personal reflections, and my subsequent review of the literature warrants exploration of the question: why is PD apparently so poorly received by teachers? I am motivated to understand the issues I perceived and contribute in some small way to improving matters, even by simply drawing attention to them. This sense of purpose has driven me through my learning journey. The taught skills, engagement with the literature and strong supervision have enabled me to understand my situation, describe it in an intellectual and less emotional way and refine how I respond to my frustrations and those of others. My appreciation of the development of professional paradigms has changed the way I understand the system. I have come to understand educational contexts holistically and as ecologically interconnected.

I have found the academic discipline development during the EdD enriching and rewarding. I have enjoyed developing my skills as a researcher which has afforded me opportunities to engage with so many diverse and interesting educators. Interpersonally, this has been enjoyable. Undertaking my IFS during the strange and unprecedented times of Covid lockdowns, the job of capturing and transcribing interview data became a strangely social endeavour; so many teachers were willing and available to talk to me

over video link. The (un)natural pause in teachers lives facilitated an outpouring of reflection and introspection for my participants and myself. Watching them back gave me a strange sense of spending time with colleagues.

Covid also had one other surprising benefit. When I eventually caught it, I was fortunate to feel reasonably well but self-isolation was still legally required. The timing was extraordinary; I had just reached the point in my research where I was about to undertake a process drawing on Exploratory Factor Analysis (EFA) methodologies. I shut myself in my office for a week and gave the task my full attention. These circumstances provided the space I needed to carry out this massive analytical task with uninterrupted focus.

The most challenging and emotional moment in my study came when the statistical methodology I was using to check my survey design failed. Cronbach's alpha scores, all >.7 following my instrument reduction process using my EFA data, were chaotic when I analysed participants' data. This was a real blow, and I felt at a loss of what to do next. Expert and peer advice enabled me to identify the suitability of the Content Validity Index (CVI) process, and I proceeded with my work.

Engaging in the ontologies and epistemologies of research methodologies has been intellectually rewarding, challenging and interesting. This has benefitted my EdD studies by providing a foundation upon which to make credible claims (and remain

mindful of not over-claiming). I have developed a maturity and increasing sense of nuance in the way I interpret, describe and evaluate social phenomena. Ecological thinking and intra- and extra-organisational dynamics are fascinating fields, and I hope to develop my explorations and understanding further.

What I really enjoy, however, is the scope for mixed methods approaches to support a nuanced account of people's lived experiences in a context. I find the process of quantifying the qualitative helpful in mitigating researcher bias and assumptions and allowing stories to emerge from the data. This is essential because I am inextricably entangled in this work, emotionally and intellectually. In addition to my personal frustrations about my experiences of both leading and receiving PD, I acknowledge influences from my professional formation which formally began in 2007 and continues to the time of writing (2025). I also recognise the influence of my experiences of my own schooling, and, indirectly, my teacher parents' experiences during the 1980s and '90s. Being a career changer and undertaking a university-based PGCE are further variables. Having explored the literature, I realise my broad alignment with the democratic professional paradigm, supporting extended professionalism (Evans, 2008) and the demystification of teachers' professional activities (Sachs, 2001). I also acknowledge my professional personality 'type'; I am restless and seek opportunities to exercise my professional agency (Smith and Ulvik, 2017).

My positionality intuitively aligns with the analytical framework developed from my phenomenographic analysis from which the survey was designed. Objectivity is difficult, if it is truly possible, which is why my study is positioned within Heidegger's interpretative approach and not Husserl's more ambitious reach for researcher detachment. Thus, I acknowledge my existing social heuristics and have tried to proceed pragmatically and mindfully.

My intellectual development has also enhanced my other professional activities. As a Religious Studies subject specialist, the intellectual work of EdD studies has added depth to my understanding of elements of the A Level course, supporting my teaching. I also support Extended Qualification Project (EPQ) students, and my research literacy promotes my effectiveness in this role. My ongoing commitment to my own academic and professional development has also served as a source of credibility for colleagues and students who can see that I 'practice what I preach'. I have been able to demonstrate resilience and reflexivity in my own development, increasing my ability to empathise with students as I support them to develop their own academic skills.

As my studies have progressed, I have increased in confidence as an academic and practitioner. I have submitted abstracts for publications and presentations, which I was pleased to accept and deliver. I have felt confident to engage with the authors of various literature, gaining insight into their work through their generous sharing of unpublished research documents. I have also broadened my professional portfolio to incorporate

work in delivering the Early Career Framework (ECF) and Specialist National Professional Qualifications (NPQs). These roles are usually reserved for senior leaders, but my EdD engagement has enabled me to convince hiring managers of my credibility as a learning mentor, facilitator and assessor.

I remain employed as a middle leader at my school, although I have now taken on an additional role as Professional Mentor and Initial Teacher Training Coordinator (ITTCo). Interestingly, I actively seek conventional promotions to senior positions less frequently, unless they are specifically focused on PD. In some respects, I am aware that I see things differently and speak a slightly different language then school leaders who sometimes value 'dynamic change makers who can demonstrate impact and challenge under performance'. I believe that I have the capacity to undertake such work, but I do not believe that it is right for me, or in general. It strikes me as short-termism, and I would rather understand and address the deeper roots of teachers' difficulties. I take the view that the reasons teachers require support are long-term and highly complex and are unlikely to be resolved by leaders' ability to initiate or delegate 'difficult conversations.'

My in-depth appreciation of the dynamics of PD have enabled me to develop leadership qualities which support my work with teachers at a range of career stages. A familiar and recurring theme arises from my conversations with teachers who complain of their frustration that in-school PD is presented without sufficient attention to contextualisation.

Interpersonal and supportive elements of PD can feel relegated in favour of measurable, demonstrable monitoring. My data resonates with this anecdotal evidence; leaders I interviewed reported frustration with low voluntary uptake of in-house PD, whilst there was a sense in some teachers' data that PD was viewed as 'box ticking' and lacking in value. The ubiquity of teachers' and leaders' frustrations with PD arrangements underlines the importance of continued work in understanding these phenomena. In the context of teacher recruitment and retention difficulties, understanding and trying to address these issues is a practical challenge and a moral imperative.

I am interested in developing a portfolio of academic and school-based activities over time, perhaps developing my survey instrument for commercial use. I have had some interesting conversations with educational leadership consultants but see this as a longer-term aspiration. I must balance such ambitious plans with practical and financial family responsibilities, which include my son's special needs educational provision, and the precarious nature of the funding associated with that.

Above all, I am determined to find a way to remain working in schools and stay in the classroom in some capacity. I enjoy engaging with students as they develop in academic confidence and enjoyment of learning. I seek to balance this with my enjoyment of working with teachers. I find my work with teachers on the ECF and NPQs highly interesting and professionally rewarding. It would be satisfying, in time, to have made an intellectual and practical contribution to improving teachers' relationships with

PD in their contexts. This will require support on many fronts: policy, economic, logistical, curricula and delivery, not to mention unpicking the damage that the current system has done to the PD pipeline. I remain committed in my wish to contribute to addressing and supporting development in this field.

Acknowledgements

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1. Introduction

This thesis reports on my exploratory study of teachers' experiences of professional development (PD) and professional learning (PL) in five secondary schools across England and Scotland. Nuanced appreciation is promoted when PD is understood as activities, events and interventions, and PL as sustained changes in teachers' attitudes, knowledge, and practices (McChesney and Aldridge, 2019b) (discussed in 2.2). In recent years, the development of a continuously improving, reflexive teacher workforce as a means of promoting student outcomes has gained traction. Proponents of this advocate teacher PD as the mechanism for realising this vision (e.g., Denicolo and Kompf, 2005; Wiliam, 2011). Attending to teachers' professional practice as something to be enhanced over time through the development of professional skills and knowledge has become widely regarded as a practical and moral imperative. These aims are often confounded as myriad competing and interconnected issues influence relationships between PD and PL, making these issues challenging to unpick and appreciate. Teachers' experiences of PD and PL must be explored in their contexts to respect the interconnectedness of the wider ecologies in which these phenomena are situated (Priestley et al., 2015). I also draw on Giddens' (1984) structuration theory to explore the processes of cultural evolution through the production of and reflection on artefacts, which helps to explain the conversion (or otherwise) of PD into PL.

In positioning this study, I noticed two connected but distinct research areas: studies exploring 'what works', evaluating the efficacy of pedagogical interventions (e.g., Sims et al., 2021) and others exploring (usually) small pockets of successful PL (e.g., Gray and Summers, 2015; Lee and Lee, 2018). Explorations of 'optimal' conditions for PL in the latter category focused my attention on the under theorisation of the ecological contexts supporting teacher PL. Without enhanced understanding of relationships between teachers' environments and PL, PD initiatives may be received and implemented inconsistently, or with futility to a resentful reception.

Empirical research reveals teachers' intrinsic drive for PL supporting PD (e.g., Pedder and Opfer, 2013, Hargreaves and Fullan, 2012; Avidov-Ungar, 2016), but pedagogical initiatives and insights encounter implementation barriers. Teachers' complaints about generic, poorly delivered, or practically or intellectually inaccessible PD are well documented (e.g., McChesney and Aldridge, 2019b). This can result in maladaptation and superficial engagement (e.g., Anthony et al., 2018) or rejection (Ball 2003; 2016). Notions of what constitutes PD 'impact', and how to assess it are also unclear and subjective, exacerbating confusion. Meaningful PD evaluation is seldom embedded in practice (e.g., McChesney and Aldridge, 2018b, McCormick, 2010). A systematic review of PD impact evaluation processes is beyond the scope of this study, but highlighting the complexity and challenges is relevant. Post-hoc analyses such as surveys or lesson monitoring may indicate whether any PD event *has* resulted in PL (changed teachers' beliefs, knowledge, attitudes and/or practices). Even systematic

and robust evaluations fail to address disconnects between expectations PD efficacy and teachers' experiences. As a pragmatic alternative, I propose proactive exploration of teachers' openness to PL at the PD planning stage.

Developing an enhanced appreciation of the ecological contexts in which PD is nested has utility. My work builds upon existing studies which associate 'optimal' features of school organisational meso-systems with teacher PL (e.g., Gray and Summers, 2015, Hargreaves and O'Connor, 2018; Lee and Lee, 2018). These studies sit in contrast with examples exploring PD interventions where PL was not realised as expected (Gray and Summers, 2015, McChesney and Aldridge, 2019b). Supportive meso-conditions for PL appear to include teachers' positive perspectives of the following eight cultural dimensions:

1. Agency (e.g., Eteläpelto et al., 2013)

2. Efficacy (e.g., Glackin and Hohenstein, 2018)

3. Logistical arrangements (e.g., Wolthuis et al., 2020)

4. Collegiality (e.g., Hargreaves and O'Connor, 2018)

5. Trust (e.g., Day et. al, 2011)

6. Reflection and reflexivity (e.g., Orland-Barak, 2006)

7. Resilience (e.g., Gu, 2014)

8. Professional Autonomy (e.g., Wilkins, 2011)

Teachers' subjective, contextualised perspectives of these dimensions appear influential in the translation of PD into PL. Thus, teachers' perspectives and lived experiences of PD and PL invite problematisation and exploration. I have developed an analytical framework to develop nuanced understanding of these dimensions and synthesised my emergent analytical framework into a survey instrument. I have conducted a phenomenographic analysis (Marton, 1986) to surface different usages of language describing the eight dimensions and drawn upon Exploratory Factor Analysis (EFA) methodologies to notice sub-factors within each cultural dimension. I shall refer to the eight terms above as dimensions and their sub-categories as factors throughout this thesis.

I have sought to contribute to understanding of these complex issues and explore this overarching research question (RQ):

What are secondary educators' experiences of the relationships between their school ecosystems and teacher PD (Professional Development) and PL (Professional Learning)?

This enhances understanding of teachers' experiences of their learning environments, contributing to efforts to narrow the persistent theory-practice gap (Korthagen, 2017) in a manner recognising teachers' systemic contexts without presuming professional deficit.

Themes relevant to my exploration are discussed in chapter 2, positioning this study within the existing literature. I outline the eight dimensions associated with teacher PL in 2.5, foregrounding my developed analytical framework, presented in chapter 4. In chapter 3, I describe the methodological basis for this study, and processes undertaken to develop my framework and survey instrument. I have deployed my survey in five secondary schools and conducted semi-structured interviews with school leaders to contextualise each school's survey data and developed heuristic narratives, before undertaking a cross-case analysis. My methodology for interview procedures, and individual and cross-case analysis is presented in chapter 5. Using a mixed methods approach I offer elucidation into teachers' perspectives of aspects of their school's ecosystems. From this process, I offer heuristic themes and observations in chapter 6.

1.1 My contribution

This study offers a clarifying lens to the complex social phenomena described. My analytical framework offers granular insight into significant dimensions associated with teacher PL, and my survey captures teachers' perspectives of them using a Likert scale of 1 (strongly disagree) to 4 (strongly agree). For example, reported scores of <1 in response to items relating to access to collaboration spaces suggests teachers' frustrations with logistics; they are struggling to find meeting rooms. Such frustrations are experienced as barriers to collaborative learning discussions which inhibits PL. Logistically supported implementation processes were found to be significant in supporting teacher PL. This supports my attendance to structuration processes

(Giddens, 1984), which occur in social systems regardless of deliberate interventions, but which can be harnessed to steer cultural evolution (2.3.1).

The deliberate utilisation of structuration processes depends upon the curation of the PD to be implemented and creation of opportunities for reflexivity focused on artefacts. Artefacts may result from routine school reporting processes, or deliberately produced through interventions such as action research or professional learning communities, but the evaluation process is not always afforded dedicated attention. I note emergent sub-categories from literature and my data analysis to further delineate PD, differentiating between PD1 and PD2. PD1 is the substantive information sharing of specific pedagogical interventions and PD2 refers to systematic opportunities for collegial sense-making, contextualisation, and co-creation (discussed in 5.5 and 6.2). Teachers in schools where PD1 was systematically followed up with PD2 and supported by strategic and operational structures reported higher scores on almost all aspects of my framework.

My thesis is presented in two parts. Part 1 describes phase A and details processes undertaken during my phenomenographic analysis and subsequent development of my analytical framework and survey instrument. I describe my methodological processes for each step, including Exploratory Factor Analysis (EFA) and Content Validity Index

(CVI) processes, instrument refinement and reduction, and the analytical framework that underpins the 'proof of concept' instrument.

In Part 2, I describe the methodological processes undertaken in phase B by which I deployed and evaluated teachers' and school leaders' experiences of engaging with my survey instrument. I outline the methodological procedures and decisions concerning quantitative and qualitative data collection in five secondary schools, the development of these data into heuristic narratives and then the cross-case analysis procedures I used to draw out the threads of teachers' and leaders' experiences of and assumptions about PD and PL in their contexts. This section concludes with my findings from these processes, and discussion and conclusions of my study.

In summary, my contribution to knowledge and practice is threefold:

1. An analytical framework offering enhanced theoretical understanding of concepts associated with teacher PL (developed in chapter 3 and discussed in chapter 4).

2. 'Proof of concept' of a survey instrument which engages stakeholders with this analytical framework, facilitating personal and organisational reflexivity through deepened understanding of conditions associated with PL (developed chapter 3 and discussed in chapter 6).

3. Empirical evidence from a cross-case analysis of five schools indicating the role of PD2 in elevating teachers' perceptions of cultural dimensions associated with

PL through structuration processes. I associate this finding with artefacts including and beyond those generated through my survey (see chapter 5 for data analysis methodology and chapter 6 for discussion).

This study contributes to the wider goal of 're-practicalizing' theory in education. I have acted as a 'university partner', working with schools to synthesise and evaluate evidence-informed PD (Fairman et al., 2020). I hope to provide a sound basis to contribute to social change concerning this complex problem (Stroh, 2015). Contextualising schools as meso-systems nested in macro-context surfaces associated and competing assumptions (Schein, 2017) (see 2.4). An ecological lens enables stakeholders to introspect through an evidence and literature informed perspective.

2. Mapping the literature

Here, I explore existing theorisation and empirical evidence informing my understanding of themes and concepts relevant to my study exploring teachers' professional development (PD) and professional learning (PL). My data captures individuals' lived experiences of social and interpersonal phenomena in school contexts. I draw on an ecological lens as conceptualised by Preistley et al., (2015) which recognises the inherent interplay between individuals and their contexts as essential to the exploration of human social phenomena. Macro-level policy and accountability structures, paradigmatic assumptions, interpersonal relationships, and past experiences are amongst the influences on individuals' perceptions. I also draw on Giddens' (1984) structuration theory to explore mechanisms by which inter- and intra-system dynamics perpetuate change through the generation of and reflection on cultural artefacts. Individuals and groups reciprocally influence and are influenced by their environments, and no part of the system can be understood in isolation.

This positioning supports exploration of literature concerning a breadth of issues to make sense of the strands within school environments. My intention is to contribute to understanding of the "wicked problem" of teachers' PL. Whilst PL is undoubtedly a personal matter for individuals, it has broader organisational and social consequences. This ecological lens view is articulated by the language of micro-, meso- and macro-spheres which I use to describe individual perspectives, organisational/school-based observations and broader societal, historical and policy contexts, respectively. I explore

these foundational underpinnings in 2.3 of this chapter but introduce them here to position my study within a field in which equivocal language springs from multiple uses of 'ecology' from across social, psychological and biological sciences.

In preparing this literature review, I searched education databases, including the Education Resource Information Center's (ERIC) ProQuest and Elton B. Stephens Company (EBSCO) services, identifying peer-reviewed studies, which infer a good standard of academic quality. Boolean search terms included professional learning, teacher learning, professional development, secondary education, professionalism, school leadership, e.g., "Agency AND Secondary Schools AND Professional Learning". I read literature titles, key words, and abstracts, and recorded the DOI numbers of articles of prima facie interest in Zotero and read promising studies closely. Some articles were signposted by my supervisors and other educators. Snowballing techniques identified further sources. As my understanding developed, I incorporated terms including 'structuration', 'hermeneutic', 'ecological' and 'phenomenographic' into my searches.

To promote my deep understanding of the field, I reviewed seminal texts, e.g., on phenomenography (Marton, 1986) and structuration theory (Giddens, 1984), commentaries, e.g., on Heideggerian hermeneutic phenomenology (Horrigan-Kelly et al., 2016), and systematic reviews (e.g., Sims et al., 2021). I identified empirical studies using similar theoretical frameworks to those I wanted to utilise, e.g., ecological

psychology (Young et al, 2002), and barriers to teacher professional development and learning (e.g., McChesney and Aldridge, 2019b). Digital lectures on relevant themes enriched my understanding and included Giddens (1999) 'Runaway World', and Onora O'Neill (2004), 'A Question of Trust'. I explored wider literature beyond the education sector, including from nursing and business, initially because of methodological similarities resulting from my database searches, and latterly through snowballing from the reference lists of papers discussing theories of organisational change. To undertake my phenomenographic analysis, I imported all literature accessible in pdf format into NVivo software. There, I used key word and crosstab searches, word frequency analysis, and word clouds to group ideas and identify themes and patterns. This methodological process supported the development of my analytical framework, whilst deepening my familiarity with the literature (see 3.4).

In the following sections literature concerning teacher PD and PL in macro-, meso-, and micro-systems are explored and applied to the exploration of five secondary schools in England and Scotland. Contextualising my study in this way foregrounds my subsequent analysis of teachers' and leaders' micro-perspectives concerning the conceptual language used by stakeholders in the meso- and macro-spheres. This review is organised as follows:

1. Framing the problem: A brief contextualising history of post 1988 Education reform in England and Scotland (2.1)
2. Conceptualising teacher PD and PL (2.2)

3. Theoretical lenses: ecological and structuration (2.3)

4. Relevant themes and concepts: professionalism, organisational culture, school cultural evolution and leadership (2.4)

5. Cultural dimensions associated with the transformation of PD into PL (2.5)

6. Implications for this study (2.6)

Granular analysis of the literature relating to the factors emerging in my analytical framework is provided in chapter 4, because it requires methodological contextualisation, which is provided in chapter 3.

2.1 Teachers and professional development: policy and personal experience

In 1988, the then Conservative Education Secretary, Kenneth Baker, codified five annual mandatory in-service education and training (INSET) days in state-maintained schools in the United Kingdom into policy. This standardised opportunity for professional development (PD) activities for all teachers in the state education sector affirmed the political will for wide-scale reform, underpinned by the Education Reform Act (1988). Standardisation of curricula and, later, high-stakes accountability mechanisms in the form of successive Ofsted inspection frameworks (established in 1992) are now embedded. Consequently, few serving UK trained teachers have experienced the pre-Act system, either in their professional lives or, indeed, in their childhoods. This makes it challenging to conceive of the system in any other way (Buchanan, 2015; Mockler, 2011). Successive governments have used the inspectorate mechanism to advance various agendas. These have underpinned and

driven the PD agenda, but this has not always been well received by teachers. Studies indicate patterns of teacher apathy towards, and disengagement with PD (e.g., Pedder and Opfer, 2013; McChesney and Aldridge, 2019b). Negativity towards PD is associated with transmissive and 'trickle down' approaches utilised in some schools, which are associated with poor PD efficacy (Kennedy, 2005; 2014). Such PD may be experienced as variously generic, irrelevant, impractical, 'tick-boxy', or de-professionalising by some teachers (McChesney and Aldridge, 2019b), or swamped by performative workload (Ball, 2008).

The Learning and Skills Act (2000) of the then Labour Government initiated the academisation project, which devolved many decisions about curriculum and other local school matters to school leaders. Leader discretion was explicitly codified as 'supported autonomy' by the DfE in 2016, but it was questionable how autonomous one can be within a high-stakes, high accountability managerial macro-context. A raft of educational reform has influenced school leaders' decisions over PD provision in recent years. Following Michael Gove's (Gove and Department of Education (DfE), 2010) reforms, policies such as the Teachers' Standards, (2013), Educational Excellence Everywhere (2016), and Ofsted's evolving inspection agenda, revised in 2005, 2009, 2012, 2015; 2019 and 2023, continue to influence school leaders' PD planning decisions. School leaders' autonomy has sat uneasily with centralised control for many years. Indeed, the Academies Act 2010 under the Conservative-Liberal Democrat coalition government reinforced the political will for reform of the English school system.

From 2016 until the abandonment in 2022 of the Schools Bill policy, the government had powers to force schools in England and Wales to convert to and join Multi-Academy Trusts (MATs) in which decision-making powers are overseen by Chief Executive Officers (CEOs), diminishing the autonomy of individual headteachers in each Trust.

Recently, education policy in England and Wales has reflected a drive for continuous improvement through PD in the Early Career Framework (ECF) (DfE, 2021), now superseded by the Initial Teacher Training and Early Career Framework (ITTECF) (Bauckham and DfE, 2024), and National Professional Qualifications (NPQs) (DfE, 2024b). Such initiatives contribute to recruitment and retention strategies (e.g., DfE, 2019), which are underpinned by research synthesised and commissioned by organisations such as the Educational Endowment Foundation (EEF) (e.g., Sharples et al., 2024). These frameworks have been criticised for holding research informed evidence as 'fixed' within an evolving field (Conyard, 2022). Narrow, positivist methodological standpoints inferred in the EEF's emphasis on Random Controlled Trials (RCTs) can also be viewed as problematic (Fendler, 2006). Some school leader voices criticise EEF evidence as insufficient to drive change, highlighting the importance of local contextualisation of initiatives (Brown and Heath, 2024).

I have delivered and examined some NPQs (Leading Teacher Development and Leading Teaching) and consider them a reasonable starting point for teacher development, drawing teachers' attention to an evidence-base they may not otherwise

have engaged with. As I discuss in chapter 6, the question of what happens *after* teachers engage with the evidence base is a more interesting, and under-theorised, issue. Specifically, the supportive structures enabling collective sense-making, contextualisation and co-creation in teachers' environments must be conducive to sustaining learning. Without this, the impact of such programmes seems inhibited.

Comparable policies have been developed in Scotland, for example, Education Scotland's National Model of Professional Learning, launched in 2012, available at https://education.gov.scot/professional-learning, 2025 corresponds to the English teacher professional development frameworks outlined above. Such policies are nested within a context with a history of national distinctiveness, egalitarianism and, significantly, resistance to English policy intervention. Prior to devolution, enabled by the New Labour general election result in 1997 and formalised into a legislative body in 1999, implementation of Westminster's managerialist reform and efficiency seeking educational policy was largely unsuccessful due to local Scottish non-compliance. After devolution, English policy was systemically rejected, incrementally replaced by developments in teacher training at all career stages (O'Brien, 2011). These included a protected 35 hours of broadly defined teacher directed PD (Scottish Executive Education Department (SEED), 2001; Scottish Negotiating Committee for Teachers (SNCT), 2007). These dedicated PD hours may be incorporated into whole school INSET days, or not, at the headteachers' discretion, in contrast to the stipulated 5 INSET days which remain mandatory under English legislation (HM Government, 1988).

A difference significant to this study between English and Scottish policy concerning teachers' experiences of PD is flexibility of off-site working. For example, in Scotland, teachers have been permitted to undertake non-student facing duties off site (SNCT, 2023, Part 2, Section 3.9) since 2001 (SEED). In contrast, teachers in England were only afforded this in 2024 (DfE), and it is, so far, proving challenging to implement (Roberts, 2025).

Another difference has been conceptualised between the Teacher Professional Standards in England (DfE, 2013) and their Scottish counterparts (General Teaching Council for Scotland, 2021). Scottish standards have been conceptualised as formative, where they purport to constitute a developmental, autonomy protecting framework (Forde et al., 2016). Nevertheless, Scottish developments have been criticised as de-facto managerialism, lacking robust philosophical and professional bases, and being insufficiently funded (O'Brien, 2011).

These policy environments and their reform agendas have been synthesised by school leaders in a high-stakes accountability context in England and Wales, and more loosely with an emphasis on local and individual professional autonomy in Scotland. Some teachers experience PD as politically driven, and consequently many interventions have been viewed with suspicion. In England, in particular, PD has gained a reputation for decontextualised 'fads', performed for the benefit of Ofsted under the micro-managerial gaze of school leaders (Ball, 1997; 2003; 2008; 2016). This has contributed

to teachers' difficult relationship with PD. Much has been written about how teacher professional learning occurs (e.g., Clarke and Hollingsworth, 2002), impact evaluation (e.g., McChesney and Aldridge, 2018b) and barriers to teachers' engagement with PD which inhibit PL (e.g., McChesney and Aldridge, 2019b). However, holistic perspectives remain undertheorized. My application of an ecological lens to teachers' PD experiences contributes to developing understanding of this issue.

2.2 Conceptualising Professional Development and Professional Learning

Professional Development (PD) and Professional Learning (PL) are often conflated in educational literature. It is useful to draw out nuance by differentiating between ways PD transmits information and engages teachers, and PL, which promotes changes in teachers' skills, knowledge, and practices (McChesney and Aldridge, 2019b). For Evans (2008), PD entails both learning opportunities and outcomes, emphasising positive changes in teacher practices which extend teachers' professionality, or individual practice. Teachers often use acronyms like CPD (Continuous Professional Development) or INSET (Inservice Training), and, less commonly, 'sponsored' or 'independent' PD events. Some teachers differentiate between mandatory training (e.g., safeguarding) and PD focused on subject or pedagogical content knowledge (the 'what' and technical 'how to' elements of interventions). Others conflate departmental administrative tasks and CPD time, allowing administrative tasks to squeeze out opportunities for richer, more developmental conversations (Denicolo and Kompf, 2005).

PD planning decisions are influenced by the managerial-macro environment through policy and the inspectorate, and in-house evaluations derived from schools' contexts. This analysis informs school leaders' strategic choices about PD priorities. Having identified development priorities, leaders must initiate change management processes to activate community members as learners. The urgency and seriousness of the need determines the pace of implementation. Learning intended to perpetuate a change in organisational or professional practices requires leaders to navigate a tension between teachers' learning anxiety (fear of temporary incompetence and associated punishment or damage to identity or reputation), and survival anxiety (threats to safety, financial stability, success, or reputation of an organisation) (Schein, 2017). In a school, a poor Ofsted report represents a source of survival anxiety, but performative cultures tend to create fear and risk-aversion, leading to high levels of learning anxiety (Ball, 2003; 2008). Evidence from the business world suggests raising the threat of survival anxiety is less successful in promoting learning for organisational change than taking steps to mitigate learning anxiety, which requires leaders to create psychologically safe conditions (Edmondson, 2019; 2023; Schein, 2017; Scott; 2017).

Survival anxiety has been a significant driver in school development planning since the inception of Ofsted in 1992, an issue the inspectorate itself has sought to address, most recently through their cessation of single word headline judgements (Ofsted, 2024). To promote conformity to macro-regulatory standards, sponsored PD may instrumentally

drive PD intention and design (Gurney and Liyanage, 2016). This is often disseminated through transmissive, cascade and standards-based deficit PD models (Kennedy, 2005; 2014), promoting a 'best practice' pedagogical model, applicable by all and articulated in language such as 'non-negotiables'. Such models fail to recognise individual teacher experiences and subject contexts, and result in teacher resistance talk and superficial compliance as teachers assert their limited agency (Ball, 2016; Taylor, 2021). For experienced teachers (although not exclusively), the introduction of novel mandatory practices increases learning anxiety because of the dual pressures of fear of (temporary) incompetence as new techniques are mastered, and fear of punishment from the high-stakes managerial environment (Schein, 2017). Instrumental sponsored PD delivered via transmissive models is associated with limited teacher engagement and enjoyment, and marginal PL.

Some teachers, perceiving their PD needs un-met, seek PD on their own terms, in the form of independent PD (Gurney and Liyanage, 2016). Alternative employment may consequently be sought, both within (Joost Jansen in der Wal et al., 2018) and outside of the teaching profession (Smith and Ulvik, 2017). Inappropriately pitched, generic and agency limiting PD is related to teachers seeking to or, in fact, exiting the profession (Perryman and Calvert, 2020), contributing to a pressing recruitment and retention crisis (McLean et al., 2024). For those remaining in schools, self-directed and self-chosen (but school sponsored/supported) PD engaged with over time is positively associated with engagement and PL (Kennedy, 2005; 2014; McChesney and Aldridge,

2019b), but PD diversification resulting from teacher choices dilutes schools' strategic aims (Everitt, 2020). Sparce logistical and financial resources make such opportunities challenging to facilitate (Wolthuis at al., 2020).

Promoting teacher enjoyment of and engagement with PD is an important lever in retaining teachers and sustaining their commitment and efficacy (Day and Gu, 2009; Hargreaves and Fullan, 2012; Pedder and Opfer, 2013). The democratic professional paradigm, concerned with professional demystification, entails research engagement through purposeful, high-quality PD (Evans, 2008; Sachs, 2001). Over time, this supports PL and is associated with improving student outcomes (Denicolo and Kompf, 2005; Wiliam, 2011).

Pressures of the efficiency-seeking managerialist professional paradigm emergent in the post Education Reform Act (1988) era (developed in 2.4.1) and the evocative promise of 'what works' can perpetuate standardised PD models reminiscent of sponsored PD, with its problematic transmissive, deficit associations (Gurney and Liyanage, 2016). Furthermore, teachers' professional identities as they relate to PD are neither predictable, nor fixed (see 2.4.2). Avidov-Ungar (2016) identifies fluidity in a quadrant of extrinsically and intrinsically motivated, hierarchically, and laterally compelled attitudes, rendering teacher PD receptivity a 'moving target'. Even if 'best practices' were possible or desirable, their utility is questionable; generalisability cannot be assumed (Fielding et al., 2005). The National Curriculum (DfE, 2014) is multi-

disciplinary, requiring discrete subject content and pedagogical content knowledge, undermining generalised PD designs; what constitutes effective pedagogical practice in maths may hinder creativity in art. Collegial PD models, (e.g., Hargreaves and O'Connor, 2018; Kennedy, 2005; 2014) advocate the efficacy of teacher action research and collegial sense-making as the most transformative PD opportunities.

In my experience, having delivered and received direct participant feedback on ECF and NPQ courses, teachers welcome 'face to face' PD, finding it enriching and enjoyable. The theoretical and evidence-base for pedagogical (e.g., Rosenshine, 2012) and implementation processes (e.g., Sharples et al, 2024) underpinning centralised PD can support collegial, local contextualisation, aligning with the democratic professional paradigm. Hargreaves and Fullan (2012) argue for proactivity in engaging teachers in professional learning communities (PLCs) across all career phases to mitigate concerns about the commitment, engagement, and efficacy of late-career teachers (Day and Gu, 2009; Carrillo and Flores, 2018; Lee, 2019; Lowe et al., 2019).

Empowering teachers to apply professional judgement and experience to new evidence in groups increases their perceptions of agency and efficacy (Vähäsantanen at al., 2017). Hargreaves and O'Connor (2018) call this collaborative professionalism, emphasising social aspects of the democratic paradigm which minimises isolationism associated with independent PD (Pedder and Opfer, 2013). Collegial PD strengthens perceived collective professional autonomy; a shared belief in groups' capacity to

achieve change (Keddie et al., 2023). Fostering this within high-trust, socially intelligent systems is associated with wellbeing and sustained learning (Fullan, 2021). Competing pressures from the macro-context, and the effects of austerity make these ideals challenging to realise (Hulme and Menter, 2014). Despite growing evidence, teachers continue to report frustration and dissatisfaction with PD (McChesney and Aldridge, 2019b).

The macro-policy environment and pressures (see 2.1) mean school leaders responsible for PD design, realisation, and accountability have complex problems to solve. PD solutions must demonstrate impact, cost efficiency, and be accepted by a critical mass of teachers to effect sustained change. Student outcomes must be demonstrably improved by accepted measurable proxies (e.g., exam results and progress 8 etc.), which support organisational financial security (Leckie and Goldstein, 2017). Devolved agency (DfE, 2016) and New Public Management (Hall, 2013) in the macro-accountability context can have perverse consequences for PD implementation in the development of tight performativity (Ball, 2003). Even with democratic, inspirational intent, PD implementation becomes problematic when rushed or unfocused. This is stressful for colleagues because it is not clear what should be started, ceased or continued, and when, leaving prioritisation up to individuals or sub-cultures. Responses to this leader behaviour include apathy for those who opt out (why invest the time now when something else will be in favour next week?) and burnout as individuals attempt to balance ever increasing demands (Schein, 2017).

2.2.1 Conceptualising coaching and mentoring

Coaching and mentoring are often associated with impactful PD arrangements, but the associated language and practices are conflated and contested. Both have been identified as transitional PD which may, if carried out effectively, lead to professional transformation and facilitate PL (Kennedy, 2005; 2014). She provides a typology of PD which outlines tiers of PD efficacy:

- o **Transmission Models** (e.g., Training, Cascade, Standards-based)
- o **Transitional Models** (e.g., Coaching/Mentoring, Communities of Practice)
- o **Transformative Models** (e.g., Action Research)

She notes that PD models featuring increased collegiality and reflexivity are associated with transformative experiences. PD can incorporate different elements phase through these tiers, for example an award-bearing PD might have transmissive information-giving elements followed by more interpersonal, research-based or collegial activities.

PL can be said to have occurred if transformational elements are realised and practice changes. Thus, PD models, for example those entailing coaching mentoring are malleable because they can be designed for and turned to different purposes (Kennedy, 2014) It is worth problematising the coaching and mentoring model because even where collegiality and reflexivity are 'designed into' PD, there are differences in how teachers experience these activities. Circumstances including formality, authority,

power imbalance, intention, purpose, structure and the skills/experience of those involved are significant and can constitute facilitators of or barriers to PL (McChesney and Aldridge, 2019b).

In this context, both coaching and mentoring entail a one-to-one relationship between two professionals with the explicit intention of supporting and facilitating the professional growth of one of the parties (Kennedy, 2005). One purpose of such relationships is to encourage critical thinking and reflexivity in the other person (Earley and Bubb, 2023), but it is not necessarily a one-sided relationship, and those involved may develop a 'professional friendship' from which both parties' benefit (Kennedy, 2005).

Despite these conflations, coaching and mentoring are not conceptually identical and remain subject to theoretical debates. Lofthouse (2021) acknowledges the breadth of practices which can sit under the 'umbrella' of coaching. She advocates the view that a core feature is the relationship built between two people in which one facilitates the self-discovery of the other in the pursuit of creating opportunities for change in response to reflections on contextually situated events in a non-directive fashion. In contrast, instructional coaching takes a more directive approach, entailing the transfer of skill from an expert to another with an identified development need (Warnock et al., 2022).

Mentoring has an association with a power-differential and usually entails an experienced or senior college supporting someone less experienced (Lofthouse and Thomas, 2017). Mentoring also implies a formal, function exemplified by its structural inclusion in the ECF (DfE, 2021) with its funded statutory time allocation. The mentoring of ECTs must take place and follow approved curricula progress against the ECF. Although progress though the ECF curriculum is not formally assessed *per se*, engagement is monitored and ECT's competence of practice against the standards is reported to the DfE by the Induction Tutor, not the mentor (DfE, 2021, pp. 29-32). This places mentors in the role of a supportive, more experienced teacher using coaching-style, non-directive techniques.

The language around coaching and mentoring is also conflated in other elements of award-bearing courses such as the NPQs (2024) where a mentor is allocated to oversee online learning activities, and a coach meets with the participant in school. Both roles assume the greater experience or seniority of the 'helper' teacher. The terminology is further diluted in the NPQ Leading Teaching which emphasises 'expert led conversations' (DfE, 2020, p.23), which, in my experience, many participants assume refers to a subject specialism, but which can also be understood as a person skilled in coaching techniques such as Lofthouse would prescribe (Lofthouse, 2021).

Mentor/coach dynamics become even more complex when teachers, mentors and coaches are older or younger than the one they support, as can often be the case with

career changing teachers who may be extremely experienced in another professional field prior to undertaking their teacher training. In such cases, a formal 'mentor' must engage in 'coaching' behaviours that respect and acknowledge the trainee/ECT's prior experience whilst also enabling them to understand and address their emerging developmental needs.

Literature and empirical evidence increasingly emphasise the importance of collegial sense-making of credible research evidence. I have traced a line from research evidence to policy, through synthesis and structured frameworks into recommendations for social learning and contextualisation in schools. This highlights the interconnectedness of the macro-, meso-, and micro-systems in transforming PD into PL, and the challenges this presents for school leaders. I now turn to the contexts in which professionalism, PD and PL are enacted and realised; the meso-system, otherwise known as schools' cultures.

2.3 Theoretical lenses

Schools are highly complex social systems and so it is impossible to cleanly isolate the factors influencing relationships between PD and PL. Inter-dependence of influences within and between nested parts of social ecologies must be recognised as a dynamic interplay between a variety of stakeholders and structures (Daly et al., 2020; Priestley et al., 2015). Macro-systems exert national, socio-political influences (Gao, 2010 McChesney, 2017; Mockler, 2011; Sachs, 2001; 2005), meso-systems comprise the

organisation or school itself, and micro-systems comprise teams, departments and other sub-groups, and individuals' experiences. This lens supports exploration of the relationships between PD and PL because agents' perpetual entanglement with nested and interrelated components of the system enables them to notice phenomena from their own subjective viewpoint (Young et al., 2002). Individuals' perspectives precede their judgements and consequent actions. These emergent affordances (possible actions) are both limited by and have the potential to impact and shape environments making social systems dynamic (Daly et al., 2020). An ecological view is compatible with Giddens (1984) structuration theory; the system/agent interdependence entails a degree of prescriptiveness and pervasiveness by the macro-conditions (physically or in perception), influencing the possibility of noticing affordances, and limiting or extending agents' perceived capacity for action. The dynamic processes of agent interactions within social systems generates and iterates what is commonly termed school 'culture' (Stoll, 2000).

The term 'culture' is complex and loaded with assumptions, which I explore in 2.4.3. For now, it is sufficient to note that school cultures evolve through interactions between complex environments (Priestley et al., 2015). Agents bring knowledge, skills, motivations, and interests into their contexts, and operate within the macro and meso-systems. Individuals' identities are significant, both within and between groups (Stoll, 2000). These are dynamic and complex because of simultaneous, negotiated multiple group memberships, through which individuals establish their 'place' in their narrative

(e.g., Eslamdoost et al., 2019; Søreide, 2007; Wenger, 2008). Nationality, regionality, religion, gender, sexuality, ethnicity, academic status, and domain expertise exert significant influence (e.g., Gao, 2010; Kompf, 2005; McChesney, 2017; McNess et al., 2015; Quan et al., 2019). Personal and professional identities can influence the formation of powerful sub-cultures both within and beyond organisations (Schein, 2017), e.g., subject-specific affiliations.

Teachers' (often unarticulated) personal, and professional assumptions influence their beliefs and practices at the micro- and meso-system level, both of which are nested within the prevailing macro-context (e.g., Claesson, 2005; Gao, 2010; Petterson et al., 2005; Šteh and Marentič Požarnik, 2005). Macro-professional paradigms have practical consequences for school social systems; the managerialist paradigm encourages resource competitiveness and practice standardisation (Sachs, 2005), (developed in 2.4.1). Macro-influences include policy standards and expectations, e.g., the ECF (DfE, 2021). These trickle down to the meso-sphere through leader interpretations and implementation (Hall, 2013; Gronn, 2003; Kompf, 2005; Wilkins, 2011). Change dynamics are complex and subject to myriad factors. The extent of leaders' influence may include their tenure and context (Leithwood and Day, 2008; Gu et al., 2020). Some leaders must maintain steady improvement, whilst others are obliged to respond to shock disconfirming data (e.g., a poor inspection outcome, serious accident or whistleblower's intervention), which require swift and drastic interventions (Schein, 2017). Stakeholders are attuned to perceive future personal development opportunities

(Boyer, 2013) and are subject to social and historical influences (Day, 2005; Huberman, 1993; McNess et al., 2015). All social systems are sensitive to rule/norm enforcement (Flanagan, 2005), both explicitly and tacitly (Schein, 2017). Examples range from directed time hours and staff dress codes to the allocation of parking spaces and coffee mugs. Leaders and researchers must remain mindful of the complex ecosystem of influences when considering adoption (and adaptation) of reform efforts into community members' practices (Bunnell et al., 2020).

Significantly, macro-policies devolve interpretation and implementation to school leaders at the meso-level by design. Policies of New Public Management (Hall, 2013) and 'supported autonomy', as defined by the DfE (2016), require school leaders to mediate policy. Consequently, school meso-cultures develop distinct characteristics. Divergence is compounded by interpersonal and corporate communication, including issues of translation, interpretation, equivocal nuance, non-verbal cues and shared symbolism. Organisational norms for collegial interactions e.g., PD engagement and administrative responsibilities, compete for attention, diminishing teachers' sense of agency as they feel their capacity for action diminish. This effect is uneven, resulting in variations in individual and collective capacities which extend or limit reform efforts (Stoll et al., 2006). Leaders consciously and unconsciously amplify different assumptions in their interpretation and implementation of the macro-policy.

In ecological social systems, interactions are multi-directional. If the macro-sphere is a 'downward' force on school cultural dynamics, it is equally important to recognise the 'upward' forces from the student body, and the 'inward' forces of the local context (Stoll, 2000). Interactions with students and other stakeholders include teachers' responses to reward and challenge in academic contexts (Gao, 2010). Behavioural/pastoral considerations are another significant and influential dimension of cultural evolution in schools (Boyer, 2013; Brubaker, 2016). More broadly, religion exerts influence through national macro-structures (public holidays), meso-organisational affiliations (faith schools), and micro-individual observances (Orlenius, 2005). Myriad factors influence the continuous interpersonal micro-negotiations which mediate learning, increasing or inhibiting individuals' learning capacity at any given time. Openness to learning cannot be uniformly assumed.

At the micro-cultural level, teachers' personal and professional identities are expressed in individuals' professionalities (teachers' self-concept and expression in practice, developed in 2.4.1), which influence their relationships with school cultures, fostering a sense of collective professionalism at the meso-level. Myriad influences from past experiences, personal and professional knowledge, assumptions and beliefs, individual and shared aspirations, policy demands, and contextual interpretation make organisational 'culture' difficult to codify.

Such complexity ought to render notions of 'culture' as static or fixed absurd, and yet, membership provides a framework of 'norms', including via stigmatisation of undesirable behaviours, enabling individuals to benchmark and moderate their conduct (Schein, 2017; Slay and Smith, 2011). Dominant elements contribute to and become socialised into established 'norms' in the organisational milieu (Gao, 2010). These become particular to organisations, perpetuating a shared sense of character, or 'cultural DNA' and espoused values in social systems (Schein, 2017). Collective membership of social organisations, therefore, has a stabilising effect. Simultaneously, social norms, beliefs and structures continue to emerge, evolving dynamically out of and within these contexts (Stoll, 2000). Thus, organisational culture evolves in reciprocally transformative ways (Young et al., 2002). This inexhaustive list of context-transcending influences affirms the appropriateness of the ecological approach taken in this study.

In 2.4, I will review themes and concepts relevant to this study: teacher professionalism, organisational culture, school cultural evolution, and leadership, before exploring the dimensions associated with teacher capacities for PL in 2.5. First, it is helpful to set out Giddens' (1984) structuration theory which offers a mechanism by which this theorisation has practical utility.

2.3.1 'Practicalising' theory: the utility of structuration

Here, I draw together the ecological and structuration perspectives underpinning this exploratory study. This positioning informs methodological decisions (chapter 3), but also is grounded in wider literature, hence its brief theorisation here. Giddens' (1984) structuration theory shares the world-mind-world reciprocity of phenomenology which positions reality as a mental state in individuals' perception with intentionality (Dreyfus, 1993; Husserl, 1969). Perceptions arise from reciprocity between the external world and agents' actions (Searl, 1996). This makes structuration theory appropriate for this professional doctorate, because it is explicitly practical. Structuration is not only a descriptive, ontological account of reality, it is mechanistic, explaining how action (and inaction) exerts influence and effects change. It is dynamic and imperfect, accommodating flexibility and development. It can bridge spheres enabling sensemaking between elements of nested systems, e.g., micro and macro). It is discretionary, not deterministic, facilitating individuals' agency in relation to other agents (mitigating individualism) and resource availability (highlighting the importance of logistics). People engage in "overlapping, contradictory and precarious" systems (Whittington, 2015). Acknowledging the messiness of human interactions, and research in the Social Sciences (Law, 2004), structuration theory provides a suitable framework for both academic insight and practical utility.

2.4 Exploring relationships between environment, Professional Development and Professional Learning

In exploring secondary educators' perspectives and experiences of the relationships between their school ecosystems and professional development (PD) and professional learning (PL), several concepts require elucidation. Clarity is important because much of the language is not only domain specific, but equivocal within its domain. Words like 'professionalism' and 'culture' are fraught with unspoken assumptions. Here, I explore these divergent views, highlighting the differences and offering a commentary to position this study in the literature. Conceptual positioning underpinning subsequent theorisation is important to mitigate confusion. This study constitutes a point of input towards evolving theorisation; social organisations and structures necessarily exist in a state of perpetual theoretical and practical construction and re-construction. Thus, it is not necessary for conceptual understanding to be settled prior to undertaking this work. (Giddens, 1984).

In this study, I draw on Giddens' (1984) structuration theory to conceptualise 'culture'. This is appropriate for this purpose because this characterisation uses insights into social dynamics, norms, language, and symbols to infer information about human social behaviours, which is reciprocally dependent on context and environment. These inter-relationships generate culture, which is expressed through routines broadly comprised of ideas (ostensible notions), actions (human exercise of agency) and artefacts (Tubin, 2015). Artefacts constitute proxies for cultural states, offering insight into prevailing

shared routines and perceptions of 'norms.' Change occurs when artefacts prompt new ideas, generating new actions (routines), and the further production of artefacts (Giddens, 1984). It is an oversimplification to suggest new ideas produce predictable manifestations in culture. This helps to explain why decontextualised PD does not reliably translate into intended reforms. This does not mean PD is without influence and effect but, rather, suggests the effects are unpredictable.

Relationships between ideas and actions can have unintended consequences, making cultural change unpredictable. Giddens (1984) outlines three types of unintended consequences which occur within social organisations:

1. Act to person (e.g., I turn on a light disturbing a prowler, who flees)
2. Collective individual acts, or the 'composition effect' (e.g., evolving patterns of urban segregation arising when people seek to live in areas where they are not the minority)
3. Complex institutionalised practices (e.g., teachers feel disempowered to admit to mistakes and hide them leading to serious, complex failures – Edmondson, 2023)

(adapted from Giddens, 1984, pp.10-14)

Consequently, tracing clean causal impacts of any single idea based on positivist methodologies is problematic; meaningful, practical and ethical 'control' groups are

challenging to engineer (although 'natural experiments' sometimes present bounded datasets for interrogation *post hoc*, as exemplified in Freakonomics, by Levitt and Dubner, 2015). Structuration theory suggests deliberately curated interventions 'steer', rather than determine, human culture.

Expectations of predictable, replicable cause/effect patterns lead to entanglement not only of methodological assumptions but also linguistic ones. Giddens (1984) is clear in his distinction between the language of 'structure' vs. 'structuration'. The former has causal, deterministic connotations that Giddens (1984) does not intend in the latter, which entails the catalytic quality of curated, but not tightly controlled, possibilities. When a structure is cited as a limiting force *only*, Giddens calls it a category error which neglects the transformative dynamic nature of structuration processes. Structuration emphasises the transformative role of 'structures' as both enabling *and* limiting forces. This does not diminish structural limitations; physical, temporal, and economic arrangements place real boundaries on what can be done in a pragmatic sense, impeding (or reversing) reform aspirations. Consider teacher professional isolation exacerbated by the modular fabric of school buildings (Pedder and Opfer, 2013). Fink (2000) describes an open plan school building, designed to increase social interaction. The experiment had the unintended consequence of disruptive noise from competing classes. Partition walls were installed, impeding a ventilation system designed for an open plan environment, decreasing air quality. Moral: structural change is not

synonymous with progress, but *all* structural alterations are catalysts for change, indicating structuration processes.

In the macro-contexts of education in the United Kingdom during the past four decades (outlined in 2.1), terms like PD have been contested and laden with political values and assumptions (e.g., Clarke and Moore, 2016). PD has been conceived of in complex, conflated and often contradictory ways; even experts do not use specialist language consistently (Law, 2004). Teacher Professional Standards (e.g., DfE, 2013) have acted as a summative standardisation mechanism in England. Teacher development has been variously considered to enhance their holistic vocational flourishing (Evans 2011), support the development of practical wisdom (Green, 2009) and ensure the maintenance of specialist skills and knowledge (Freidson, 2004). Much conceptual 'muddiness' stems from the word 'professional' and its derivatives, which are not neutral and require examination.

2.4.1 Conceptualising teacher 'professionalism'

Becoming and being a teacher utilises multiple, agile skills, qualities and attributes which are expressed as individual professionality, and are, collectively, called professionalism (Evans, 2008). The prefix 'professional' requires problematisation if issues surrounding PD and PL are to be understood. Freidson (2004) defines professionalism analytically as a 'secular calling' entailing beliefs about the intrinsic value of one's work, striving for expertise, and caring for others. He contrasts this with

managerialist professionalism, which entails assumptions of professional standardisation and homogeneity (Sachs, 2001).

Managerial professionalism seeks efficiency, and is characterised by performative accountability and technicalisation, leading to de-professionalisation (Ball, 2003; Evans, 2011; Hargreaves, 2000; Sachs, 2001). Managerialism is incompatible with 'authentic' or 'traditional' professionalism, which requires specialist skills and expertise, unavailable to lay-persons, developed over time. Problematically, the traditional professional paradigm tends to conflate experience and expertise. This is a fallacy (Evans, 2008) and challenging it has inspired regulatory appetites since the 1980s, notably through the Education Reform Act (1988) and the inception of Ofsted in 1992 (Elliott, 2012). A consequence of managerial efficiency through standardisation is the inhibition of traditional professionalism's crafted and nuanced skill (Freidson, 2004), bureaucratising it and necessitating managers to administrate the system (MacIntyre, 2007).

For the past four decades, education in England and Wales has assumed and mandated for a managerialist paradigm, exemplified by models of New Public Management (Hall, 2013) and devolved agency (DfE, 2016). Managerial paradigms have underpinned policy, informing and standardising curriculum, formal assessment, and regulatory inspection protocols (e.g., Ofsted, 2019). Criticisms of systematic teacher de-professionalisation have been associated with codification of teachers'

professional standards (Hargreaves, 2000; Sachs, 2001). These have arguably narrowed teacher competencies to a shadow of professionalism in which the 'attitudinal' constituent part has been un-balanced by a focus on behavioural competencies and, to a lesser extent, intellectual comprehension (Evans, 2011). This contributes to performative teacher practices (Ball, 2003). Extrapolating the managerial influence, Hargreaves (2000) depicts a dystopic, de-professionalised trajectory which reduces teacher agency by narrowing the scope for affordances. Here, teachers lose access to alternative ways of being, diminishing their capacity for professional activism and innovation (Buchanan, 2015).

The influence of high-stakes managerial-macro contexts continues through marketisation via published metrics which have reputational and financial consequences for schools (Leckie and Goldstein, 2017). Agency devolved to the meso-sphere means local arrangements can perpetuate performativity and high workload, negatively impacting teachers' personal lives and health (Ball, 2008). Performative conditions can eclipse teachers' initial vocational drive (Worth and van den Brande, 2020) and are associated with burnout (Ball, 2002; 2008; Carlotto and Cámara, 2017) and PD resistance (Ball, 2016). These negative effects on teachers' professional identities and mental health can be long-lasting and require dismantling through coaching to mitigate 'practice shock' and revitalise the possibility of PL (Korthagen, 2017). In 2005, this issue compelled Ofsted to publish now withdrawn 'myth-busting' guidance, and successive inspection frameworks have sought to mitigate system

'gaming' (Ball, 1997; Isaacs, 2014). Clarity of purpose has been enhanced (Clarke and Baxter, 2014), including shifts away from data towards holistic indicators of school 'effectiveness' (Ofsted, 2019).

Proponents of democratic professionalism espouse its ontological, practical and moral correctness, inferring managerialists and traditionalists are not *truly* professional (Evans, 2008; 2011). 'Authentic' democratic teacher professionalism is characterised as both resistant to managerialism (Evans, 2011) and as a maturation of traditionalism, describing open, research-engaged extended professionality (Evans, 2008). It promotes autonomous professional judgement and skills demystification, knowledge, and practices (Sachs; 2001).

Contrasted with managerial professionalism, which requires resilience to survive (Gibbs and Miller, 2013; Gu, 2014), advocates of democratic professionalism suggest teachers can thrive in psychologically safe environments (Edmondson, 2019). To achieve this, organisation and policy 'drivers' should be re-tuned to support positive, developmental outcomes (Fullan, 2021). Associations have been made between democratic professionalism and wellbeing, noting restorative and protective effects of teacher perceptions of agency regarding PD (Sullanmaa et al., 2023). Further benefits relate to teacher satisfaction (Worth and van den Brande, 2020) and transformative communities of practice (Hargreaves and O'Connor, 2018; Kennedy, 2005; 2014). Democratic professionalism constitutes a reformist model, challenging managerial

macro-frameworks (Sachs, 2001). Open, accessible research evidence promoted by the democratic professional paradigm may counter Hargreaves' dystopic premonition (Fielding et al., 2005; Gu et al., 2020; Hargreaves and O'Connor, 2018).

Professional paradigms compete at all systemic levels, influencing inspection, leadership strategies and organisational and personal professional identities. Ambiguously or ill-defined school cultures can be psychologically harmful to teachers caught up in them (Chatman and O'Reilly, 2016). Furthermore, absurd and contradictory beliefs and practices can emerge from unspoken social assumptions and norms, which are difficult to identify and challenge (Schein, 2017). Teachers can be empowered to critique and engage in activism since the managerial educational paradigm is itself nested within a liberal democratic context which allows people like me to write papers like this, and critique the system (Clarke, 2017).

2.4.2 Teachers' professional identities

Self-conception of personal identity is described as an internal, unconsciously and iteratively constructed narrative informed by life-long stories, formative experiences, and associated psychological factors (Burke and Stets, 2009; McAdams, 2001). A sub-category of personal identity is professional identity. This is expressed through teachers' professionality; a highly personal expression of individuals' professional attitudes, knowledge, skills, and practices (Evans, 2008). Professionality entails one's 'being' as

opposed to 'actions', which are subordinate (Mockler, 2011). Hence, for many, one *is* a teacher, as opposed to acting as one.

The inherent fluidity and complexity of professional identity formation frustrates school leaders' ability to predict the reception of PD interventions. Career length is one significant variable (Boyer, 2013; Brubaker, 2016; Day et al., 2006; Hargreaves and Fullan, 2012), and several studies identify tensions in teacher professional identities during their careers, as teachers feel conflicts between their ideals of professionality and the realities of their practice in context (e.g., Pillen et al., 2013; Want et. al., 2018). The Variations in Teachers' Work, Lives and Effectiveness (VITAE) report (Day et al., 2006), extensive in scale and scope, identified the significance of professional identities, interpersonal relationships with colleagues and leaders, school culture, phase, and socio-economic school context. The authors argue variations in teacher effectiveness stem from complex, interconnected factors. Whilst age and experience, decontextualised, do not indicate teacher quality, a taxonomy of teachers' professional life phases (PLPs) emerged. Teachers with 0-3 years' experience (PLP1) are considered novices in need of support, followed by PLP 2 (4-8 years' service), in which professional identity and confidence increased. Mid-career, characterised by diversification of, and competition between, professional and personal responsibilities occurs between 9-23 years (PLPs 3 and 4), and the late career phase begins at 24 years (PLP 5; PLP 6 from 31 years), in which motivation can begin to wane, especially

in secondary phase teachers. For many, commitment and efficacy remain high, but some teachers reported feeling 'tired and trapped' (Day et al., 2006, p. xi).

Poor cultural 'fit' ('match quality' in organisations) (Epstein, 2019) between individual and organisational professional identities, compounded by the conflation and confusion of paradigmatic assumptions outlined in 2.4.1 is associated with damage to teacher wellbeing and efficacy (Want et al., 2019). Interestingly, Day et al. (2006) identified PD as a positive force, if teachers' developing needs were met. Teachers' frustrations concerned limitations on time available to deepen and embed PD. This is also indicated in my data (chapter 6). I hope my survey instrument and underpinning analytical framework will further expose this frustration, in the hope of addressing it.

Teachers often cite a vocational 'calling' when entering the profession (Day and Gu, 2007; 2009; Lowe et al., 2019; Perryman and Calvert, 2020). This indicates a depth of emotional motivation (Hargreaves, 1998) and moral purpose (Quinlan, 2019). Such facets integrate with personal identity (Burke and Stets, 2009; Craig, 2012; McAdams, 2001). Professional identities become frustrated or flourish depending on access to, and quality of, skill and knowledge development opportunities, encouragement, support, and recognition (Li and Craig, 2019). Opportunities for creativity and a desire to inspire others are often cited as 'pull factors' into the teaching profession, although the standardised and bureaucratic reality often defies idealistic expectations (Perryman and Calvert, 2020). Although inflexible working conditions constitute a 'push' factor,

exacerbated after the Covid-19 pandemic (Kim and Asbury, 2020), many teachers return to the profession each year after a period of absence. Since 2010/11, annual returner numbers have averaged around 3.5% of the total teacher workforce (DfE, 2024a), further indicating teachers' deep vocational drive (Simons, 2016).

Professional identity formation emerges in the nexus of the micro, meso and macro-systems, occupied by competing and often incompatible professional paradigms (see 2.4.1). This trichotomy raises concerns that teachers should become and remain vigilant to the erosion of political activism or risk subsumption into the all-pervasive managerial macro-climate (Buchanan, 2015; Hargreaves, 2000; Mockler, 2011). In my Institution Focused Study (IFS, Taylor 2021), I reimagined Mockler's (2011) model of teacher professional identity formation to visualise the ubiquitous influence of managerialism (appendix 1). In 2024, most serving teachers have no direct memory of the pre-1988 English education system (see 2.1). Mockler (2011) and Buchanan (2015) raise concerns of impoverished professional formation which limits exposure to 'ways of being' a teacher.

Evans (2011) champions the persistence a broadly conceptualised teacher professionalism, underpinned by the democratic assumptions of extended professionality (Evans, 2008). Democratic professional activism emerges from this context, holding that professionalism entails a duty of critical engagement with developments in the field (Buchanan, 2015). This highlights the importance not only of

PD availability to introduce a range of thinking and ideas, but also the importance of providing opportunities for teachers to understand, contextualise and critically engage with this content, and deploy them according to their professional judgement. To engage with this discussion meaningfully requires a deep appreciation of relevant literature concerning PD and PL, explored above (2.2).

2.4.3 Schools' cultures

Creating organisational cultures with the aim of optimising outcomes for all stakeholders increasingly captures professional and lay attention. Exploration of cultures requires problematisation because of issues with definition and codification. The word 'culture' has equivocal meanings, obstructing understanding. In the arts, culture refers to creative and intellectual phenomena, whilst biologists describe environments suitable for bacterial growth. In organisational contexts, difficulties can arise from misunderstanding, misdirection, and conflation of terminology across literature. For example, terms like 'climate', 'culture' and 'ethos' may be used synonymously. Taking a broadly organisationally bounded meso-level view, Chatman and O'Reilly (2015) associate 'climate' with the measurement of consensus on issues within social structures, whilst suggesting 'culture' entails codification and conceptualisation of norms and values indicative of interpersonal relationships within groups. 'Ethos' suggests a further ethical dimension. This study's quantification of perceptions suggests 'climate' but the underpinning analytical conceptualisation of social constructs indicate 'culture'. If I suggest leaders *ought* to take my findings

seriously and enact changes based on the principles I outline, I espouse ethos. Pragmatically, the word 'culture' in the Social Sciences context provides a useful shorthand for typical interpersonal behaviours within bounded human groups, and I use it in that spirit here.

Culture is both temporally situated *and* spans the passage of time, passing across generations and between groups of people through language, symbols, values, social norms, and other institutions. It emerges in societal sub-groups, perhaps generational or ethnic, or around creative genres, with associated language and fashion etc. (Bourdieu, 2010). Culture evolves through cyclical production and reflection upon social routines, rituals, and artefacts (Giddens, 1984) (see 2.4) and expresses mainstream belonging or disenfranchisement. It has an intuitive dimension; people can 'feel' and recognise in others the degree of match quality within groups (Epstein, 2019). Therefore, participation in and recognition of cultural signals at the meso-level infers inclusion in or exclusion from social groups, both explicitly and implicitly.

Schein (2017) defines organisational meso-cultures as social systems comprising basic, tacit assumptions. These are considered self-evident and enacted as unconsciously espoused values through artefacts such as strategy statements or employee uniforms. Organisations are nested within and influenced by prevailing macro-contexts. We can become socialised into cultures, or experience 'culture shock' if thrust into unfamiliar contexts, where local signs and signals are unfamiliar and confusing. This can cause

social discomfort (Schein, 2017) and stress responses inhibiting learning and growth (Korthagen, 2017). Organisations, including schools, may induct new members explicitly, deliberately curating and enforcing cultural norms, or transmission may be laissez faire and predicated on tacit assumptions that new members must negotiate and discover through trial and error. In all cases, culture is transmitted through human interactions, whether intentionally or otherwise (Schein, 2017).

Quantifying and codifying perceptions of meso-systems using analytical frameworks helps interested parties to deepen their understanding of their organisations. Chatman and O'Reilly's (2015) analytical framework includes dimensions of content (issues important to group members), consensus (how widely views are held), and intensity (strength of feeling), facilitating the capture of insightful snapshots into meso-systems, providing insight into the 'health' of an organisation against the criteria of interest. Cultures resist codification because of their dynamic, diversely influenced nature (Stoll, 2000) and the interplay between macro-, meso-, and micro-spheres (Alvesson and Sveningsson, 2008). Consequently, output data of any applied framework (including mine) is insightful, but provisional. This is important because I position this study, particularly my survey's utility, as a means of producing reflexivity-promoting artefacts through which cultural evolution may be steered rather than offering any definitive diagnoses.

Exploring phenomena from multiple perspectives enhances holistic understanding (Young et al., 2002), so a brief discussion on school change over time is useful here. Stoll and Fink (1996) characterise schools' life cycles with reference to their wider communities suggesting that establishment and early growth sees school founders' core mission seek to address local needs, cohering the community. Eventually, the original mission becomes implicit and poorly communicated to incoming stakeholders, and local needs evolve. With organisational maturation, sub-cultures may emerge, resisting and disrupting the now implicit cultural assumptions and transmitting their own. Without deliberate re-focus, schools may become increasingly distant from the local context.

This typology suggests organisational meso-systems require constant attention to symbiotic interactions with the macro-environment and emerging stakeholder needs. Structuration theory suggests cultural evolution occurs via human interactions. These may be deliberate or uncoordinated and may have both intended and unexpected outcomes (Giddens, 1984). Giddens frames cultural evolution as a 'natural' outcome of human interaction, and a 'steerable' mechanism. Organisations are unstable and require maintenance; entropy is associated with the absence of deliberate, strategic actions. Learning anxiety, and the human inclination to seek routine and comfort can lead to complacency and stagnation if unchallenged, leading to cultural conservativism (Schein, 2017). High-stakes performativity cultures compounded by survival anxiety,

breed PL resistance and burnout, damaging employee performance, satisfaction and retention (Ball, 2008).

Stoll and Fink (1996) helpfully identify the 'flux' state of meso-level organisational systems and people (the micro-level) and macro-systems interacting with them. Starting from the premises that schools are dynamic, and that cultures entropy without deliberate attention, they identify five 'types' of school: moving, cruising, strolling, struggling, and sinking. While this illustrates the dynamic nature of organisations, the terminology is reductive and pejorative. Their narrow use of the word 'culture' suggests some optimal state that can be slipped from, and excludes emergent sub-cultures as problematic, whereas recent organisational literature conceives of them as opportunities to challenge 'group think' and spark innovation. In contrast, Glover and Coleman (2005) recognise sub-cultures as natural layers within wider social systems. Their holistic conceptualisation recognises practical and ideological pluralism within social organisations. Their use of the word culture entails both organisational climate (entailing quality assurance measures), and ethos (the definition and articulation of moral purpose and vision). Stoll and Fink's (1996) 'culture' reflects Glover and Coleman's (2005) 'ethos'; an aspect of culture, but not synonymous with it.

Context 'blindness' renders Stoll and Fink's (1996) characterisations incomplete and judgemental. I include them here as recognisable archetypes to serve as starting points for exploring schools' social dynamics; they resonate, even whilst we might describe

them in more supportive terms. Because of this resonance, I employed the framework very loosely during my analysis as a way of understanding my quantitative data (5.2). I recognise all 'snapshot' views as abstract, requiring contextualisation. As Stoll (2000, p.12) rhetorically asks, "How do we make sense of […] 'situational constraints?'", suggesting that metaphors and archetypes provide 'hooks' into deeper discussion. Such models provide useful interpretive tools rather than positivist metrics, and I refer to them in this spirit. Importantly, the navigation of the ecological contexts in which organisational cultures are nested implies navigators. The DfE's (2016) policy of 'supported autonomy' devolves this task to school leaders, who are a widely diverse group with their own influences, identities and assumptions (see 2.4.1, 2.4.2 and 2.4.4.1).

Schein (2017) highlights the need for leaders' positive action in mitigating these problems; organisational vision must be predicated on identification and acknowledgement of specific problems. Acknowledging significant policy, regulation and governance difference between schools and businesses, most organisations seeking improvement benefit from developing a deep understanding of the school's reality, without which their vision is nebulous. Professional and organisational learning depends upon shared understanding of the problems they face and clear goals which, once identified, supports impactful vision building. This understanding supports my initial intuition, now a reasoned conviction, that reforms benefit from an appraisal of the

existing 'state of affairs' through robust implementation processes (e.g., Sharples et al., 2024). I offer my survey in support of such processes.

Vision dissemination is associated with promoting organisational congruence and stakeholder buy-in by providing strategic direction (e.g., Everitt, 2020; Jimerson, 2013; Leithwood and Day, 2008). Encouraging the visualisation of desired outcomes influences action (Coyle, 2019), including teacher engagement with PD (Jimerson, 2013). Unchallenged congruence is described by Tushman and O'Reilly (1996) as a 'managerial trap'. Rather, they suggest, reflexivity and 'cross-channel' communication from stakeholders at all levels is essential for organisations to benefit from fresh perspectives. Without challenge and refinement, innovation stalls (Edmondson, 2023; Epstein, 2019).

Despite associations of culture with typicality of meso-level customs, beliefs, and practices, they are multi-faceted, layered and fluid in nature, resisting the homogeneity and geo-political boundaries commonly inferred by users of the word (McChesney, 2017). School cultures emerge from their relationships between macro-, meso- and micro-spheres; school leaders may align with and cohere to the macro-policy environment or strive to protect their school community from it (Preistley et al., 2015). This dynamic relationship is affected by leaders' perceptions of survival anxiety, for example through the risk of a poor Ofsted inspection. In addition to emotional (sadly, well documented in recent times with the death of Headteacher Ruth Perry – Connor,

2023) and reputational damage, this can impact student numbers and thus carry a financial penalty (Leckie and Goldstein, 2017). Students, of course, play an essential part in how all stakeholders experience and perceive membership of their school system, and student culture and sub-cultures can be a conservative force in aspirations for change (Stoll and Fink, 1996). It is beyond the scope of this study to explore this aspect in detail, but it is important to acknowledge it.

Here, I focus on teacher experiences of the meso-culture, which leaders can curate to some extent. Hökkä and Vähäsantanen's (2014) typology characterises organisational coupling arrangements: tight (controls imposed to limit teacher agency, e.g., scripted patterns of corporate practices), loose (extensive teacher agency; a laissez faire, traditionally professional approach predicated on teacher experience and assumed expertise), or balanced (agent centred, in which individuals and organisations are engaged in evolving co-constructive iterative relationships). I suggest agent centred coupling compliments the structuration processes underpinning the generation and iteration of human culture (2.3.1), leveraging a natural advantage.

Organisational match quality is significant in the extent to which individuals feel belonging within organisational meso-systems; people struggle to thrive in contexts incongruent with their values (Epstein, 2019). Teachers espousing traditional professional identities may intuitively align with 'loose' meso-cultures, enjoying autonomous professional freedom and limited direct scrutiny. Those with democratic

identities, seeking active participation in professional discourse, may prefer agent-centred meso-cultures. It follows that, if, as Evans (2011) argues, the conceptual scope of teacher professionalism persists more broadly than it is defined within the managerial paradigm, traditional or democratically aligned teachers may reject the demands of tightly coupled arrangements, experiencing them as performative (Ball, 2003; 2016) which inhibits job satisfaction, performance and PL capacity; all challenges to reform acceptance (Epstein, 2019).

2.4.4 Leaders and leadership

Meaningful discussion of leaders and leadership acknowledges the divergent ways in which the terms are used ranging from describing those who demand and command respect and loyalty, to models emphasising care and authenticity (see Rost, 1991 and Northouse, 2016 for discussion and chronological evolutions of the concept). Leaders' formal roles usually entail a position of power over employees, requiring significant experience and/or qualifications. Formal leadership roles confer decision-making authority and responsibilities such as strategic planning, intervention sign-off and legal and financial accountability on the post-holder, who may be given a title such as head, director, leader, chief executive officer (CEO) or principal. However, leadership also entails an interpersonal dimension, distinguishing and elevating the role from the administrative, bureaucratic, compliance-securing responsibilities of a manager (Northouse, 2016; Rost, 1991).

Day et al., (2009) describe four broad categories of activities which leaders engage in, bringing each appropriately to bear in their contexts: Building vision and setting direction, understanding and developing people, redesigning the organisation, and managing the teaching and learning programme (pp.11-12). Day et al., (2009) argue that school leaders exert the greatest influence on improving student outcomes when they use these strands to influence and motivate teachers, supporting the aspect of leadership that entails motivating people to follow as opposed to coercing compliance. Leadership can thus be defined as "[…] a process whereby an individual influences a group of individuals to achieve a common goal." (Northouse, 2016, p.6).

Druker, (2012) warns of the dangers of charismatic leaders without a clear (benevolent – in the context of non-profit organisations) mission, arguing that a leader's role is to define and defend a core organisational purpose. The persistence of the stereotypical 'born leaders' who embody particular personality types, including the 'hero' figurehead is problematised by Haslam et al. (2024). They argue that 'zombie leadership' plays into such tropes, glorifying individuals whilst overlooking the collective and collaborative effort that underpins their achievements. Such perpetuated myths are detrimental to organisational development. Thus, whilst it is necessary to have clear legal accountability and organisational frameworks to cohere and have accountability for the oversight of strategy, this individual (or group of individuals) must be subject to governance (Scott, 2024). Humility in leadership is also important, because all

organisational success is dependent upon the work of their teams and co-workers who realise and shape the aims of the organisation (Haslam et al, 2024).

The idea that leadership qualities and behaviours can have broad and sometimes informal influence upon others can be described as distributed leadership, which is practiced by individuals who have developed certain leadership behaviours and skills including, for example, self-awareness, impact and influence, resilience and critical thinking (e.g., Best Practice Network, 2024). The inclusion and explicit development of these behaviours in others may be conferred through formal roles and responsibilities but may also develop informally between colleagues and peers.

In the following sections, I describe formal, structural positioning of school leaders and leadership because they are the gate keepers of research and the people to whom practical authority for policy implementation is devolved (DfE, 2016) (2.4.4.1). I also acknowledge the significance of leaders' pro-personal attributes and highlight the need for their ongoing attendance to these (Earley and Bubb, 2023), which are crucial in sustaining their roles effectively above and beyond their managerial, operational and strategic functions (2.4.4.2).

2.4.4.1 Leadership in schools

School leaders work within regulated contexts entailing many obligations and are subject to governance. They are bound by macro-policy, and accountable within 'local'

macro-systems of Local Education Authorities (LEAs) or MATs, limiting their individual autonomy. Leaders' activities are catalytic as they mediate the many dynamic elements of the education ecosystem (e.g., Daly et al., 2020; Postholm, 2019; Tubin, 2015.) The growing body of literature associating teacher PL with raising student outcomes highlights leaders' imperative to prioritise high quality PD (Boylan and Demack, 2018; Matthews, 2009). This must be balanced with competing demands. Leaders have operational and ethical responsibility for, and accountability to multiple stakeholders (Maak and Pless, 2006; Stone-Johnson, 2014b). Leaders have strategic and operational oversight and must also exercise pro-social behaviours to promote trust, collegiality and the moral purpose essential to working relationships (Day et al., 2011). Leadership is understood as normative *and* descriptive, and is associated with behaviours, not personalities (Maak and Pless, 2006). Effective leaders curate three broad and interconnected domains: culture, content and structure (Postholm, 2019). Deficiency in any of these is associated with reduced system improvement capacity (Earley, 2020b).

In establishing a culture supportive of PL, leaders must balance internal and external accountability to promote a meso-culture that normalises life-long learning as a mechanism for continuous improvement (Schein, 2017; Postholm, 2019). Devolved leadership policies, like 'supported autonomy' (DfE, 2016) in England, position leaders as influential in setting their meso-culture's tone, whilst they remain bound by other macro-policy frameworks. Leaders' responsibilities include accurate diagnostic

analyses and priority setting, vision-building and on-boarding colleagues in ways that help everyone feel they can make a difference (Postholm, 2019). Leaders must 'activate' learners, persuading them of the need for new learning and mitigate learning anxiety by fostering psychological safety (Edmondson, 2019; Schein, 2017). Psychological safety promotes interpersonal trust within the school workforce (Day et al., 2011), facilitating cross-disciplinary learning. Intellectual, technical, and interpersonal expertise can leverage relational autonomy, which emerges through dialogue within diverse groups (Edwards, 2011). Leaders' curation of such collaboration inspires and supports the development of cultures in which learning can occur (Postholm, 2019). Leaders support stakeholders' understanding of their role in the meso-cultural narrative (e.g., Coyle, 2019), motivating stakeholders and promoting action and artefact-generating activities (Tubin, 2015). Such artefacts perpetuate structuration processes (Giddens,1984) supporting teacher buy-in by promoting opportunities for personal and collective reflection.

The identification of areas for development and potential remedies is often triggered by disconfirming data, indicating an improvement need. Leaders are well positioned to gather the necessary information to understand and address the issues (Sharples et al., 2024). Clear starting points and credible solutions are essential to bring direction and purpose to collective sense-making activities (Schein, 2017). Achieving a change in stakeholder behaviour requires leaders to prioritise teacher PL. By selecting evidence informed interventions to underpin PD leaders can extend teacher

professionality by promoting research engagement (Evans, 2008). Leaders are instrumental in curating PD content and encouraging distributed leadership, which empowers teachers to engage with research evidence and contribute meaningfully to collegial learning opportunities (Louws et al., 2020; Postholm, 2019). To manage workload concerns, leaders can also oversee de-implementation counter-initiatives to support teachers' understanding of what activities they can stop doing, and when. Without this guidance, teachers may burnout from heroically trying to undertake all initiatives or begin to make individual decisions about what to maintain or stop, leading to inconsistent and unsustainable initiatives (Hamilton et al., 2024; Schein, 2017).

Beyond the cultural conditions and curation of PD content, leaders must also provide the logistical and intellectual structures to support teacher PL. Stakeholders' natural inclination to preserve the status quo, even when perpetuating certain behaviours and practices is harmful to the group (Stroh, 2015), and inaction enables entropy and decline. Leaders must therefore curate and facilitate the exploration of appropriate new ideas and guard against reinforcing undesirable ones (Bridwell-Mitchell, 2015).

Decontextualised interventions appear vacuous to stakeholders, whose buy-in depends upon the utility of any proposed change (e.g., Postholm, 2019). Structures deliberately enabling the 'cross-pollination' of ideas revitalises strategic thinking by challenging assumptions (Stone-Johnson, 2014b). Planned opportunities for collegiality thus mitigates the ubiquity of the macro-managerial context (Buchanan, 2015; Mockler,

2011) and, therefore, de-professionalisation (Hargreaves, 2000). This requires time and resources (Postholm, 2019; Wolthuis et al., 2020), and school leaders are responsible for these structures. Curating and protecting such opportunities supports teacher recruitment and retention because supportive, interesting and engaging PD (Booth et al., 2021), becomes transformative when facilitated through collegial PD activities (Kennedy, 2014). Collective sense-making and co-creative activities support the demystification of practice central to the democratic professional paradigm, empowering teachers (Sachs, 2001). Leaders are positioned to support this by providing structure, both through logistics and by scaffolding reflexive activities (Keddie et al., 2023). Structures like these support teachers to experiment, evaluate, and refine interventions in supportive, yet robust professional dialogue (Hargreaves and O'Connor, 2018).

2.4.4.2 Leaders' self-care

Distributed leadership perpetuates democratic professional attitudes and practices but requires strategic oversight. Postholm (2019) argues that neglecting either culture, content or structure inhibits reform implementation. This constitutes an enormous, and stressful responsibility. Leaders are not heroes, ready-made (Stone-Johnson, 2014b; Maak and Pless, 2006). Rather, effective leadership behaviours require continuous cultivation of holistic professional and personal attributes and competencies (Tomlinson, 2004). Leaders must be reflexive and committed to their own improvement if they are to 'thrive' as opposed to merely 'surviving' (Earley and Bubb, 2023). Leaders benefit

more from professional coaching that develops their reflexive and interpersonal skills than from competency-focused leadership training (Earley, 2020b; Earley and Bubb, 2023).

Promoting leaders' self-care is challenging but necessary (Earley and Bubb, 2023). 'Greedy' systems unsustainably reward competence with extra responsibility which often amounts to 'overtime' because the extra or displaced work is undertaken outside of core working hours. Increasingly high demand/low resource macro-conditions, potently infused with vocational drive and moral purpose, lead individuals to work 'heroically', fearful that signs of vulnerability will cause reputational damage. This harms leaders and their subordinates, to whom unsustainable working patterns trickle down, seeding implicit cultural expectations of 'workaholism' (Gronn, 2003). Heroic working practices at all levels also undermine organisational efficiency as 'workarounds' subvert policies, risking avoidable, complex failures (Edmondson, 2023). It is difficult but important to notice and mitigate such practices. Failures to attend to school leaders' wellbeing and personal development can result in stagnating or sub-optimal performance over time, not to mention being detrimental to their health. 'Pro personal' development such as study leave, sabbaticals, mandatory coaching are not only desirable, but essential for increasing school leaders' capacity to develop cultures in which all can thrive (Earley and Bubb, 2023).

2.5 Significant concepts associated with developing teachers' Professional Learning capacities

I have sought to clarify the key issues and concepts in the landscape relevant to this study, setting the scene for my contribution. My analytical framework draws on a further set of conceptual dimensions: agency, efficacy, collegiality, logistics, trust, resilience, reflection, reflexivity and professional autonomy. The presence of these dimensions is associated with successful PD outcomes, namely PL, job satisfaction and teacher retention (e.g., Gray and Summers, 2015). Phenomenographic analysis (Marton, 1986) establishes the extent to which language is used and understood equivocally in academic literature, policy, and by individuals. I present the results of my phenomenographic analysis in chapter 4. Here I outline an introductory review of each dimension. The following accounts foreground later discussions, outlining commonalities and broad-brush representations of these concepts in existing literature.

2.5.1 Agency

Agency is defined in most dictionaries as either a capacity ('having agency') or with reference to regulatory organisations (e.g., Environment Agency). Here, instances of the latter usage were discounted because they do not entail the actions of people in the context under investigation. In relation to teacher agency, most usages are ontologically grounded in the sociocultural relationships between contexts and individuals (Eteläpelto et al., 2013). For instance, the terms 'agency' and 'autonomy' are often conflated, referring to ideas of freedom and consciousness of action, yet they

are conceptually distinct. Aspbury-Miyanishi (2022), draws on Heideggerian phenomenology and the exploration of Dasein – the human in the world (Horrigan-Kelly et al., 2016) – and ecological psychology, which concerns relationships between people and their environment (Young et al., 2002) to conceptualise agency as increased affordances. This entails noticing and responding to nuances in mundane situations, thereby increasing capacity to use professional judgment with agility. Agency is thus a skill rather than a condition of having freedom of action (autonomy). Autonomy, therefore, is understood as a necessary but not sufficient condition of agency.

Evans' (2008) work foreshadows this distinction, inferring that restricted professionality inhibits teachers' perception of nuance and causing over reliance on experience and traditional professional identities. Adaptation to alternative pedagogical approaches is difficult for such teachers (Anthony et al., 2018). It is also challenging for their less experienced counterparts working in highly standardised, performative contexts (Ball, 2003), and Early Career Teachers (ECTs), who may experience 'technicalised' inductions (Cronin, 2023). The cognitive dissonance caused by these experiences can be resolved through cynicism and risk aversion (Ball, 2008), or by leaving creativity-restricting environments (Perryman and Calvert, 2020). Contrastingly, extended professionals are open to wider research-informed practices and develop a greater range of professional knowledge and skills, promoting agency. This has implications for this study and collegiality in general, as interlocutors become co-producers of conceptual understanding by iterating and synthesising ideas together (Hargreaves

and O'Connor, 2018). Co-producers have greater agency than in a traditional researcher-participant dynamic (Duggan, 2021).

Agency can be characterised as an actor-situation transaction (Biesta et al., 2015) in which the environment ecologically changes individuals and vice versa, making actions simultaneously voluntary and socially constructed (Namgung et al., 2020). Agency exercised transforms personal and professional identities (Eteläpelto et al., 2013). Professional agency is associated with individual's perceived or actual ability to act, exercising judgement and control. It is not a property people have, rather, agency is enacted in relation to the world (Biesta et al., 2015) and can be described as embodied choice (Du et al., 2021). Agency is exercised to achieve individuals' short or long-term goals (Eteläpelto et al., 2013) and is a way of exerting influence (Louws et al., 2020), both through action and deliberate inaction (McChesney and Aldridge, 2019b). In the context of teacher professional agency, agency is closely linked to principled and deliberate action towards ethical and professional responsibilities in specific school-related situations (Aspbury-Miyanishi, 2022). Teachers perceiving agency understand their capacity for decisive action aligning with their values (Brunetti and Marston, 2018). They also hold beliefs about the likelihood of success in undertaking tasks (Biesta et al., 2015). This predictive, noetic quality posits agency as dynamic, context situated and subjective (Eraut, 2002); individuals view their potential for action through the lens of their prior life experiences. These views of agency capacity are changed by people's interactions with the world (Eteläpelto et al., 2013).

Since the Education Reform Act, (HM Government, 1988), teacher practices have become increasingly mandated. The teacher Professional Standards (DfE, 2013) comprise clear (and narrow, Evans, 2011) competencies and expectations, but fail to capture the deep emotional, identity-integrated, moral purpose vocational sense often associated with *being* a teacher (Hargreaves, 1998). This expression of the managerial professional paradigm (Sachs, 2001) influences professional formation (Green, 2009) impacting both perceived and actual scope of teacher agency. Tensions between traditional, managerial, and democratic professional paradigms (2.4.1) has created divergent views about what teachers can or ought to do or not do (Buchanan, 2015; Stone-Johnson, 2014a). Agency lies in the enacted responses to these professionalities (Kelchtermans, 2005), including inaction associated with feelings of impotence and perceptions of reduced agency (Lasky, 2005) resulting from awareness of shifting power dynamics (Leitch, 2010). This process sits alongside the 'natural' maturation of teachers' perspectives with increased experience, which influences self-confidence in judgement and action (Day et al., 2006; Hargreaves and Fullan, 2012; Halvorsen et al., 2019).

Aspbury-Miyanishi (2022) associates increased perceptions of agency with teachers' increasing capacity to notice and act on their affordances, which grows with experience, if teachers are attuned to notice them. Further, the 'supported agency' afforded to school leaders (DfE, 2016; Hall, 2013) positions agency as a local, rather than a policy

matter. This is reciprocal, as reform enactment also expresses divergent interpretation (Pantić, 2021, Riveros et al., 2012). This relates to teacher PL because different degrees of agency may be perceived in relation to reform initiatives, manifesting in divergent implementation in practice by individuals and groups (McChesney and Aldridge, 2019b; Vähäsantanen et al., 2017). Teachers' perceived agency is context dependent and highly personal. Collegiality can enhance it as the output of groups, through dialogue, becomes greater than the sum of their parts (Edwards, 2011).

2.5.2 Efficacy

Historically, empirical research into the mechanisms which increase or diminish teacher efficacy have been neglected (Day et al., 2006), resulting in uncritical use of the word in reference to other concepts. The delineation between individual and collective efficacy is under-theorised. In general, strong perspectives of efficacy appear to be associated with high levels of trust and coincide with opportunities for collegiality, because this combination generates increased teacher capacity (Day and Gu, 2014; Kalkan, 2016). Self-efficacy is grounded in individuals' beliefs about the expected outcomes of their actions (Glackin and Hohenstein, 2018). Reduced perceptions of efficacy are associated with institutional constraints.

Ferris (2016) reported teacher perceptions of disparities between their expectations of the efficacy of pedagogical techniques and theories learned in teacher training courses, and the realities of daily life in schools, which they associated with inhibiting their

efficacy to deliver their lessons. Over time, experiences of strategies which inhibit or promote efficacy inform teachers' practice on an increasingly unconscious level (Halverson et al., 2019). ECTs are particularly vulnerable to crises of confidence in their efficacy (Day et al., 2006), as the realities and 'downward' pressures of high-admin/low-creativity (Leitch, 2010; Perryman and Calvert, 2020) and below, e.g., student behaviour and classroom management (Putwain and von der Embse, 2018) induce 'transition' (Leitch, 2010) or 'practice' (Korthagen, 2017) shock. Here, teachers become overwhelmed by the reality of the job, begin to operate in 'survival mode', or decide to leave the profession (Perryman and Calvert, 2020). Korthagen (2017) advocates careful professional coaching to enable teachers to regain confidence in their capacity for efficacy. Without this, survival becomes habitual, limiting teachers' openness to PL.

The unconscious development of confidence is enhanced when processes supporting cyclical, systematic and robust reflexivity are undertaken, e.g., coaching, advice from mentors and observing modelled practice, which appears to transfer to their global sense of efficacy (Jaggernauth, 2021). This supports other activities including self-guided PD (Mahler, et al., 2017). The quality of implementation support appears significant; Tschannen Moran and McMaster (2009) suggest PD instruction without implementation support undermines self-efficacy. Teachers who feel PD implementation is inhibited exhibit apathy towards it, undermining their PL capacity (Glackin and Hohenstein, 2018).

2.5.3 Logistics

Logistical arrangements are an essential consideration in human social systems, underpinning what happens to and between people within organisations: the 'how', 'where' and 'when' facilitates the 'why' and 'who'. Reforms and initiatives (and even business as usual) stall without strategic and operational logistical planning. This requires delicate and nuanced sensitivity, and a dedicated employee to oversee and coordinate these arrangements is beneficial to the general fruitfulness of PD strategies (Wolthuis et al., 2020).

One cannot simply book a room and put people in it; this may be ineffective and experienced as wasted time that 'could have been an email'. Worse, teachers can experience such meetings as 'contrived collegiality' (Hargreaves and Fullan, 2012). Rather, leaders must carefully consider logistics as they create space and time within an organisation for people to meet, with varying degrees of formality, engage with others and discuss what is working (or not). In-person social interactions build relationships and foster the professional trust essential for leaders and staff at all levels to become successful and productive (Schein, 2017; Scott, 2017). This requires deliberate attention; time and resource poor people will not prioritise it. Establishing protocols for meeting facilitation can support this (Crome, 2023).

A clearly articulated vision steers such interactions and encourages generative and productive contributions to school culture (Bungum and Sanne, 2021). When

stakeholders are invited into subsequent discussion forums, their capacity for co-creation and learning is enhanced (Bates and Morgan, 2018). Logistical arrangements, both formal and informal, also ensure the necessary consolidation stages of implementation processes (Postholm, 2019). This might include scheduled time for coaching, mentoring, supervision or studying (Earley and Bubb, 2023; Korthagen, 2017; Unwin, 2012). Sabbaticals (Earley and Bubb, 2023) or credit for time-investment (Wolthuis et al., 2020) are beneficial, but require careful planning.

2.5.4 Collegiality

Collegiality refers to collective working and interactions between colleagues. Collegiality enables sharing, sense-making, and knowledge co-creation (Bridwell-Mitchell, 2015), support and validation (Brunetti and Marston, 2018), boundary finding and setting (Bungum and Sanne, 2021), and culture transmission, supporting wellbeing, emotions, and mitigating stress (Becker et al., 2014). Individual and collective wayfinding advances the profession (Bungum and Sanne, 2021), supporting teachers engaged in a complex, knowledge-based system (Buchanan, 2015).

Collegial working enhances the collective and individual sense of responsibility, inclining colleagues towards reciprocity and promoting group aims (Brunetti and Marston, 2018). Un-curated collegiality may result in clique formation, which can be powerful and disruptive counter-cultural forces, associated with superficial, short-term adoption of novel pedagogies (Bridwell-Mitchell, 2015). Outsiders may feel isolated,

which also inhibits reform efforts (Brubaker, 2016). Tightly curated collegiality is experienced as contrived and off-putting (Hargreaves and Fullan, 2012), so careful strategic curation with a coherent co-created vision narrative is important to gain stakeholder buy-in. Consultation with an appropriate range of expertise provides the foundation for innovation, productive debate and creative problem-solving (Bridwell-Mitchell, 2015; Brubaker, 2016; Edwards, 2011; Postholm, 2019). Stakeholders' wellbeing is supported by the rejuvenating and transformative effect of people feeling listened to and understood (Brady and Wilson, 2021; Bosso, 2017; Boylan and Demack, 2018).

2.5.5 Trust

Trust describes confidence one can depend upon others, and collective and self-efficacy are associated with high perceptions of it (Gray and Summers, 2015). Day et al., (2011) describe trust as the lubricant of successful organisations because it fosters individual resilience and security, and promotes agency (Day and Gu, 2014). Trusting professional relationships facilitate knowledge and practice transfer, and, thus, trust influences reform implementation (Fielding et al., 2005). Changes in teacher knowledge and practices depend upon reflective dialogues which are most robust and fruitful when the parties share trust (Fitzgerald, 2014; Gray and Summers, 2015, Hargreaves and O'Connor, 2018). Trust, supported by logistical structures, enables these professional conversations, and is associated with teachers feeling re-energised (Gu et al., 2020) which increases the likelihood of sustaining practice adaptations.

Teacher professionalism entails specialist knowledge, skills, and experience (Eraut, 2004). Schools (generally) and teachers also possess local and student specific knowledge, through which they filter external directives, and upon which they base professional decisions (Derrick, 2013). Inflexible, standardised protocols de-professionalise teachers because they require less judgement and nuance, and inhibit creative dialogue between colleagues (Frank, 2013). Such protocols signal systematic diminished trust in teachers' professional judgement (Ball, 1997; 2016) and fail to account for trusting student-teacher relationships (Derrick, 2013). Whilst we must acknowledge some protocols exist for good reasons, such as safeguarding (DfE, 2023), schools with tight organisational coupling arrangements often sacrifice the time needed to develop the nuance and skill of professional judgement (Hökkä and Vähäsantanen, 2014; Vähäsantanen et al., 2017). A break-down of trust between teachers and leaders is associated with PL inhibition (Gray and Summers, 2015), leading to teacher reform resistance (Ball, 2016), resignation (Perryman and Calvert, 2020) or burnout and illness (Ball, 2003; 2008).

2.5.6 Resilience

Resilience concerns the ability of individuals, groups, or organisations to sustain optimism, commitment, and effectiveness in adverse circumstances (Day and Gu, 2014) and respond adaptively to problems (Ebersöhn, 2014). Resilience arises as a socio-cultural phenomenon, ecologically determined, and is enhanced or depleted by

context and relationships (Day and Gu, 2014; Gu 2014). It is, therefore, inaccurate to claim differing natural capacities for resilience (Day and Gu, 2014). Indeed, resilience can be enhanced by expert supportive professional supervision, even in challenging circumstances (Gibbs and Miller, 2014). Teacher resilience is associated with experience due to increased confidence and competence (Carrillo and Flores 2018), and pragmatism (Want et al., 2018). Relational resilience is positively associated with student outcomes (Gu, 2014), emphasising the importance of trusting comradery and collegiality (2.5.4 and 2.5.5).

2.5.7 Reflection and reflexivity

Reflection entails thoughtful introspection on events and actions, both during and afterwards (Schön and DeSanctis, 2011). Systematic fact clarification promotes understanding of events, enabling people to take responsibility for actions (Bolton, 2010). Reflexivity entails greater criticality, systemically contextualising events and seeking to understand the implications of actions (Finlay, 2002). Learning, as defined by Kolb (2015), cycles through sequences of concrete experience, reflective observation, abstract conceptualisation, and active experimentation. Learners move beyond apprehension (direct experience) and comprehension (conceptual interpretation) towards transformative cognitive processes. Intentions deliberately interact with the world, extending practical influence to realise actions. Exposure to diverse practices for reflection purposes is the antithesis of standardised, prescribed practice (Spencer, 2019). Reflection on PD facilitates PL because taking time to reflect

and undertake de-brief conversations with trusted colleagues influences practice development. Reflective groups require organisation and structure to provide direction and keep them 'on track' (Keay et al., 2019). Shared vision and purpose are amplified through reflective conversations, which require all members to have an attitude of life-long learning to prevent stagnation (Rönnström, 2005). Reflection and reflexivity demand agents' engagement with the world as actors with parts to play in a grand narrative to which they must contribute over time, rather than feeling isolated or, worse, believing themselves to be the finished article (Gadamer, 2006).

Systematic, deliberate reflective practices and engaging in professional conversations is empowering (Boyer, 2013), enabling meaning construction (Jaggernauth, 2021). Peer coaching, mentoring, supervision (Earley and Bubb, 2023) or facilitation (Fitzgerald, 2014), underpinned by research-informed theorisation affords credibility to the content and methodology of reflective practice (Glackin and Hohenstein, 2018). When observer feedback and clarity of goals are incorporated into reflection, opportunities for PL are greatly enhanced (Bates and Morgan, 2018). Clarke and Hollingsworth (2002) emphasise the non-linear nature of PL, characterising it as responses to diverse stimuli. This may include interactions with students who respond in interesting or unexpected ways (Bodman et al., 2012). Problem-solving attitudes and critical questioning are developed through both systematic and spontaneous reflection opportunities (Cho and Trent, 2006). Their study focused on researchers' activities, but the metacognitive, reflexive attitude is applicable here. A benefit of making tacit

reflection processes explicit and subject to examination can be inferred (Fry et al., 2017).

When undertaken within a systematic framework, reflection and reflexivity can demystify and democratise teacher activities (Fielding et al., 2005). Continued professional growth depends upon reflection, adaption, and re-evaluation of practice (Bosso, 2017). In collaborative reflexive contexts, individuals' role identities may become less fixed, encouraging contribution to professional discussions, whilst also increasing openness to learning from others (Kayi-Aydar and Goering, 2019). Such conversations support sense-making of experiences, which is necessary as teachers' needs and contexts evolve (Unwin, 2012). Engaging in collegial reflection contributes to the uniqueness of school cultures (and sub-cultures) because the 'output' of dialogue between diverse individuals is co-created (Fielding et al., 2005). Reflection and reflexivity instrumentally develop and sustain plasticity of individual and corporate professional identities (Gao, 2010). The absence of opportunities for reflection and reflexivity inhibits PL, and yet the greedy environment squeezes them out. Barriers to reflexive processes can be structural, circumstantial (McChesney and Aldridge, 2019b), and psychological (Korthagen, 2017). Cultivating a critical mass of reflective, reflexive practitioners is proposed to enhance teacher effectiveness and commitment (Pascal et al., 2001). Grassroots, yet leader-supported, arrangements are envisioned (Postholm, 2019), supported by logistical structures (2.5.3), scaffolding meeting protocols (2.5.4) and mutual trust (2.5.5), and sustained by engaged participants.

2.5.8 Professional autonomy

Professional autonomy relates structural and institutional expectations and choices with teachers' practices. Traditional professionals' classrooms are their domains (2.4.1). They value working independently, using judgment under union protection (Buchanan, 2015). The Education Reform Act (HM Government, 1988) significantly limited such autonomy: the English National Curriculum sets parameters regarding course content and sequencing (e.g., DfE, 2014), and competency against the Teacher Standards (DfE, 2013) must be demonstrated to achieve career milestones. Adherence to organisational conventions, such as codes of conduct, are also expected, and mean that teachers are not fully autonomous.

The 'bounding' of teacher autonomy has been conflated with reduced 'agency' in some literature. In arguing for 'agent-centred' (later 'balanced') coupling approaches, a balance is sought between the vices of excess and deficiency noted in 'tightly' and 'loosely' coupled schools (Hökkä and Vähäsantanen, 2014; Vähäsantanen et al., 2017) (2.4.3). As suggested in 2.5.1, professional autonomy concerns 'doing' and is distinguished from agency, which relates to noticing what can be done (Aspbury-Miyanishi, 2022). Excessively restrictive circumstances erode teacher wellbeing (Brady and Wilson, 2021). When professional values diverge from organisational espoused values, teachers may reject tasks they see as performative (Ball, 2008). Others, finding their anticipated professional creativity curtailed, leave the profession (Perryman and

Calvert, 2020). Practical and structural restrictions frustrate autonomy and, if theoretical underpinnings are inadequate, intellectual barriers inhibit PL (McChesney and Aldridge, 2019b). Lack of knowledge or skills also reduce both agency and autonomy (Brady and Wilson, 2021). These frustrations create cognitive dissonance, contributing to burnout. Whilst many leave the profession to resolve this, many others remain, disenfranchised, in post, at great cost to their mental and physical health (Ball, 2003; 2008; Hargreaves and Fullan, 2012) and to student outcomes.

School leaders can support teacher perceptions of autonomy by promoting cultural conditions that meet (or, at least, limit damage to) teachers' psychological needs (Brady and Wilson, 2021). This is challenging in an over-stretched system (Hulme and Menter, 2014) nested within a macro-managerial context (Brady, 2016; 2.4.1); myriad factors are beyond leaders' control (Earley and Bubb, 2023). Brady and Wilson (2021) note some independent sector teachers perceived greater professional autonomy (and, by extension, trust) compared to their State sector counterparts, who report 'micro-management'. Teachers may resist reform (Ball, 2016; Bridwell-Mitchell, 2015), which is received as further top-down directives, even if leaders have democratic intentions. Perceptions of curtailed professional autonomy can manifest as an unintended consequence of well-intentioned but poorly implemented PD interventions (Giddens, 1984).

2.6 Implications for this study

These cultural concepts (agency, efficacy, logistics, collegiality, trust, resilience, reflexivity, and autonomy) constitute a complex and interconnected puzzle. Organisational social systems are appreciated tacitly; rarely explicitly examined or articulated, especially as they mature (Schein, 2017). Phenomenological ontology highlights that multiple unique perspectives and experiences must be assumed. Consequently, inconsistent practices and 'patchy' reform implementation inhibit PL (Tarnanen et al., 2021). Providing additional PD is a weak solution whilst teachers' perceptions remain neglected; such opportunities encounter resistance or dismissal as 'contrived' (Hargreaves and Fullan, 2012). Some teachers, unfulfilled by available development opportunities, assert agency by leaving their school (Joost Jansen in de Wal et al., 2018) or the profession (Smith and Ulvik, 2017) in search of new challenges. Building on studies identifying macro-, meso-, and micro-conditions associated with transformative PD (Pedder and Opfer, 2013, Hargreaves and Fullan, 2012; Avidov-Ungar, 2016), I support the idea that fostering organisational conditions supportive of PL has strategic significance (Gray and Summers, 2015; Lee and Lee, 2018). Curating such a culture requires close attention to teachers' perspectives about these concepts, understanding of which I seek to contribute to.

Part 1: Analytical Framework and Survey Instrument Development

3. Methodology: Overview and Phase A

In this chapter, I position my study ontologically, epistemologically and methodologically, outlining assumptions about what can be known, in the context of the subjectivity of perception. I will describe the influence of this grounding on my methodological decisions, to produce a credible account from my data in response to my research questions. My ontological positioning rests upon phenomenological assumptions about relationships between the physical and social worlds, and individuals' mental states, namely, the intentionality of perception (Dreyfus, 1993; Husserl, 1969; 2.3.1). Divergent interaction with stimuli adds perspective (subjectivity) to our perceptions (Young et al., 2002). Thus, we interpret experiences (Neubauer et al., 2019), and language (Hasselgren and Beach, 1997).

Taking a sociological perspective, structuration mechanisms (Giddens, 1984) offer an account of cultural evolutionary processes, broadly understood as human social rituals, routines and artefacts. Culture transmission is facilitated through reflexive interaction between artefacts, symbolising ideas, and agentic deliberate and unconscious actions. This recognises multiple, interconnected dynamic, competing social hierarchies, and is therefore compatible with my use of an ecological lens (Daly, et al., 2015; Priestly et al., 2015).

I position structuration theory as both explanatory of social phenomena and offering practical utility. Indeed, structuration may mitigate individualising processes associated with post-structuralism, whilst also guarding against defensiveness and traditionalism (Whittington, 2015). Structuration theory provides a pragmatic approach to the social cohesion that organisations depend upon, and resists polarised progressive/conservative dichotomies (Giddens, 1984). No pejorative suggestion of compromise is intended; the structuration lens is applied deliberately to facilitate my contribution to practice. Overlaying the ecological lens, structuration coheres the micro-meso dynamic of agent-centred coupling (Vähäsantanen et al., 2017), promoting individual autonomy within evolving democratic professional systems.

Epistemological credibility of my data interpretation is underpinned by inductive hermeneutic phenomenography (Marton, 1986) and Heideggerian hermeneutic phenomenology (Laverty, 2003; Neubauer et al., 2019), which I have employed to synthesise meaning from the data, capturing participants' perspectives and experiences through my iterative interpretation of text (language). My analysis surfaced individuals' perceptions of dynamic system archetype processes, such as vicious and virtuous cycles (Stroh, 2015).

Whilst the scope on my exploration is holistic, the means are pragmatic. An epistemic distance necessarily exists between participants and me, since the contents of peoples'

minds are epistemically inaccessible (Husserl, 1969). Further, full appreciation of causal webs influencing human perceptions and reactions cannot be captured. What I *can* do is use robust, carefully selected research methodologies to present my findings as I explore and analyse the literature and data. Methodological and analytical rationale are presented here (overview of the study and instrument development) and in chapter 5 (qualitative data and cross-case analysis procedures). Methodological transparency and robustness serve to establish the credibility of my findings and, by extension, my discussion and conclusions (chapter 6) (Miles and Huberman, 1994).

3.1 Research questions

The literature reviewed in the first half of chapter 2 outlines the contexts in which English and Scottish secondary schools operate, describing and critiquing the theoretical, political and empirical landscape. This exposes and clarifies a problem: teachers' persistent problematic relationship with PD. Teacher apathy and rejection of PD inhibits implementation of initiatives, diminishing their potential benefit. Many interventions might also alleviate teacher workload concerns by increasing efficiency and efficacy. Teachers' responses to PD can be emotional and negative (chapter 1 and Taylor, 2021). Enforced compliance is associated with indications of teachers' poor health, which has been associated with unsustainable working practices and poor employee/employer match quality attributed to some leaders' synthesis of the demands of the managerial macro-culture (Ball, 2003; 2008; 2016). This compounds the teacher recruitment and

retention crisis, undermines the benefits of teacher PL on their efficacy and wellbeing, limiting capacity for improved student outcomes.

Competing professional paradigms pervade political macro-forces, devolved implementation at the meso-level, and teachers' and leaders' reactions to these at the micro-level exacerbate this issue. This complexity exposes the difficulty of defining, clarifying and discussing associated concepts, making an ecological lens helpful. Structuration theory (Giddens, 1984) complements this approach, providing a theoretical framework of the evolution of social systems, and a practical mechanism describing how organisational cultures might be 'steered'.

In 2.5, I explored the cultural dimensions associated with PL, foregrounding my survey instrument development. Insofar as I have ascertained from reviewing relevant literature, challenges in implementation and efficacy of pedagogically informed initiatives and reforms are apparent (e.g., Anthony et al. 2018). Decontextualised pedagogical interventions alone are unlikely to result in PL; supportive conditions must be present (Sims et al. 2021). Several studies highlight pockets of successful interventions indicating the eight cultural dimensions identified as catalytic in successful PD implementation and change in knowledge, attitudes, and practices (PL) (Gray and Summers, 2015).

The PD to PL 'pipeline' is under theorised and appears to be operationally dysfunctional. Taking an ecological view of the contexts in which school leaders plan and deliver PD highlights diverse experiences and assumptions. The transformation of PD into PL is wickedly complex and resistant to simple solutions. Without deepened understanding of educators' experiences of PD, relationships between PD and PL will remain elusive. My research questions engage with this puzzle: what does PD mean to educators? How is it experienced? How do the dimensions identified above relate to it? In this exploratory study, I engage with these issues and hope to offer some useful insight.

My overarching research question (RQ) is: **What are secondary educators' experiences of the relationships between their school ecosystems and teacher PD (Professional Development) and PL (Professional Learning)?**

This is sub-divided:

1. **What perspectives do teachers and school leaders have about their PD experiences?**

2. **What are teachers' and school leaders' perspectives and experiences of the conditions associated with teacher PL?**

RQ1 explores teachers' lived experiences of their ecosystems relating to their openness to and capacity for PL. My survey instrument is intended to elicit data to serve as a reasonable proxy for this purpose because of the apparent relationship noted in

the literature (e.g., Gray and Summers, 2015) between the identified cultural dimensions, and changes in teachers' practices. I suggest teachers' perceptions of these eight dimensions and their sub-factors constitutes a proxy to support understanding of teachers' openness to PD and, thus, PL. This insight has utility to school leaders facilitating their application of concepts drawn from the literature to their context As such, use of my survey can contribute to the initial stages of PD implementation processes (Sharples et al., 2024), supporting leaders to understand and meet the needs of their organisation and the teachers within it before activating an appropriate learning phase (Schein, 2017). Such insight affords opportunities for saving time, money and teachers' goodwill. Engagement with my survey can also constitute a self-reflective opportunity for individual teachers (Amott, 2017).

 In my experience, and from my review of the literature, a clear association is apparent between circumstances of PD delivery and audience reception (chapter 1). Insight into teachers' perceptions of the dimensions associated with PL in their organisations has the potential to elucidate the openness and capacity of teachers to PL. RQ1 supports the wider exploratory question by surfacing existing teacher perceptions about their current circumstances into which PD is offered.

RQ2 explores teachers' and school leaders' perspectives and experiences concerning the circumstances associated with impactful PD initiatives, which they believe promote PL. Schein (2017) argues that change leaders must accurately appraise conditions 'as

they are' at the start of reform implementation to ensure PD is appropriate (2.4.4). Activating people as learners, supports their understanding of the need for change and supports their willingness to undertake the work to realise it. Surfacing participants' beliefs about the circumstances in which PL can occur deepens understanding of how educators can be empowered and supported to implement chosen initiatives. This insight is useful to school leaders for PD planning. It also serves a wider function of providing data which elucidates the circumstances under which PL appears to occur in real contexts.

My analysis supports theorisation and knowledge of practice to support the translation of PD into PL in schools. Additionally, I hope participation in this study has supported participants' individual and organisational reflexivity. Reflexivity entails habitual heuristic reflection on past experiences to inform future planning and actions. Participation in my study is positioned as a PD opportunity contributing to enhancing individuals' understanding of their professional assumptions (Amott, 2017; Korthagen, 2017) and those of their organisation's (Schein, 2017).

3.2 Research design

To explore these questions, my data collection strategy was two-fold. Firstly, I developed and deployed my survey instrument to capture and quantify teachers' views of meso-cultural dimensions associated with PL. Secondly, I engaged school leaders responsible for PD planning in semi-structured interviews. These took place both prior

to and after analysis of their school's (anonymised and cleaned) survey data, which I shared for discussion. This qualitative mixed methods approach captured multiple perspectives from which I could view the phenomena of interest, enriching my scope for nuanced interpretation (Young et al., 2002).

I used opportunistic sampling to identify and recruit participants. Five schools were recruited, facilitating comparison between contexts. My cross-case analysis and the practical means (by way of my survey) to capture and synthesise perceptions of organisational cultural dimensions constitute my contribution to practice. Schein (2017) suggests that research into organisational systems is enhanced by the following features:

1. 'Authenticity' of participants (to capture 'warts and all' perspectives)

2. Coherent data (available for analysis)

3. Analytical clarity

4. Intelligible output

Such features of research design direct researchers, shaping item schedules and providing credibility to findings and supporting replication (Miles and Huberman, 1994).

I used epistemologically connected, yet methodologically distinct approaches within interpretive phenomenology to identify and elucidate phenomena. Phase A utilises hermeneutic phenomenography, selected for its suitability for developing subsequent phenomenological research (underpinning phase B) because of the shared epistemic

mind-world-mind view of perceptions of phenomena, expressed as text (Hasselgren and Beach, 1997). This facilitated my synthesis of large volumes of literature for instrument development, which simultaneously enhanced my understanding (Cibangu and Hepworth, 2015), and supported cross-cultural conceptualisation of ideas (Willis et al., 2018). This was helpful in addressing the theory-practice gap (Korthagen, 2017): a cross-cultural barrier between academics and teachers. My synthesis of literature enhances its accessibility to a variety of stakeholders including research-engaged teachers, researcher-practitioners, non-teaching education-focused academics, education consultants, and policy makers. During instrument development, I drew upon existing conceptual frameworks and research literature, my learning from my IFS on teachers' perceptions of PD (Taylor, 2021), user feedback, and leaders' semi-structured interview data. From these, I developed an analytical framework (chapter 4), which I synthesised into a user-friendly instrument intended to enable teachers to express their perceptions of concept significant in supporting PL.

Phenomenographic analysis is an appropriate methodology for classifying the number of 'ways' phenomena can be conceptualised (Marton, 1986). In this process, I used NVivo software to analyse the selected literature (3.4) using codes identified a priori from the key concepts (2.5) and emerging themes. I developed an initial set of survey items from my analysis, which I synthesised through Exploratory Factor Analysis (EFA), a process by which data is sorted according to statistical similarity to discern sub-categories, using the Statistical Package for Social Sciences (SPSS) software (3.5 and

3.6). I then used a peer-reviewed Content Validity Index (CVI) process to develop survey items, developing and synthesising conceptual vignettes into indicative questions (Polit and Beck, 2006) (3.7.2). I refined my instrument after each deployment (3.6 and 3.7). Themes emerging during phase B are incorporated into the discussion and provide recommendations for future instrument refinement and utility.

The ontological and epistemological positioning outlined in the introduction to this chapter provides the theoretical foundation needed to provide credibility to this approach (McChesney and Aldridge, 2019a). Following their appeal to the interpretivist paradigm, interpretive Heideggerian hermeneutic phenomenology was employed. Hermeneutic phenomenography, which has utility in clarifying and delineating language use, is nested within this approach, and can therefore be consistently used. Furthermore, according to Chatman and O'Reilly's (2015) typology (2.4.3), the quantification and synthesis of participants' self-expressed mental perceptions of these constructs (climate) enables development of enhanced granular conceptual definitions (culture), whilst avoiding potential positivist, quantitative associations with the language of 'measuring', which suggests a level of precision and objectivity not claimed by social scientists (Delanty, 2005). My survey captures participants' perceptions of their meso-cultures in an interpretivist way that is available for synthesis through another, paradigmatically complementary lens.

My data captures a snapshot of perspectives of a wide range of conceptual constructs, suggesting Glover and Coleman's (2005) definition of 'culture', acknowledging transience and significance by assuming the data's status as a proxy for teachers' PL capacities. Positioning this study meaningfully requires a theory to coalesce the issues of defining 'culture' raised by myriad influences, whilst acknowledging the dynamic, temporal nature of social systems. Giddens' (1984) structuration theory affords this framework-unifying possibility, offering both theoretical and practical solutions.

Applying a structuration lens to the dynamic nature of culture shifts the emphasis from 'snapshot' criticisms and positions engagement with the survey as a catalyst for cultural change. The data output is synthesised for presentation as an artefact for local contextualisation and debate. It is not predictive and advisory, and it does not make explicit claims about 'next steps' (Chatman and O'Reilly, 2015); these are matters for school leaders engaging with the results 'artefact' reflexively (Giddens, 1984). I offer a qualitative dialogic intervention, contributing to a 'discovery phase' of implementation (Sharples et al., 2024) rather than advocating for any particular solution (Schein, 2017). Therefore, my theoretical positioning of culture aligns with Giddens (1984) structuration theory: data presented as cultural artefacts. As discussed in 2.4, artefacts are significant in constructing the theoretical foundations of culture which frame this study. Structuration theory is concerned with dynamic, transformative relationships between the physical world and social organisations, and peoples' interactions with them, arguing that social structures both create and alter meso- socio-cultural structures.

Giddens' positioning captures both the snap-shot view (in artefacts) and the dynamic, evolving nature of cultures at all systemic levels. I address the dynamic evolution of school meso-cultures below.

Survey data reveals a snapshot of teachers' perspectives about concepts associated with PL. Acknowledging the complexity of organisational cultures, this requires contextualisation and sense making (Schein, 2017). In phase B, cycles of interview, interpretation and review associated with Heideggerian hermeneutic circles enabled me to distil meaning from semi-structured interview data (Wallace and Louden, 2003). I recorded and transcribed interviews using MS Teams software, which I manually checked.

I thematically coded this qualitative data in NVivo (Boyatzis, 1998) using my intuition, my RQs (3.1) and my (emerging) theoretical framework (5.5), and developed each school's data into a coherent heuristic narrative. Narratives enhance the credibility and heuristic qualities of Social Sciences research (Hong and Cross Frances, 2020; 5.3). These surfaced individuals' subjective, nuanced perceptions, revealing insight inaccessible through positivist approaches (Burman, 1994), elucidating complex perspectives and concepts. The resulting thick descriptions (Geertz, 2017) strengthened links between subjects' realities and theoretical insights, which enhances this study's utility (Polkinghorne, 1988). Finally, I undertook a cross-case analysis (Miles and Huberman, 1994) to draw out key themes and salient points from my five

school narratives (5.6), forming my responses to the RQs in chapter 6. This process required my inductive skills and intuition to reveal and interpret complex lived experiences and phenomena, whilst acknowledging the epistemic distance between myself and participants.

3.3 Ethics

Ethical propriety was supported by the adoption of BERA guidelines (BERA, 2018 – applicable at the time of ethical approval). In my own school, I spoke to the headteacher directly, provided them with a cover letter and confirmation of my study's ethical approval. The same set of paperwork was provided to other school leaders electronically. I recruited two further schools through conversations with the leaders I would go on to interview through existing professional relationships, such as asking to be introduced to the leader responsible for CPD. The final two schools were recruited after I had engaged with leaders in discussions about PD on twitter (now X). In these cases, as soon as contact was made, I requested that further correspondence was done via professional/university emails so that we could both feel assured that we were credible people who could be held to account if necessary. In all cases, I sought written permission from gatekeepers (headteachers at participating schools) via email and made it clear that all correspondence prior to the headteacher's explicit consent would not be included in my analysis.

I shared the electronic link to my survey with the school leaders for review before making their decision to participate so that they would be able to see what questions would be asked of their staff. The survey tool I used was Jisc, which is a reputable data collection and storage service, experienced in the Education sector and compliant with the Data Protection Act (HM Government, 2018; Jisc, 2024). These measures supported leaders' ability to give informed consent. Survey and interview data was kept confidential and anonymised and stored securely on an encrypted laptop during analysis. After analysis, I backed everything up on the N Drive at the Institute of Education. All digital technologies used for interviews and audio transcription were compliant with the Data Protection Act (HM Government, 2018). I made provision for disclosure of criminal behaviour or safeguarding concerns according to local and national policies but did not anticipate or receive such disclosures due to the focus of my study on adults' PD experiences (Robson and McCartan, 2016).

Participants were informed at the outset that anonymised data may be drawn upon in future academic work, including published works, and consent for this was explicitly sought before data collection proceeded. All information and consent documents were made available electronically. Throughout, I endeavoured to remain sensitive to participants' professional and personal needs, e.g., their rights to rest breaks, and consideration of other workload and personal pressures and commitments (such as childcare). The survey preamble displayed the anticipated duration for completion, and I took steps to improve user experience following user feedback. I remained sensitive

to potential survey user social discomfort wishing to give negative feedback by employing digital data collection methods; I never met most of the teachers.

I gained written consent from interview participants via email in advance and re-confirmed this verbally before each interview, which were conducted at mutually convenient times. Consistent with the cyclical process of interview, reflection, and review, I engaged participants in a process of ongoing consent and member checking following initial interview transcription (Richards, 2015). Interview participants retained the right to withdraw at any time up to the point of report writing up, without giving a reason. Fortunately, none requested this. The online consent form advised survey participants that identification or removal of individual anonymised data was not possible post hoc. Participants indicated their consent via an online tick-box, which, left unchecked, prevented further participation.

After initial familiarisation with the data, my cross-case analysis focused on themes emerging across several participants' data. Therefore, consent was negotiated on the basis, both verbally and in writing, that neither individuals nor schools would be directly identifiable, and ultimate authorship of resulting reports would be mine (Smythe and Murray, 2000; Josselson, 2007).

I remain aware that the inductive nature of this study entails the possibility of unintended consequences, including disquieting introspection (Malone, 2003), which can be disruptive (Tarnanen et al., 2021) and/or emancipatory (Willis, 2018). Understanding that relaxed participants may disclose more than they intend (Kelchtermans, 1993), I remained sensitive to the possibility that data collection may evoke distress. Participants were not considered vulnerable, but I was prepared to pause or abandon interviews should distress occur. Fortunately, this was not necessary, although, as illustrated below, some frustration and tension between colleagues was noted in some qualitative comments. One survey participant disclosed a recent bereavement, but I did not know their identity and was unable to make direct contact with them. I considered alerting the school leader but chose to honour my commitment to their anonymity (the basis upon which they disclosed this information), because they indicated that school leaders were already aware of their circumstances. I judged that participation in my study posed no additional risk. From a safeguarding perspective, I would have sought advice from my supervisors if I had been concerned that a participant was at risk of harm because of a disclosure and taken action to report it through appropriate designated channels (Robson and McCartan, 2016).

During my study, I sometimes had insider researcher status, whilst at other times I assumed the role of an external 'helper' researcher (Schein, 2017). Both positions carry ethical considerations. Insider-researcher 'native-ness' had potential to cause colleague confusion/suspicion about my changing role as my expertise developed

(Perryman, 2011). In both guises, establishing trust and rapport is key and researchers must proceed sensitively; trust, once established, can be easily damaged. I take my responsibility to minimise any potential harm to participants seriously. In all cases, my commitment to handling data with discretion was made clear (Kelchtermans, 1993). For example, I used pseudonyms for the schools (Hilltop, Baron, Cromarty, Towerville and Parkway) and referred to teachers and leaders by role rather than name in my analysis and reporting. During some interviews, leaders asked for demographic details where data indicated negative perceptions. In these cases, I declined if the numbers concerned were small because this would have made individuals too easily identifiable. Instead, I provided only high-level analysis to show patterns in the data whilst protecting teachers' anonymity.

It was not always possible to disguise teachers' identities from leaders as it transpired that some participants with strong reactions to the survey (positive or negative) sometimes disclosed their feelings to colleagues openly, as the comment below illustrates. Discussing their experience of participation was their prerogative, but it was not my place to share specific details about them or their data that would have enabled them to be individually identifiable (e.g., demographic information, item scoring, or qualitative comments). I offer the following interaction, described by one leader, to illustrate the way in which some teachers discussed their participation openly:

"I saw the head of maths and he said it took [another teacher] about 40 minutes to do [the survey]. And I was suddenly, like, are we arguing about something that wasn't actually mandatory, and I said, "he could always just have stopped". Like, he could have got to question 10 and been like, ohh 15 minutes, and just left it. They chose to persevere for 40 minutes, I don't know why it took them 40 minutes, but they chose to persevere for 40 minutes. […] just leave it alone."

Middle leader, Cromarty

This clearly indicates participants' frustrations, and I address the issue of survey length, which attracted some negativity from participants, in 3.7.

Participants also shared more positive experiences with their leaders:

"Some of the staff who completed it have popped and seen me and said [they] found it really interesting."

Deputy Headteacher, Towerville

Both these comments demonstrate the 'leakiness' of participant anonymity, as teachers discuss their participation, and that of their colleagues openly. Inter-participant discussions raise ethical issues. These might have been mitigated by designing a confidentiality clause into the consent information, but this seemed heavy handed and

unenforceable considering the nature and circumstances of the research. Participant collusion to bias results by agreeing on how to answer survey questions was also technically possible, but hard to identify and prevent from a distance. My data analysis processes revealed a variety of responses, suggesting that teachers provided their individual perspectives. My triangulation of qualitative and quantitative data, especially at the cross-case analysis stage, help mitigate any bias that may have been introduced in this way.

A worst-case scenario might have entailed a teacher confiding in a colleague that they had made negative comments about the school in their survey response, and the colleague reporting this to school leaders, leading to the potential for harm to the original participant. The Cromarty quote above suggests an air of 'gossip', although the complainant doesn't appear to have been discreet in their annoyance. I tried to mitigate any potential negative consequences for them by assuring the leader that I welcomed all feedback, and how helpful it was to get a 'warts and all' perspective from teachers, and that such behaviour, far from being an embarrassment, was extremely useful. These kinds of unintended consequences expose the ethical minefield entailed in research of this nature, which is very difficult to mitigate (Malone, 2003). For my part, I have tried to uphold ethical integrity during this process.

I was always clear, both to leaders during interviews and to teachers in online consent processes, that participation was voluntary. I balanced voluntary participation against workload concerns, advising leaders to make time available for survey completion, but not to check whether individual staff had, in fact, completed it during that time. I advised leaders to ignore any alternative activities teachers might undertake during the allocated time such as catching up on emails or marking (Robson and McCartan, 2016). Following the exchange above, I also advised that teachers should stop the survey after 15 minutes. However, this posed a further ethical consideration; how to convey both the voluntary nature of teacher participation *and* protect and manage the time they should use to complete the survey. This interaction demonstrates the care taken with school leaders in subsequent schools to navigate this tension:

> "You suggested [the survey] takes 15 minutes taken from a meeting.
> Would you recommend that? The only reason is the dichotomy here is
> it is voluntary and obviously we're doing it in an INSET day. So, my
> approach was going to be this: if you could try have a look at it and
> please try to complete it. But our INSET day is not voluntary, and I was
> just wondering where your ethical line lay?"
> Deputy Headteacher, Parkway

> "Well, your person who's gonna sit at the back and do their marking
> [referring to an earlier comment], there'll be no recourse to them if they

press 'go' and then don't complete it. You won't know who they are. I won't know who they are. They can make that judgment, and nobody's gonna chase it up, so from that perspective, it remains voluntary. Anybody who doesn't want to do it, won't do it. I think it's useful to ring-fence the time to do it, because then you remove the barrier that people say they haven't got time to do it. I would say to people just to go with their gut [when answering] and if they're still going after 15 minutes, stop."

Kathryn Taylor, interviewer

This exchange acknowledges the possibility that some teachers may reject the survey in more or less discrete ways. The school leader would normally have intervened if a teacher was openly marking during a PD session but understood that this was not appropriate in the voluntary participation context.

Considerations of the role of the 'insider/outsider' researcher dynamic were necessary (Perryman, 2011), especially as my confidence as a 'knowledgeable expert' in my field increased. This coincided (with the approval of my headteacher) with me taking on 'extra-curricular' employment as a course facilitator on a national professional development programme, and publication of my articles (Taylor, 2023; Taylor, 2024). These also raised the issue of my workplace details being exposed. I have tried to keep my published work associated with my 'UCL researcher' identity separate from my

'school employee' identity to make the connection to my school less clear. My publication and increasing knowledge shifted some of my professional relationships in and beyond my workplace, elevating my credibility. I remain mindful of workplace politics and the need for tact and diplomacy in maintaining healthy working relationships (Czerniawski, 2023).

My position both as insider researcher, and in my development as a credible researcher in general has ethical implications. Working with schools over time meant exposure to contextualising details. Research in the Social Sciences is fundamentally entangled with the world (Law, 2004). It is important to acknowledge that my study was not undertaken in a vacuum, but, rather, in a complex social network from which I cannot disentangle myself. As an insider-researcher at one of the schools, I have had access to casual conversations with teachers at all levels, which required mindfulness of exposure to sensitive or confidential information (Perryman, 2011). I noted occasional comments relating to PD in my research journal, but most comments had been shared in other data gathering activities, for which consent had been obtained. Such data included that captured for my IFS (Taylor, 2021) and MoE2 (Taylor, 2019) projects, which informed my contextual understanding. I included my IFS qualitative data in my analysis because I had explicitly gained consent from participants at that time for their data to be available for use in future studies. I had also done this for MoE2 data, but it was not directly relevant to this study.

Furthermore, some of the leaders and teachers in the other schools are known to me through professional and personal contacts, or via their social media presence. It is beyond the scope of this study to undertake a detailed analysis of source materials in the public domain, but I have spoken extensively to some teachers at the schools, watched their conference presentations and read their magazine articles. Indeed, one of the school leaders asked for *my* permission to write about their experience with my survey. I reminded them of the anonymity of their staff which such a reference might expose. The reference they made was a decontextualised mention of my work.

I have not referenced these sources to protect participant and school anonymity, neither have I reported directly on information I gathered in private conversations. In volunteering, participants consent to specific activities, and do not generally consent for researchers to analyse every utterance. Yet, it is impossible to bracket off this knowledge entirely, especially subconsciously, and it is entangled in my exploration. This is an epistemological point appealing to the impossibility, in my view, of bracketing off such knowledge, rather than my unwillingness to try. I have been careful to balance ethical obligations to participant anonymity with reporting relevant disclosures and my wish to enrich the descriptions of the schools (Malone, 2003). Ethical issues arising from the availability of prior and emerging knowledge highlight the 'messiness' entailed in research of this nature (Law, 2004). I included two contextual comments from a casual conversation in my analysis describing the circumstances of how the survey was shared in their school. I included them because a) the teacher had consented to take

the survey and, b) the comments were consistent with other data, but provided a clearer example. The teacher in question was aware that my research was ongoing.

I justify these potential risks in the reflexive nature of the process, which constitutes a PD opportunity (Amott, 2017). PL entails self-reflection (Beauchamp and Thomas, 2009), and, thus, structured introspective opportunities are legitimate professional activities. I hoped to provide participants with positive reflective experiences. For example, in reporting data to school leaders, I considered my use of the colour red to indicate risks in initial reports to minimise potential alarm. I tried purple and blue, but interviewees did not indicate any preference. Red, Amber, Green (RAG) rating benefits from recognisability (see 5.2), and failing to make leaders aware of risks is unhelpful, constituting ruinous empathy (Scott, 2017). Leaders were reflective and open to conversations about lower scoring factors, asking questions to understand and address any risks indicated in the data.

Deepened conceptualisations of professional aspirations, both personally and for their wider organisational contexts, can be beneficial and enhance participants' examination of their assumptions and core values (Korthagen, 2017). Several leaders expressed this wish to understand where their assumptions about culture diverged from the perceptions of their staff, illustrated in this example:

"Often, we want to ask questions to hopefully make ourselves feel better about something that we're implementing now. Don't get me wrong, you'll take the bad news with the good news, you know what I mean? Like, tell me what I need to know. Whereas actually [this study] made us think about asking questions that help us to understand working relationships between staff, because actually so much of our CPD isn't top down. Then we need to have a clearer eye on how that's landing."

Deputy Headteacher, Towerville

This comment supports Amott's (2017) research which associated introspection with reflexivity; once you begin to understand the 'story' of your school and colleagues' experiences, it becomes easier to identify what changes to prioritise.

Schools inhabit complex and competing social and political systems, and initiatives addressing the theory-practice gap support meaningful reform (Korthagen, 2017). Political and paradigmatic tensions underpin debates in this field, and I am sympathetic to the democratic, reformist paradigm. Broadly, this view holds that the dominant managerial paradigm (Sachs, 2001) encourages performative, tightly coupled school cultures (Hökkä and Vähäsantanen, 2014; Vähäsantanen, 2017) in a marketised environment (Leckie and Goldstein, 2017). This standardises teacher practices, de-professionalising and technicalising them (Ball, 1997; 2003), causing cognitive dissonance and damaging wellbeing (Ball, 2008). The present recruitment and

retention crisis suggests large numbers of teachers feel unable to remain in the profession (e.g., DfE, 2019; Perryman and Calvert, 2020; Worth and van den Brande, 2020). The significance of teacher resilience in sustained efficacy and engagement (Gu, 2014) reveals the unsustainability of the current paradigm. I therefore consider it a greater overall harm to *not* investigate this issue, even at the expense of potential discomfort for some.

3.4 Phase A: Concept identification and survey development

Here, I provide methodological detail of my phenomenographic analysis, and my survey instrument development.

EPISTEMOLOGY

Phenomenography (Marton, 1986). Knowledge of others is indirectly accessible through interpretive hermeneutic analysis (Grondin, 1994; Laverty, 2003).

DIMENSION IDENTIFICATION

Literature reviewed in NVivo for language describing cultural dimensions associated with PL (agency, efficacy, logistics, collegiality, trust, resilience, reflection and reflexivity and professional autonomy).
Results cross referenced with 'indicative language' and authors' definitions thematically coded.

(1)

(2) PHENOMENOGRAPHIC ANALYSIS

Prima facie usages of language developed into thesis statements, and then into questions.

SURVEY #1

Pilot survey deployed at Hilltop school.

(3)

(4) EXPLORATORY FACTOR ANALYSIS (EFA)

In SPSS, EFA used to identify sub-factors within cultural dimensions in the data.
Validity confirmed using Cronbach's alpha.

INSTRUMENT REDUCTION #1 AND SURVEY #2

Cronbach's alpha used to reduce items per factor.
Survey re-deployed at Hilltop.
Cronbach's alpha results indicated reliability problem.
Expert advice sought.

(5)

(6) CONTENT VALIDITY INDEX (CVI)

Heideggerian hermeneutic circles used to develop vignettes for each sub-dimensional factor.
New survey items developed and peer reviewed.

INSTRUMENT REDUCTION #2 AND SURVEY #3

Updated survey deployed at Baron, Cromarty, Towerville and Parkway schools.
Instrument refined and reduced following data analysis and user feedback.

(7)

(8) SURVEY #4

Reduced iteration of the survey re-deployed at Hilltop, automated to provide users with personalised results summaries.

Figure 1: Phase A methodology overview

I catalogued the literature (chapter 2) using Zotero reference management software, adding to the titles sourced across my EdD studies. I imported all documents available in pdf format into NVivo and undertook key word searches to identify the target dimensions' language (2.5), and their derivatives, which were taken as a priori themes for my phenomenographic analysis. I used NVivo's 'broad coding' feature to capture full paragraphs, contextualising the target vocabulary. Further key word searches surfaced indicative language which suggests proximity to definitions of target dimensions (e.g., identifies/defines/recognises/classifies/suggests/argues), which I also broad coded. I then created a cross-matrix table of intersections between the two sets of codes, facilitating close analysis of relevant sections of text from which I began my phenomenographic analysis. I teased out and coded equivocal language to create sub-categories for each a priori theme. From this coding, I rendered each sub-concept as a question or thesis statement, forming my first survey iteration.

Through my survey, I seek to quantify teachers' subjective perspectives of dimensions of their organisational cultures associated with PL (Gray and Summers, 2015). These data are understood, by proxy, as indicative of teachers' openness to PD and, thus, their capacity for PL (McChesney and Aldridge, 2018b; 2019a) (see 3.1 for further explanation). A Likert scale (1, strongly disagree to 4, strongly agree) rendered survey data available for statistical analysis (Howitt and Cramer, 2017). I did not include a neutral option to capture 'face value' reactions through a 'forced choice' (McChesney

and Aldridge, 2018a; 2019a). The following section outlines how I subjected pilot survey data to a statistical process, which informed later iterations and the development of my analytical framework (chapter 4).

3.5 Drawing Upon Exploratory Factor Analysis procedures

Exploratory Factor Analysis (EFA) is a statistical methodology used to reveal patterns within datasets, mitigating confirmation bias. Although small-scale studies, typical of student research, can reveal meaningful insights (Howitt and Cramer, 2017; Richards, 2015), transparency in methodological limitations is essential for research credibility. I acknowledge, therefore, that, whilst EFA procedures were drawn upon to make sense of the un-ordered survey items resulting from my phenomenographic analysis, the small sample (n10) cannot constitute a methodologically and statistically sound EFA procedure. Recognising this, EFA techniques have supported my early instrument development to form a reasonable basis for my subsequent peer assessed Content Validity Index (CVI) process (Polit and Beck, 2006). Incorporating EFA techniques at this early stage enabled me to mitigate my personal biases in factor development.

Howitt and Cramer (2017) provide accessible EFA guidance for SPSS users, which I followed with the slight change of excluding values of <0.4 from the output Rotated Component Matrices to aid visual interpretation (Gannon-Cook, 2010; QRSchool, 2020). I did not pre-determine the number of factors (Child, 2006) to avoid arbitrarily limiting my exploration. Instead, I conducted EFA using Principal Component Analysis

(PCA) to calculate eigenvalues >1, enabling my exploration of emergent factors. EFA is suitable for hypothesis formation (Child, 2006), enabling exploration of inter-item relationships within the a priori cultural dimensions (2.5). EFA provided a basis for naming and describing my phenomenographic analysis findings and steering methodological progression from hermeneutic phenomenography (identifying and quantifying) to Heideggerian hermeneutic phenomenology (interpreting) (Hasselgren and Beach, 1997).

Despite keeping user experience in mind, my survey's first iteration was aesthetically unappealing and long. I relied on my insider researcher position and good will to encourage participation (Perryman, 2011), and ten colleagues obliged. Whilst EFA benefits from larger data sets, small samples associated with student research can yield useful, meaning-making results (Howitt and Cramer, 2017).

I did not expect 'clean' data (Fullan, 2015). EFA with PCA is interpretive because language is not neutral (Hewitt and Cramer, 2017), and some creative control is accommodated. This interpretive scope of EFA was pragmatic, enhancing my instrument's user-friendliness (Oppenheim, 2005), and analytic, promoting validity and reliability (McChesney and Aldridge, 2018a). 'Playing' with the data was acceptable (Gannon-Cook, 2010; Howitt and Cramer, 2017), and scree plots provided helpful visual interpretive aids. Some Rotated Component Matrix outputs contained negative values because of item phrasing, inhibiting Cronbach's alpha calculations and reverse

coding was employed post-hoc to render the data available for further statistical analysis. Reverse coding was reflected in item phrasing (Zach, 2021).

I removed five items to resolve EFA problems. One item (5.27: I am happy to field student questions) was not recognised by SPSS because all participants agreed so there was no variance in the data. On reflection, this question was too broad to be meaningful. In the theme of Trust, item 14.30 'Prior experiences have made be cautious to let my guard down in my current role' was placed in factor 7 (initially named Collective practitioner), but the Cronbach's alpha was poor (0.563), as was prima facie 'fit'. The factor improved on both counts after that items' removal. 'Resilience' also resisted meaningful EFA results, with Cronbach alpha scores >0.7. I tried alternative computations and found the best fit after removing 3 items. Items 17.14 (The happier and more positive I feel, the better I can cope with challenges at work) and 17.16 (I find it easy to bounce back after setbacks), seemed too general, and were conceptually captured in other questions, and item 17.24 (My ability to cope with challenges is a biological characteristic), is impractical (perhaps impossible) to answer. It is also disingenuous because, although social tendencies have biological bases, supportive social dynamics like relational resilience exist at the group level (e.g., Day and Gu, 2014; Gu, 2014).

Two similar items in the logistics theme (8.1 'I struggle to find time when my colleagues are available to meet with' and 8.10 'It is easy to arrange meetings during the working

day'), were placed in different factors by EFA. I had the opportunity to discuss this with a colleague and ask for their interpretation and recorded their thoughts in my journal. Differentiations were identified between casual meetings of 'peer colleagues' (8.1) and formal, hierarchical meetings (8.10). The difference concerns the extent of arrangements such as room bookings and calendar invitations. These are built into teachers' timetables (factor 2) in the latter case, whereas the former emphasises informal collegiality (factor 3).

I visualised and colour coded the Rotated Component Matrices in Excel. Calculating each factor's internal coherence using Cronbach's alpha enabled sense-checking and mitigated unconscious biases developed through my closeness to the materials. I undertook this procedure on both raw and reduced data (Fullan, 2015; Gannon-Cook, 2010; McChesney and Aldridge, 2018a). I considered EFA complete when the smallest number of items were excluded, and each factor's Cronbach's alpha was >0.7. I intended this process to allow me to assess instrument validity (whether items were, indeed, asking the intended questions) (Fullan, 2015). In fact, as I discuss in 3.7.1, the statistical approach proved unsuitable and, after discussion with my supervisors and statistics specialists, I undertook a peer-assessed CVI process as an alternative means of promoting survey reliability and validity. Nevertheless, these statistical procedures were essential in my instrument's early development. Details of items, Cronbach's alpha values and reverse coding are available in appendices 2 and 3.

To establish links between the codes, the literature and, consequently, the factors, I reorganised my records in SPSS, NVivo and Zotero to reflect the EFA outcomes. This enabled replication of item groupings within emerging factors, which I applied manually, grouping the literature according to each factor. Mixed methodologies enriched and enhanced my insight (McChesney and Aldridge, 2019a) as I revisited literature, grouped according to EFA results to develop my analytical framework using inductive hermeneutic circles.

3.6 Selection for inclusion in the instrument

I removed factors with obvious prima facie associations with another or limited unique coding. The themes of behaviour management (Res5: Chalkface) and teacher wellbeing (Res6: Healthy teachers, thriving students), were conspicuous in their limited presence, and deserve exploration in future studies. Some factors outlined concepts foundational to other more specific ones. For instance, L4: Context secure, and T6: Leadership and Democratic organisational climate, describe the 'embeddedness' of teachers' PD experiences, an idea represented with greater specificity elsewhere e.g., A3 (originally A4): Empowered agency. A7: Sense making emerged strongly, associated with activist, democratic professionalism (Sachs, 2001). Democratic professionalism underpinned several factors, associated with trusting environments supportive of knowledge generation (Lofthouse, 2019), teacher agency (Hendrikx, 2019) and positive feelings of contributing (Everitt, 2020). Other associated themes included reflexive experimentation with PD strategies (MacKay, 2017; McChesney and

Aldridge, 2019b). E7: Invested belonging was associated with Wenger's (2008) 'negotiated experiences' identity dimension. Finally, T7: Guarded and paranoid was interpreted as a via negativa of T3: Open optimism; high scores in one balanced with low scores in the other.

Factor naming and description was iterative, consistent with Heideggerian phenomenological hermeneutic cycles (Smythe and Spence, 2020). I proceeded incrementally, noticing face validity of items within each factor and revisiting each multiple times to substitute for interrater checking (Richards, 2015). This provided opportunities to view the data afresh, enabling me to benefit from my increasing research experience. I refined headings to capture factors' conceptual essence, and recorded changes in my coding schedule. I utilised visualisation tools, such as word clouds, to inform further refine conceptualisation and used NVivo to visualise dense or sparce coding to highlight 'outlying' and 'mainstream' concepts. My engagement with literature was extended through 'snowballing' as conceptual connections emerged, further influencing the naming and description process.

3.7 Instrument reduction

Survey length has been an ever-present concern. I used two approaches to reduce it: statistically, using Cronbach's alpha, and through an interpretive peer reviewed CVI approach (Polit and Beck, 2006). The latter proved most appropriate. Both processes are described below in the interests of reflexivity because the initial statistical attempt

formed an essential and instructive antecedent to the CVI methodology. Despite reducing the volume of items with each iteration, frustrated participant comments and survey timestamps indicated some teachers spent more than the anticipated 10-15 minutes completing it. My endeavour to create a user-friendly instrument could not be satisfied without further reduction.

3.7.1 Problematic statistics

Section 3.5 describes the utility of statistical approaches to 'cut through' assumptions and mitigate my 'closeness' to the materials, but they still entail interpretation and judgement. Calculating Cronbach's alpha scores highlighted the need for careful item wording to ensure internal coherence; questions must all 'point in the same direction' (Edmondson, 2019). Producing visual, intuitive representations of data required 'desirable' attitudes to consistently score highly (>3) and 'risks' score poorly (<2). For example, "I can resist new fads" can be re-phrased as "New ideas enhance my practice". Language alterations reduced emotivity; for example, the word 'fad' implies time-wasting exercises. Anyone holding that view can disagree with the re-phrased item. Results were interpreted in context. Low scores may represent a 'cynical' perspective, or the rapid introduction of multiple initiatives which leave teachers confused (Schein, 2017; 2.4.3).

Some items appeared contradictory. In E1, individual goals were indicated alongside items emphasising collaboration. I re-phrased this for inter-item 'face' consistency; 'I

feel empowered in my team' became 'I feel driven to further my career', judging the factor's primary focus as individual development. Collegial themes emerged elsewhere. Such changes supported the production of 'cleaner' data. Items per factor was also reduced to enhance user experience by combining items with equitable correlation scores (Child, 2006). I systematically reduced the volume of items by identifying high scoring question combinations (Fullan, 2015) which also achieved factor Cronbach's alpha scores of >0.7 leaving and optimal 3-4 items per factor (McChesney and Aldridge, 2018a; appendix 3).

I prepared a new iteration of my survey on this basis, which was completed by n19 teachers at Hilltop. Unfortunately, when the results were analysed, the alpha scores were chaotic, rendering the results incoherent. This was a real blow, requiring expert advice and a radical methodological re-think. My planned source of credibility (Cronbach's alpha scores >0.7) was in tatters! I could not see how to move forward and felt quite emotional. Fortunately, a fellow EdD student mentioned that they had used a CVI process, which I explored and found to be a suitable alternative (Polit and Beck, 2006). This, I came to realise, was more consistent with my exploratory study than the Cronbach's alpha had been, despite its previous utility.

3.7.2 A new plan

I re-developed each factor into conceptual vignettes for the CVI process using Heideggerian hermeneutic circles (Wallace and Louden, 2003). This entailed a

systematic review of my phenomenographic analysis, revisiting literature coded to each factor, making notes and then drafting and re-drafting them to capture each's essence (presented in chapter 4). I derived new survey items from these, attempting to capture the essence of each factor faithfully and accessibly for participants (Polit and Beck, 2006). I invited academics in the field to peer review my work and received constructive feedback from my supervisors and two further experts from UCL, signposting me to additional reading and revisions. I then invited teachers at Baron, Cromarty, Towerville, and Parkway to complete the updated instrument. Some participant feedback indicated that survey length remained a significant barrier to user engagement. I therefore returned to my reduction efforts.

Excluding early, fragmented, data from Hilltop due to the significant conceptual development achieved through the CVI process, I considered parity of teachers' user experiences a reasonable basis from which to judge conceptual similarity and sample homogeneity. Of the remaining data, n9 of n127 surveys were incomplete and discounted, leaving n118. I identified similarly mean scoring items for removal or amalgamation and grouped candidate items to investigate for conceptual overlap. Seven pairs and one trio of similarly scoring factors fit the reduction criteria. I reviewed these for congruence, conceptual compatibility, and item similarity, and tabulated my findings.

Factors	Mean Score	Variance	Vignettes and questions comparison	Outcome
T5, PA3	3.16	0	Complementary. Both value creativity, good development, and leaderships opportunities. Entrepreneurial 'type'.	T5 removed and merged, updating PA3.

Table 1: A sample from the instrument reduction process (see appendix 4 for the full table)

I merged complimentary factors, and adapted questions, removing repetition whilst retaining the conceptual essence. Incompatible factors (e.g., focus on groups vs. focus on individuals) were unchanged. In total, I amalgamated 7 sets of factors, significantly reducing instrument length. Undertaking further hermeneutic circle writing, I refined the factor vignettes and associated items (chapter 4 and appendix 5), reflecting these changes (appendices 6 and 7). I then re-piloted my survey at Hilltop. To increase user experience and reward, I asked my husband to develop a survey version which offered participants an overview of their personalised results. To honour ethical commitments of anonymity, this feature is optional.

3.8 Reflections

The path from proposal to realisation of my survey instrument was reflexive. Despite pivoting from Cronbach's alpha to CVI, the combination of the quantitative, statistical approach provided a firm foundation for the conceptual factor vignettes. I outline the

process to add credibility; the following analytical framework was derived systematically.

Research in the Social Sciences is messy, and all analysis interpretative (Law, 2004).

Hermeneutic circles synthesising literature identified through a systematically derived

framework has supported the following nuanced, recognisable glimpses of human

experiences. These are presented in chapter 4, concluding my account of phase A.

Chapter 5, describes my phase B methodology (semi-structured interviews and cross-

case analysis), before the discussion of my findings in chapter 6.

4. Presenting an analytical framework

I acknowledge that this analytical framework is positioned in the democratic professional paradigm, with the explicit goal of demystifying professional knowledge, beliefs and practices (2.4.1). This is the case for four reasons. Firstly, the analytical process constitutes an attempt to demystify teacher beliefs, values and practices. Secondly, it draws on literature which each constitute demystifying artefacts. Thirdly, surveys are designed with foci and have a normative leaning (Schein, 2017). Since the literature espouses views that certain knowledge, beliefs and practices are associated with PL, teachers aligned with the democratic professional paradigm are likely to agree with the survey items derived from this literature. Finally, the democratic perspective underpins the utility of my survey, designed for use during the exploratory phase of implementation cycles to surface and elicit stakeholders' cultural perceptions.

I have developed this framework from my analysis of the literature (2.5), undertaken using NVivo (3.4). I included 377 sources in my original phenomenographic analysis (see appendix 10 for the full list). Other relevant literature was subsequently included as I developed the framework, accessed through snowballing techniques, recommendations and newly published literature. Following my analysis, I reviewed factors and selected suitable items for inclusion in the first iteration of the instrument (3.6). I subsequently used interpretive Heideggerian hermeneutic circles to create the following vignettes from which I developed the third iteration of the survey instrument (Wallace and Louden, 2003). These were subject to peer review in the form of a CVI

process (Polit and Beck, 2006) by experts in the field (3.7.2). Following further instrument reduction processes, I amalgamated some vignettes which resulted in changes to the numbering legend. In these cases, original numbering is shown in parentheses. My pre-amalgamation vignettes are available in appendix 5. The following represents the analytical framework upon which I based the fourth iteration of my survey.

4.1 Agency

I initially identified 32 separate usages of the word 'agency' across 84 papers. EFA revealed seven subcategories, of which, I selected 6 for inclusion in the first iteration of my instrument. A3 was amalgamated with Res2(1) following the instrument reduction process (3.7.2), leaving the following five factors.

A1: Proactive agency

This factor characterises agency as individuals' ability to make and execute deliberate plans. It is associated with democratic professional paradigms and activist professional identities (Sachs, 2001). Teacher action causes something to happen which would not have happened otherwise (Giddens, 1984). Teachers make subjective choices in response to changing circumstances (Eteläpelto et al., 2013; Imants and Van der Wal, 2020), perpetually connecting past, present, and future. Hence, this factor aligns with Wenger's (2008) learning trajectory dimension of professional identity. The assumed perception-world-perception of reality (Young et al., 2002) reflects the indivisible and

dynamic relationship between agents' assessment of circumstances, conscious planning, and deliberate attempts to bring those plans to fruition, thus changing the world. The catalytic effect of agents is both physical and intellectual (Eteläpelto et al., 2013; Giddens, 1984; Imants and Van der Wal, 2020). Dynamic reflection, adaptation and responsiveness indicates agent reflexivity (Emirbayer and Mische, 1998; Eteläpelto et al., 2013; Nangung et al., 2020).

Proactive agency is associated with individuals' beliefs about their efficacy, which influence the ambition and scope of their plans (Bandura, 2006). Imagination and ambition proportionally influence agents' potential for 'expansive transformation', promoting their pursuit of increasingly radical re-imaginations of possibilities (Pantić, 2021; Namgung et al., 2020). Data for proactive agency must be analysed alongside participants' perceptions of efficacy, since it is subordinate to those beliefs. Proactive agency is distinguished from autonomy because it entails scope for imagining possibilities beyond the freely undertaken choice to repeat 'tried and tested' actions (Namgung et al., 2020). Proactive agency is deliberate reflective practice characterised by agents' capacity for deliberately seeking 'feed-forward' through professional activities.

A2: Authentic agency

Here, agency is subject-centred, intrinsic, and associated with individuals' personal capabilities, interests, and inclinations; it is personal and 'lived' (Namgung et al., 2020).

Within contexts, actions are intrinsically motivated responses to external circumstances (Biesta et al., 2015, Imants and Van der Wal, 2020). Although associated with activist professional identities and democratic professionalism, identity also draws from the prevailing managerialist paradigmatic context in the sense that this is the context in which most teachers' professional formation now takes place (Sachs, 2001; Mockler, 2011). This suggests a nexus of multi-membership identity dimension (Wenger, 2008). Individuals' activism is enhanced by their ability to notice affordances beyond the conventional and respond in principled ways (Aspbury-Miyasnishi, 2022), exercising judgement and control (Biesta et al., 2015). Authentic agency evolves with experience and is inseparable from teachers' professional identities (Eteläpelto et al., 2013; Sachs, 2001).

Professional identity is only one facet of teachers' personal identities (McAdams, 2001). Authentic agency also has roots in influences such as nationality (Namgung et al., 2020) and generation (Aspbury-Miyasnishi, 2022; Stone-Johnson, 2014a), and co-exists with other interests, responsibilities, and relationships (Eteläpelto et al., 2013). It is transformational at the individual and grass-roots level, which perpetuates individuals' sense of agency through the recognition of their contributions (Vähäsantanen et al., 2017). Authentic agency associates PD engagement with personal interests making communication of vision and on-boarding activities highly important; teachers need to know the value to them (Hökkä and Vähäsantanen, 2014). Alignment of teacher and school vision is important (Imants and Van der Wal,

2020). The closer this alignment, the more resilient teachers are likely to be in their contexts (Epstein, 2019). Authentic agency can flourish because the resilience required to act is not fixed (Day et al., 2006) and can be fostered and enhanced in supportive school environments in which teachers feel empowered to 'step up' when required (Fredrickson, 2004 – cited by Day and Gu, 2014). Authentic agency can be exercised in psychologically safe conditions (Edmondson, 2023) with well-signposted support procedures and supportive, non-judgemental leadership (Ebersöhn, 2014), which encourages innovation (Fielding et al., 2005).

A3 (A4): Empowered agency (and resisters)

When scoring highly, empowered agency indicates the dynamic actions of groups and individuals engaging in developmental activities to enhance practice and enable their own and group learning. This active and democratic professionalism (Sachs, 2001), manifests in collective agency (Vähäsantanen et al., 2017), aligning with Hargreaves and O'Connor's (2018) collaborative professionalism. Teachers find legitimacy in new initiatives as the group step forward together (Bungum and Sanne, 2021; Namgung et al., 2020). Shared vision coheres the community (Carrillo and Flores, 2018; Riveros et al., 2012) promoting collective agency and effective communities of practice (Fielding et al., 2005). Effective leadership is significant in disseminating the vision necessary to support teacher buy-in (Brunetti and Marston, 2018). Teachers perceive empowered agency when PD activities are deliberately coordinated, relevant, explicitly aligned to development priorities and contextualised (Wolthuis et al., 2020). This promotes the

identity dimension of community membership (Wenger, 2008). Co-regulation appears to drive teacher behaviour; colleagues seek support and affirmation from one another (Pyhältö et al., 2015). Low scores suggest teachers' exercise of 'unofficial power' (Eteläpelto et al., 2013) resisting change individually or collectively (Ball, 2016; Vähäsantanen et al., 2017). Some, critical of new initiatives forced upon them without consultation, or those introduced in incoherent or confusing ways (Canaran and Mirici, 2020), assert their agency to block reforms (Halvorsen et al., 2019; McChesney and Aldridge, 2019b). Resistance is associated with performative monitoring measures (Ball, 2016; Buchanan, 2015; Wilkins, 2011). Teachers' perceptions of trust are significant in whether cohesive or resistant agency is perceived. Teachers must have confidence in their leaders' vision, and the adaptations to practice required if initiatives initiate sustained change (Kalkan, 2016). Without trust, agents may disrupt reform attempts, either individually or collectively.

A4 (A5): Collaborative agency

Collaborative agency is associated with collective professional identity, and is activist and democratic in character (Sachs, 2001). Work-related learning is supported through opportunities for meaningful dialogue in communities of practice (Du et al., 2021; Vähäsantanen et al., 2017). Importantly, agents existing expertise is celebrated and leveraged for commonly agreed 'grand' common purposes (Edwards, 2011). Negotiated experiences (Wenger, 2008) feature highly. Participation in supportive professional communities nurtures professionality, equipping teachers to exercise

professional judgement and flourish (Namgung et al., 2020). Collaborative agency promotes teachers' ability to notice areas for improving their own practice and become more reflexive and self-aware.

Teachers exhibiting collaborative agency develop the self-awareness and confidence to notice and respond to dynamic situations, utilise professional judgement and innovative methodologies when situations demand nuance (Aspbury-Miyasnishi, 2022). This is not done 'in opposition' to existing frameworks as a 'resister' might do, rather, collaborative agency expresses professional wisdom enacted in practice when required. Flexible and dynamic approaches to practice may result (Imant and Van der Wal, 2020). Here, agency is the active ingredient in effective practice, acknowledging the highly complex, nuanced and socio-culturally embedded nature of practice and resisting its oversimplification and reductive replication (Eteläpelto et al., 2013; Imant and Van der Wal, 2020; Pantić, 2021). Teachers who have collaborative agency flourish in environments where they feel supported and trusted to teach 'as individuals' (Gu, 2014), and their expertise is respected (Edwards, 2011). They are sufficiently self-aware to reflect on their practice, perhaps with a professional coach, and adapt as needed (Aas et al., 2020).

A5 (A6): Reflexive agency

Reflexive agency emphasises the notion of teachers' 'life courses'; their past, present, and future (Biesta et al., 2015; Eteläpelto et al., 2013). It is highly personalised and

subjective, and self-perpetuating (Rae, 2020) rendering teachers in a state of continuous reconstruction (Brunetti and Marston, 2018). Despite these post-structuralist leanings, 'reflexive' agents remain situated within a system underpinned by standardisation and measurement, but latterly, also by movements prioritising evidence-informed research (Gu et al., 2020). The relationship between an identity comprising elements of democratic professional openness and managerialist accountability is complex (Buchanan, 2015). Teachers may develop identities into what they believe is required of them or resist or 'cherry-pick' professional behaviours they value developing what Sachs (2001) refers to as entrepreneurial professional identity. Here, changing practice is not driven by performativity. Rather, it stems from internalised mental models of extended professionalism. If the mental model is rooted in the democratic paradigm, reflexive agency may be experienced by open minded, research engaged teachers (Evans, 2008).

Demographic data tentatively suggests reflexive agency may be experienced and perceived by recently trained teachers who are exposed to the values of evidence informed education (Huang, 2019: Stone-Johnson, 2014a). At the same time, the ubiquitous managerial macro-paradigm may limit exposure to alternative ways of having professional agency (Buchanan, 2015; Mockler, 2012). Emerging identities constitute Wenger's (2008) nexus of multi membership, in which individuals attempt to reconcile competing identities into a unified coherent one. Teachers' interpretations of their starting points in relation to their goals form the basis of how they adapt and shape

their practice (Halvorsen et al., 2019; Pantić, 2021). Individuals select the methods they employ (Biesta et al., 2015) and develop reflexivity and deep understanding of the 'best' practices they aim for and strive to overcome implementation problems (Du et al., 2021).

4.2 Efficacy

The word efficacy was often used undefined and uncritically within the literature. Rather, use of the word efficacy was contextualised in reference to the achievement of something else. In 46 usages across 58 papers, it was difficult to distinguish between individual and collective efficacy beyond the necessary condition of the impact of an individuals' or groups' influence on goals achieved. Therefore, I did not impose delineation a priori, allowing distinctions to emerge during the EFA process (3.5), which revealed eight themes. All factors were retained in the final instrument, highlighting their distinctiveness.

E1: Individual extended efficacy

Here, efficacy is linked to personal professional revitalisation. It is associated with different professional paradigms, depending on whether teachers seek to develop mastery at what they are instructed to do, or in practices they discover through independent engagement with research (Sachs, 2001). Individuals' perceptions of efficacy appear to be a product of the managerialist professional paradigm because of its individualising effect (Pedder and Opfer, 2013). This limits what can be achieved for

the community (Sachs, 2001). Teachers' professional confidence is galvanised as they develop practice mastery, legitimised by theoretical underpinnings gained through academic study during training and beyond (Mahler et al., 2017). The life course perspective associates individual extended efficacy with Wenger's (2008) learning trajectory dimension.

Teachers' confidence also impacts their attitudes towards challenges, increasing resilience and capacity for strategic thinking (Urrea, 2010). Teachers with high perceptions of individual extended efficacy develop their capacities to respond to wicked (complex, ill-defined– Epstein, 2019) problems, associating this factor with democratic professional activism (Sachs, 2001). Opportunities to 'up-skill' practice and knowledge are sought, increasing confidence and professional capacity (Glackin and Hohenstein, 2018) because professional stagnation is not tolerated (Sturm, 2017). Strong emotional/moral drivers (Day and Gu, 2007) underpin teachers' drive to positively influence student outcomes (Mahler et al; 2017). Social and collegial relationships are also associated with individual extended efficacy, encouraging teachers' existing intrinsic motivations (Gu, 2014; Tarnanen et al., 2021). This combination of intrinsic and extrinsic drivers is reminiscent of Pedder and Opfer's (2013) individual explorer teacher learning profile, which may emerge when schools fail to capitalise on the collegiality necessary to support professional flourishing (Bosso, 2017; Ferris, 2016; Wilkins, 2017).

E2: Open-minded efficacy

Open-minded efficacy is closely bound to individuals' professional identities (Sturm, 2017), and is characteristic of activist, democratic professionalism (Sachs, 2001). Teachers with high levels of open-minded efficacy feel confident in their practice (Glackin and Hohenstein, 2018). They are productive and effective compared with those without, who may exhibit resignation and apathy (Carrier et al., 2017; Glackin and Hohenstein, 2018; Mahler et al., 2017). School environments (past and present) influence professional identity construction (Mockler, 2011), through what Wenger (2008) describes as negotiated experiences. Experiences can promote or erode individual teachers' sense of open-minded efficacy (Wilkins, 2017), especially after unsupportive criticism, which erodes both perceived and actual competence (Bosso, 2017). Leaders are highly influential in developing supportive (or unsupportive) environments (Brady and Wilson, 2021; Zilka et al., 2019).

E3: Identity-driven efficacy

Here, values and experiences are highly influential to professional and personal identities (McAdams, 2001; Putwain and Von der Embse, 2018). Identity-driven efficacy incorporates a learning trajectory dimension (Wenger, 2008). Myriad experiences influence professional identity formation, including peer observations, PD training and workshops, and university-based training (Glackin and Hohenstein, 2018). Teachers perceiving this factor benefit from seeing effective practices modelled and co-learning

with others (Bates and Morgan, 2018). Identity-driven efficacy is expressed in deliberate and conscious commitment to developing reflexivity (Unwin, 2012).

E4: Motivated optimism

Teachers scoring highly on this factor are enthusiastic and optimistic about teaching. Enjoyment may stem from love for their subject or some other aspect of their role, raising job satisfaction (Mahler et al., 2018). They are resilient and willing to try (and sometimes fail) in pursuit of professional improvement (Urrea, 2010). Such experimentation indicates an activist, democratic professional identity (Sachs, 2001) with a dimension of negotiated experiences (Wenger, 2008). This outlook is resistant to managerialist professional paradigms, which are associated with risk-aversion within performative organisational cultures (Ball, 2003). Trusting relationships within a school culture underpin perceptions of this factor (Gu, 2014; Kalkan, 2016). Teachers who perceive this factor weakly may lose confidence if their practice is critiqued, even if the appraisers' intentions are supportive and developmental (Bosso, 2017).

E5: Inspirational efficacy

Inspirational efficacy describes teacher perceptions of the influence of their enthusiasm on student outcomes (Mahler et al., 2017). It is associated with the extent to which teachers believe their own subject knowledge and love of learning inspires others (Sturm, 2017), enriching their practice with analogies and anecdotes which may, or may not, be conducive to student learning (Epstein, 2019). The intuitively relational and

personal dimension may suggest extended professionalism and evidence-informed practices (Evans, 2008). Restricted, traditional professionalism (Evans, 2008) may be indicated, as practitioners rely on experience of what has worked before. Manifestation in practice depends upon paradigmatic alignment. Evoking Hargreaves' (2000) Four Ages of Professional Learning, highly technicalised and standardised teachers may espouse a post-professional view that managerialism is effective and promote it. Conversely, teachers may develop open, democratic professional identities, and explicitly demystify their practice. Professional identity formation depends on macro, meso and micro-paradigmatic contexts and teachers' assumptions, contributing to the presence of multiple 'professionalisms' within schools (Stone-Johnson, 2014a). Although the influence of the macro-managerialist paradigm is now inescapable in English education, local and individual implementation varies. The pervasive managerialist paradigm may limit incoming teachers' awareness of democratic alternatives (Buchanan, 2015; Mockler, 2011).

Regardless of derivation, inspirational efficacy is personal, motivated by a desire to promote student outcomes. Therefore, professional identity profiles are hard to define. Applying Wenger's (2008) delineations, the nexus of multi-membership and negotiated experiences are likely prevalent. Where managerialist paradigms are resisted, community membership identities may also emerge as those who reject them align themselves with either the democratic, extended or traditional, restricted professional camps. The possibility of variation suggests this factor may flourish in loosely coupled

organisations, enabling variations and personal preferences to emerge and become embedded (Hökkä and Vähäsantanen, 2014).

E6: Skilled adaptor

This factor was identified in 10 papers, most extensively in Glackin and Hohenstein, 2018; Sturm, 2017 and Mahler et al., 2017. Teachers perceiving this type of efficacy have flexible dispositions, and are adaptable, responsive, and nurturing in their practice. They take a holistic view of students and strive to meet their individual needs (Glackin and Hohenstein, 2018).

E7: Invested belonging

When teachers feel their voices meaningfully contribute to decisions impacting the organisation, morale increases (Bosso, 2017; Day et al., 2006). Recognition of challenges specific to professional life phases (PLPs), e.g., the steep learning curve of early career, or the challenges often experienced by the 'sandwich' generation in the mid-career phase, balancing young families, elderly parents, and their own health needs (Day et al., 2006), supports teachers' perception of being valued as individuals (Day and Gu, 2014). Teachers appreciate leaders' consideration of their wellbeing (Brady and Wilson, 2021), and the acknowledgement of personal and systemic challenges (Göçen, 2021). When a school vision is embedded and effectively communicated (Cheng and Ko, 2012), and PD is supported by logistical arrangements

dedicated for collaboration (Bodman et al., 2012), teachers feel 'ownership' of their professional growth (Wolthuis et al., 2020).

E8: Extrinsic efficacy

Extrinsically efficacious teachers are willing to experiment with new, evidence informed ideas and feel empowered both by personal attitudes to PL, and the PD opportunities available in their contexts (Glackin and Hohenstein, 2018). Teachers feel responsible for their students' outcomes, demonstrating infectious vocational enthusiasm (Mahler, et al., 2017). Extrinsic efficacy is multi-faceted, holistically incorporating aspects of teacher personalities including intellectual, spiritual, and emotional dimensions (Gu, 2014). Teachers perceive high autonomy and are driven and confident to challenge themselves to develop their practices (Spencer, 2019). Contexts where reforms are tightly imposed would likely record low scores in this factor, disagreeing with the survey items, their experiences being the antithesis of what this factor describes (Putwain and von der Embese, 2018).

4.3 Logistics

Logistics refers to practical, scheduling, bureaucratic and administrative arrangements concerning employees' activities facilitating work. Logistical arrangements are key to managing teachers' workloads (Wolthuis et al., 2020). My analysis identified 14 usages of the word across 26 papers which were distilled into 4 factors during the EFA process. The fourth was removed after the process of selection for inclusion due to its prima

facie similarity to A3 (formerly A4) ([3.6](#)). Logistical considerations facilitate the creation of the 'cultural islands' necessary for cross-cultural sense-making (Schein, 2017), which, in this case, support the operational sub-cultures (teachers in their departments) to understand and synthesise the democratic professional paradigm into a system dominated by the managerial macro-culture ([2.4.1](#)).

L1: Collaboration time

Here, logistics relates to supporting working relationships within organisations, which are suited to their context (Wolthuis et al., 2020). Timetables provide structure (Postholm, 2019), usually mandated in a top-down manner, providing coherence and legitimacy (Wolthuis et al., 2020). Logistical arrangements are facilitated through work and personal structural arrangements enabling teachers to feel supported and flourish (Carrillio and Flores, 2018). Teachers appreciate time dedicated to professional conversations, finding strategic focus helpful in enabling interesting and challenging discussions (Bungum and Sanne, 2021), and promoting deep reflection (Jimerson, 2013). This promotes changes in practices (PL) (Bridwell-Mitchell, 2015); time dedicated to unpacking and discussing issues deeply is appreciated by teachers, who express frustration if precious time is filled with mundane administrative tasks (Little, 2005). When time is short, these kinds of collaborative learning opportunities feel contrived (Bates and Morgan, 2018; Hargreaves and Fullan, 2012). Structured collaborative time must be balanced with flexible working patterns, which may retain

teachers who might otherwise find broader work-life logistical challengers insurmountable, and leave (Worth and van den Brande, 2020).

L2: Collaboration space

Barriers to PL are complex, relating to physical or structural resources, or the capacity of teachers to collaborate effectively, or combinations of these (Gray and Summers, 2015; McChesney and Aldridge, 2019b). Usually, teachers prefer physical space in which to meet (as opposed to online learning) and may describe the absence of face-to-face PD as a barrier to accepting new practices (Sims et al., 2021). Social interactions are integral to learning (Bridwell-Mitchell, 2015) incorporating creativity and cooperation (Lofthouse and Thomas, 2017). Leaders planning PD play a key role in creating inclusive collaborative learning opportunities for colleagues (Buchanan, 2015). Without these, a structural barrier to PL is created (McChesney and Aldridge. 2019b).

L3: Collaborative research

Here, time is set aside for working parties to investigate and evaluate practices. The structure may be defined, e.g., lesson study cycles, or action research projects. Time must be set aside (or at least compensated for), rationales clear, and methodological frameworks defined to promote successful collaborative research outcomes (Wolthuis et al., 2020). Such arrangements are context specific and need to be planned to meet organisational needs (Bungum and Sanne, 2021).

4.4 Collegiality

Collegiality concerns the way people collaborate and work together. Productive collegial working is inseparable from logistical support, perceptions of trust, individual and relational resilience, and requires a commitment to reflexivity. I identified 45 usages of this term across 59 papers. EFA surfaced six factors, one of which was removed on the grounds of limited unique coding (3.6). C1 was incorporated into RR2 during the instrument reduction process (3.7), leaving four factors.

C1 (C2): Activist collegiality

Activist collegiality takes a radical, reform-focused position. Advocates strive to engage in challenging and innovative conversations about the future of teacher professionalism and seek substantive solutions (O'Connell Rust, 2005). Professional identity is central to this endeavour, entailing ambitious democratic professional aspirations (Little, 2005). Intrinsic motivation of individual teachers and groups to engage in collaborative PD is cultivated. Driven by concern for social justice and equity, activists thrive in democratically aligned schools (Sachs, 2005) which offer frequent opportunities for co-learning in small, trusting groups (Bell et al., 2018; Buchanan, 2015). This encourages engagement in reflective dialogues (Fitzgerald, 2014) which promotes agency (Bodman et al., 2012), empowerment (Avalos, 2011) and a hunger to apply their PL (Caldwell and Heaton, 2016). Trusted expert mentoring and advice, aligned with existing teacher values, may legitimise and extend teacher practice (Fielding et al., 2005). A vision driven approach encourages evaluation of the utility of new strategies

(Bates and Morgan, 2018), supporting systematic reflection and reflexivity. Further, a 'meta' pedagogy may be favoured, promoting 'optimal' learning conditions, which become accepted by the group as 'espoused beliefs' (Schein, 2017).

Teachers may initially resist perceived generic strategies and language that 'pigeon-holes' learners. Open discourse addresses reservations, promoting the benefits and evidence behind decisions (Little, 2005). The challenge of finding opportunities for such philosophical and paradigmatic discussions, which are usually subordinate to day-to-day practicalities, is acknowledged (Bungum and Sanne, 2021). Activists are willing to disrupt 'norms' in favour of transformation and reform (Bodman et al., 2012; Bridwell-Mitchell, 2015; Jimerson, 2013), seeing revitalisation of the teaching profession as a moral imperative (Boylan and Demack, 2018). Grass-roots movements in professional and academic spheres may emerge, in which members feel involved and respected (Brady and Wilson, 2021; Li and Craig, 2019), and their voices heard (Sachs, 2005).

C2 (C3): Edumenism

I use the term 'Edumenism' to describe negotiations educators engage in as they evaluate competing pedagogical strategies in their efforts to promote consensus. This has much in common with Edwards' (2011) concept of relational agency but is bounded by intra-school organisational boundaries rather than inter-organisational ones. Similarly, diverse viewpoints provide fresh perspectives, and promote innovation (Bridwell-Mitchell, 2015; Sachs, 2005) and expertise becomes greater than the sum of

its parts (Edwards, 2011). Clear purpose, central resources, mutual engagement in projects, and openness to scrutiny, not necessarily by the State, but from a scholarly perspective of mutual quality assurance (Little, 2005; Stoll et al., 2006), drive edumenism. Without clarity, collaboration becomes 'stuck' (Cheng and Ko, 2012).

Demystifying professional activities reveals their core purposes and key components ('active ingredients' - Sims et al., 2021), rendering them available for scrutiny and evaluation of fitness for purpose in context. Collaborative activities should be transparent and not entirely data driven, which narrowly defines success (Göçen, 2021). Edumenism aligns with the democratic paradigm (Sachs, 2001) promoting the de-privatisation of practice (Fielding et al., 2005; Louis and Marks, 1998). Competing directives can make consensus challenging (Bridwell-Mitchell, 2015), and conviviality between practitioners and scholars is essential (Ndhlovu and Kelly, 2020). Diverse voices are beneficial for problem solving but can also drive competitiveness or, worse, submission to dominant voices, resulting in tension and ineffectiveness (Scott, 2017). Pitfalls can be overcome if group members are willing to co-create new meanings from divergent opinions and co-construct understanding (Bridwell-Mitchell, 2015; Coburn, 2001). Protocols for ethical yet robust discussions and the commitment to acknowledge and leverage in-group expertise enables the extension of knowledge for practical application (Edwards, 2011). Edumenism falls within Wenger's (2008) identity category of negotiated experiences.

Relationships sustained over time promote trust, supporting innovative collaboration towards a shared purpose (Bungum and Sanne, 2021). Such collaborations develop group members' skills (Avalos, 2011), providing frameworks for success and confidence (Bodman et al., 2012) and resulting in teacher led, high trust developments in education (Clarke, 2017). Self-selecting participation in working parties built on edumenical principles supports teachers' interests motivating them and improving their sense of efficacy (Craig, 2012 describes the antithesis of this). High perceptions of collaboration on edumenical principles develops individual and organisational openness to change over time (Datnow, 2012), providing an ethos that permeates all parties' identities (Fielding et al., 2005).

C3 (C4): Democratic professional identity

Professional identity relates to teachers' self-narrative, and, in this case, aligns to the democratic professional paradigm. Self-narrative is the internal linguistic articulation by which people appreciate their circumstances, justify, or critique their actions and plans, and understand their place within social relationships (Burke and Stets, 2009). Teachers operate in 'political' environments (meaning decisions are made and collectively enacted by groups in public-facing organisations), developing skills of communication, negotiation, problem solving, and advocacy, which enable activism (Sachs, 2005). Democratic professional identities (Sachs, 2001), therefore, constitute community membership identity, in which demonstration of certain research-informed

practices and beliefs infer inclusion (Wenger, 2008). Leadership and responsibility are negotiated in this context (Fielding et al., 2005).

Teachers scoring highly on this factor engage in coaching in their efforts to 'unpack' professional practices through observation and discussion and aim to co-construct and realise enhanced professional knowledge (Jimerson, 2013) entailing innovation and reform (Caldwell and Heaton, 2016). This can be transformative (Boylan and Demack, 2018) and may influence policy if the dialogue extends beyond the school (Bosso, 2017). Working in this way requires confidence and trust amongst colleagues. Conversely, embattled teachers who fear hierarchical and punitive judgements may react defensively to such intervention, interpreting it as criticism of their practice (Claesson, 2005). Competition and comparison can be divisive as people take 'sides' on issues. Dismantling the hierarchy in favour of democratic approaches may benefit younger teachers, who become empowered to share their practices with experienced colleagues (Aas et al., 2020; Fielding et al., 2005). Coaching and developmental activities are most effective in organisations with high levels of trust and shared commitments to professional learning aligned with shared goals (Bungum and Sanne, 2021). This may appeal to less experienced teachers who are not yet 'set in their ways' (Stone-Johnson, 2014a).

C4 (C5): Collegial hierarchy

Teachers who score highly on this factor enjoy the security of a supportive mentor, supervisor, or line manager (Aslan and Öcal, 2012), welcoming opportunities to see good practice modelled (Avalos, 2011). Intuitively, ECTs benefit (Boyer, 2013; Brunetti and Marston, 2018; Stone-Johnson, 2014a), but experienced professionals also benefit from (indeed, crave) high-quality line management (Scott, 2017). Such professional environments allow teachers to grow, 'bounce back' after challenges, and develop flexibility and problem-solving skills (Ebersöhn, 2014), empowering them to move past challenges as opposed to merely withstanding them (Day and Gu, 2014; Gu, 2014). Robust, yet respectful, conversations promote learning rather than apportioning blame (Ndhlovu and Kelly, 2020). Reflection and self-correction of undesirable behaviours is supported (Day and Gu, 2014), and resilience entails reflection and change (Du et al., 2021). Combined openness and activism suggest a democratic professional paradigm (Sachs, 2001). Teachers perceiving these conditions can approach challenges with self-confidence (Day et al., 2006), and feel recognised and rewarded (Gu, 2014).

Strong vocational calling and moral purpose underpin resilience, which is sustained by beliefs about efficacy to enable student outcomes (Carrillo and Flores, 2018; Day and Gu, 2014). This factor indicates teachers' professional longevity, as opposed to their capacity for resilience *per se*. Professional resilience thrives in supportive, protective learning environments, characterised by positive social interactions (Day and Gu, 2014).

Teachers perceiving this factor have a strong sense of belonging and want to adopt the 'norms' of the organisation (Campbell et al., 2022). In this context, a degree of competition between colleagues or departments may be motivational, fostering belonging and collaboration (Muijs and Rumyantseva, 2014). The hierarchical structure and guidance entailed in this factor could suggest managerialism, but entrepreneurial professional identity (Sachs, 2001) is also indicated. Good supervision promotes professional growth by facilitating the 'bouncing around' and then refinement of innovative ideas. Alignment with collegial hierarchy suggests entrepreneurial professionals seeking reassurance in a supportive community dynamic. Schools remain nested within the managerialist macro-paradigm (Buchanan, 2015; Mockler, 2011) and so relationships between local and global influences are continuously negotiated (Wenger, 2008).

4.5 Trust

Trust underpins all productive social relationships. Slow to build and quick to destroy, it predicates creativity and innovation because, without it, ideas are not shared and mistakes hidden (Edmondson, 2023). Trust is tacit and in the gift of the perceiver. It can be cultivated through interactions within social systems at all levels. I noted the concept of trust in 46 papers and identified 35 uses, which the EFA distilled into 7 factors. T6 was removed due to minimal unique coding in the EFA process and T7 was incorporated into T3 as the via negativa of Open optimism (3.6). After the instrument

reduction process (3.7), T5 was incorporated into PA3 and T1 into C3 (2) on the grounds of close scoring patterns and prima facie construct similarities.

T1 (2): Contextual sensitivity

Contextually sensitive trust requires deliberate cultivation and nurturing (Day and Gu, 2014). School leaders must use wisdom and situated judgement (Aas et al., 2020) to set the tone for a climate where trusting relationships can flourish (Jimerson, 2013; Zilka et al., 2019). Such conditions foster teachers' confidence to reflect meaningfully on PD and share their learning (Bungum and Sanne, 2021). Leaders consciously include teachers in vision building processes, deliberately cultivating a shared and empowering vision by increasing stakeholders' understanding of each initiative's underpinning rationale. Intra-organisational relationships are experienced as beneficial, supporting teacher retention (Muijs and Rumyantseva, 2014).

Contextually sensitive trust is reminiscent of agent-centred cultures (Hökkä and Vähäsantanen, 2014). Collaboration opportunities are consciously planned to harness the positive power of professional learning communities (Cheng and Ko, 2012). Contextually sensitive trust engenders belonging and understanding of why and how initiatives are implemented; teachers perceive the 'local distinctiveness' of PD. Such organisations are resistant to macro-standardisation (Derrick, 2013) and the managerialist paradigm (Sachs, 2001), for which leaders are credited with courage (Postholm, 2019). Leaders are 'stewards' of the community: only evidence-informed

initiatives which coincide with their aims are accepted (Gu et al., 2020; Halvorsen et al., 2019; Stone-Johnson, 2014b). Hence, the identity dimension of relations between the local and global (Wenger, 2008) is negotiated by a close-knit community who develop resilience in the face of every-day challenges (Day and Gu, 2014). Importantly, teacher perceptions of a coherent 'corporate' vision are high, even as priorities evolve (Göçen, 2021).

T2 (3): Bold innovation

Trusting relationships built over time increase teachers' and leaders' confidence to take risks in their practice (Fielding et al., 2005). Here, PD inspires autonomous experimentation, contextualising initiatives. Professional training infers upon teachers the knowledge and skills use wisdom and good judgement in their explorations (Whitty, 2000), but it is not a solitary pursuit. Opportunities are made available for collaboration and reflection (Bodman et al., 2012) and a degree of robust reflexivity is expected (Hardy, 2010; Hargreaves and O'Connor, 2018). This indicates a democratic positioning, since exposition and reflection demystify the practices being explored (Sachs, 2001). Innovation and exploration efforts are most coherent when teachers experiment within the framework of the organisational vision (Keay et al., 2019).

T3 (4): (Not) Open optimists

This factor is described in negative terms in the literature in relation to cynicism and burnout. I have inverted this concept for survey coherence meaning high scores

indicate enthusiastic and open-minded teachers, the opposite of the following description. Teachers perceiving open optimism weakly risk burnout (Datnow, 2012). They may be cynical, risk-averse, and closed to reflection (Ball, 2008; Frank, 2013). They may 'vent', seeking solidarity with like-minded colleagues (Frank; 2013). This helps them feel vindicated, boosting their confidence to resist further reform (Ball, 2016). Attempts to formalise coaching or mentoring relationships are either rejected or engaged with superficially (Ball, 2003; Lofthouse, 2019). Mistrust of leaders is high, and colleagues may be suspicious and jealous of one another, especially if individuals are promoted from within their ranks (Lorentzen, 2020).

Whether from within the organisation or via external means, intervention of experts may be viewed with hostility (Donaldson et al., 2008) as an expression of resistance and an exertion of their perceived limited agency (Ball, 2016; Taylor, 2021). Jealousy may manifest as over-competitiveness risking the implosion of a community into cliques and factions (Muijs and Rumyantseva, 2014). Such isolationism may manifest as restricted professionalism, in which personal experience is valued more highly than innovation and collaboration (Evans, 2008). Teachers lacking in open optimism may become infrequent learners (Pedder and Opfer, 2013).

4.6 Resilience

Resilience describes the ability of individuals and groups to withstand and bounce back from adversity. I identified the term's use in 18 papers and noted 31 distinct usages.

The EFA process revealed 6 factors, four of which were selected for inclusion in the pilot instrument by virtue of their clearly distinguishable coding (3.6). After instrument reduction (3.7), Res1 was incorporated into C4 (5) and Res4 into A1.

Res1 (2): Relational resilience (Gu, 2014)

Research indicates a positive correlation between teacher relational resilience founded upon high quality collegial relationships (Edwards. 2011), and student outcomes (Gu, 2014). Perceptions of belonging to a group of like-minded, trusted colleagues is crucial; membership provides stability in dynamic contexts; facing uncertainties together connects people in fundamentally neurocognitive, biological ways, forming strong teams (Day and Gu, 2014; Goleman, 2007; Gu, 2014). Shilling (1992) suggests relationships between social structures (e.g., workplaces; groups) and individuals are highly interconnected. Hence teacher resilience must be contextualised (Olukoga, 2018). Groups form identities and goals, and can achieve more than the sum of their parts (Coyle, 2019; Edwards, 2011). Assuming practices change of teachers' own volition and are not coerced, relational resilience is an activist, democratic perspective (Sachs, 2001) associated with Wenger's (2008) identity dimension of negotiated experiences. Teacher resilience may manifest 'skilful coping' with professional challenges as they notice and respond to problems (Aspbury-Miyasnishi, 2022). Teachers' ability to use adaptive, problem-solving agency is strengthened by collaborative relationships and access to resources (Pantić, et al., 2021). Teachers

scoring weakly against this factor may feel excluded from dominant groups, perceiving them as cliques (Bridwell-Mitchell, 2015).

Res2 (3): Bespoke resilience

Here, resilience is connected to teachers' personal circumstances, including age and career stage. School leaders must develop sensitivity to individual teachers' needs (Day and Gu, 2007), which naturally change over time; teachers' capacity for 'everyday resilience' is not fixed (Day and Gu, 2014). By taking a bespoke approach to teachers' needs, e.g., access to expert support or mediation (Gibbs and Miller, 2014), individuals may thrive in circumstances where they would otherwise have merely coped (Ebersöhn, 2014).

4.7 Reflection and reflexivity

Some irony arises from grouping two similar-but-linked concepts together in a thesis focused on teasing out linguistic nuances, but I do so here for two reasons. Firstly, in my purpose of developing a user-friendly instrument, pragmatic decisions about the length and range of the instrument were required. Secondly, the word reflexivity appeared less frequently (286 instances) in the literature I reviewed. This compares with the frequency of terms like reflection or reflective practice (3103 instances in the same set of literature). I judge the conceptual and practical overlap sufficient to introduce them together (2.5.7) and allow nuance to emerge during EFA (3.5).

Importantly, both concepts are associated with learning from one's past practice to inform and improve upon one's future practice.

Thinking about one's practice and considering how to improve is natural for professionals, entailed in upholding their vocational purpose and professional standards, and striving for continuous improvement. Reflective practice and cycles of learning have been extensively theorised (2.5.7). They are formalised and prescribed to greater or lesser extents in the structures and habits shaping teachers' work, e.g., through the practitioner enquiries of the ECF (DfE, 2021). The language of reflection and reflexivity were often conflated in the literature and are presented as closely connected concepts here; reflection relating to introspection and clarification, whilst reflexively infers a more critical, contextualised, and proactive dimension. In my analysis, these terms were identified in 50 papers, yielding 22 separate usages. EFA revealed 6 factors, three of which had low unique coding results. Of these, two were discarded (3.6), but RR4: Organic experimenter, was retained because of the focus on interacting with and learning from students. Student/teacher interactions were underemphasised in my literature review of teacher PD and PL but mentioned frequently in my IFS interviews (Taylor, 2021). C1: Common purpose was incorporated into RR2: Reflective practitioner during the instrument reduction process (3.7).

RR1: Pragmatic co-learning

Teachers aligning to this factor experience and appreciate mentoring, coaching or other professional structured support (Aslan and Öcal, 2012). Even within a mentor-mentee relationship characterised by a disparity of experience, co-learning relationships are mutually beneficial (Walters et al., 2019). Feedback and reflection mechanisms are habitual and considered essential in deepening understanding of one's practice (Bates and Morgan, 2018). Teachers are agentic democratic professionals (Sachs, 2001), driving their own PL forward, and are not slaves to a corporate mission (Newman and Clarke 2009, p.82 cited in Bodman et al., 2012). Feedforward ensures insights are implemented (Bodman, 2012; Caldwell and Heaton, 2016). Reflection activities are robust without being judgemental, encouraging teachers' honest, yet fruitful self-appraisals (Rönnström, 2005). Peer-led reflections mitigate unequal power dynamics and support deep PL (Fielding et al., 2005); coach/coachee 'fit' is crucial (Frank, 2013). Reflection may result in paradigmatic shifts in professional worldview (Fitzgerald, 2014). Professional conversations should be held frequently to establish and 'contract' the relationship (Gray and Summers, 2015). Contracting between participants supports building the trust essential for 'observation-based coaching', enabling teachers to openly discuss and identify gaps between their intended practice and the result in their lessons (Hu and Veen, 2020).

RR2: Professional praxis

Praxis refers to cycles of action, reflection, and experimentation through which people internalise theoretical information. Teachers perceiving this factor associate cyclical testing of theory in practice with their professional identities (Bodman et al., 2012; Fitzgerald, 2014). PD may be proactively structured to support praxis (Boylan et al., 2018) e.g., by defining participant roles and ensuring activities are time bound to promote engagement (Gilbert, 2018). Procedural structures support praxis explicitly, scaffolding teachers' PL (Little, 2005; Keay et al., 2019) and may become embedded in organisational policy (Bosso, 2017) becoming the institutional 'way' of being a professional (Wenger, 2008). Over time, praxis becomes habituated in teachers' learning behaviour (Clarke and Hollingsworth, 2002), entailing self-reflection, practice modification and increased sensitivity to learner needs. Experienced mentors may model professional praxis (Boyer, 2013) which becomes, once internalised by novice teachers, an individual, intrinsic attitude to PL. The inherent demystification of practice gives professional praxis a democratic character located in personal reflexivity (Sachs, 2001). Learning fosters an incremental negotiated experience of identity in practice (Wenger, 2008). This process has autoethnographic qualities, characterised by reflexivity and self-consciousness (Cho and Trent, 2006). Teachers who feel uncomfortable with such introspection and prefer to take more passive roles in their learning (Gilbert, 2018) may report weak perceptions of this factor. Those who embrace praxis find it rejuvenating because deliberate, mindful reflection can facilitate healing and sense-making after episodes of burnout (McKillop and Moorosi, 2017).

As well as personal habituation of professional praxis, it is also supported in communities of practice, working collaboratively in structured cycles. Social learning is beneficial (Bates and Morgan, 2018). Participation enhances teachers' professional growth and sense of agency (Brunetti and Marston, 2018), building resilience and supporting wellbeing (Day and Gu, 2014). The co-creation of PL can be developed when frameworks of practice are utilised (Boylan et al., 2018). These can support teachers at any career stage (Fielding et al., 2005). The existence of such communities is not a sufficient condition for PL (Caldwell and Heaton, 2016; Muijs and Rumyantseva, 2014). Quality can vary considerably; fragmented (Rivero García and Porlán Ariza, 2005) superficial and rushed (Little, 2005) groups may enable cooperation without accessing the robust conversations essential for professional problem solving and collaboration (Lofthouse and Thomas, 2017). Superficial foci (Bridwell-Mitchell, 2015; Little, 2005) and 'ruinous empathy' (Scott, 2017) side-step the robust discursive and reflexive discussions essential for PL (Hargreaves and O'Connor, 2018).

Concerningly, socialisation processes discourage newcomers from challenging established group behaviour, which they may eventually internalise (Becker et al., 2014). This inhibits innovation and creativity, as ideas suggested by incoming teachers are blocked (Bridwell-Mitchell, 2015). Dysfunctional communities perpetuate cherished (but not necessarily effective) practices and prejudiced attitudes (Wenger, 2008). The presence of cliques exacerbates this pattern (Bridwell-Mitchell, 2015). Collective

professional praxis is optimised when a range of specialists and support staff collaborate, leveraging relational agency (Edwards, 2011). Such groups depend upon coordination and collaboration with leaders, and participants' open-mindedness to exploration and changes in practices (Pantić et al., 2021).

RR3: Systematic reflexivity

Systematic reflexivity predicates practice reform because demystifying teacher practices provokes robust, emancipatory debates about policy, subject knowledge, and pedagogy (Sachs, 2001; 2005). Guided reflection and evaluation instruments (e.g., Pantić, 2021; Pantić et al., 2021) facilitate deep individual reflection, preparing teachers for fruitful collegial discussions. Systematic reflection is most effective as a social activity (Gao, 2010) because of the airing of plural views. Whilst discourses may surface disagreements and tensions (Rönnström, 2005), a significant benefit of systematic reflexivity lies in engaging with challenges to one's habitus and practices, a catalyst for forming new knowledge and beliefs (Unwin, 2012). Procedural structures support fruitful discourse between professionals (Little, 2005; Fitzgerald, 2014; Main and Pendergast, 2015). Haigh (2005) emphasises the importance accepting reflective practice as valuable in identifying clear and worthwhile foci for exploration, and the development of reflection skills (or use of skilled facilitation). Such structured methodologies enable teachers to contextualise, evaluate and implement new practices (Boyer, 2013). Engaging in systematic reflexive practices supports development of a 'work in progress' attitude in teachers' professional identities

(Wenger, 2008), supporting extended, open-minded professional formation (Evans, 2008). Teachers' capacity for PL is inhibited when teachers experience this factor weakly (Anthony et al., 2018).

RR4: Reciprocal reflexivity

Reciprocally reflexive teachers seek fresh perspectives from students' worldviews, which become catalysts for reflection (Bodman, et al., 2012). Teachers deliberately embed metacognitive skills alongside curriculum content (Derrick, 2013) making learning social and participative (Kayi-Aydar and Goering, 2019) and develop strong relationships through negotiation and cooperation (Sturm, 2007; Wenger, 2008). Reciprocally reflexive teachers consciously take a child-centred approach (Sturm, 2007), working to make classroom power dynamics as egalitarian as possible and removing barriers inhibiting learning (Kayi-Aydar and Goering, 2019). This attitude extends to teacher PD, which is considered most beneficial when delivered through facilitation rather than direct instruction (Main and Pendergast, 2015). This is, therefore, a democratic professional stance (Sachs, 2001), explicitly entailing metacognitive tools to enhance all learners' capacity for reflective practice (Patrick et al., 2003; Perry and Boylan, 2018).

4.8 Professional autonomy

Professional autonomy refers to the freely chosen practices made by teachers based on experience and professional judgement. Practices align with internalised

professionality and so practice varies between teachers. Significantly, teachers' practices align with their professional judgement and volition. The range of potential choices teachers perceive relates to their capacity for agency; autonomy is enactment of noticed affordances. I found references to professional autonomy in 36 papers, from which I identified 13 separate usages. EFA revealed 4 factors. Factor four was removed due to having the lowest unique coding (3.6), and T5: Making the implicit explicit: Stepping into leadership was incorporated into PA3: Empowered autonomy during instrument reduction (3.7).

PA1: Efficient autonomy

Efficient autonomy is associated with teacher workload and responds to managerialist cultures (Brady and Wilson, 2021; Sachs, 2001). English educational policy explicitly devolves autonomy to the meso-system (school leaders) (DfE, 2016; Hall, 2013). From there, policy interpretation and implementation may be tightly or loosely coupled (Hökkä and Vähäsantanen., 2014). This is determined at the meso-tier, limiting, or increasing autonomy at the micro-level. Research indicates that, although this arrangement can empower and incentivise school leaders, high-stakes detrimental performative cultures can manifest (Fitchett et al., 2019). Teachers respond with innovation, minded to 'work smarter, not harder', developing strong self-appraisal skills as they work towards twin goals of efficiency and effectiveness. Centralised wellbeing initiatives and PD without immediate, direct value may be rejected as obstructive to their purpose of efficiency (Brady and Wilson, 2021).

PA2: Congruent autonomy

Congruence is the degree of alignment between the vision and values of organisations and their employees/members (Epstein, 2019). Congruent autonomy describes teachers who freely 'tow the party line'. This is a democratic perspective (Sachs, 2001) because teachers, seeing themselves as representatives of the profession, seek to demystify corporate 'best practice'. Teachers contribute to decision making and enjoy strategic influence (Aas et al., 2020), implying strategic alignment (Pyhalto et al., 2015). These opportunities support self-regulation (Namgung et al., 2020) as teachers hold themselves to high standards of competence and mission compliance (Brady, 2016; Brady and Wilson, 2021; Bodman, et al., 2012; Wilkins, 2011). PD planning focuses on the 'best bets' to promote positive student outcomes (Brady and Wilson, 2021). Self-regulating teachers do not require tightly coupled organisational cultures, and some flexibility (within operational parameters) is accommodated (Brady and Wilson, 2021). In the absence of state 'micro-management' (DfE, 2016), schools systematically identifying and contextualising 'best bets' develop unique local characters (Bridwell-Mitchell, 2015; Fielding, et al., 2005). Coordination of ideas is beneficial (Datnow, 2012), supporting initiatives' utility and coherence (Derrick, 2013).

Congruent autonomy is conditional; if the practices teachers exercise autonomously align with the vision and values of the school, teachers have the autonomy to continue to deploy them (Glazer, 2018). Schools within the managerialist macro-paradigm place

teachers who experience congruent autonomy on a paradigmatic trajectory (Wenger, 2008), especially if they have limited experience of alternative paradigms (Buchanan, 2015), causing dogmatic and deontological enactment. This highlights the ubiquitous managerialist paradigm which presumes success through operational standardisation (Sachs, 2001). Schools use their devolved meso-level autonomy to employ teachers who will 'fit' (Lavy, 2015), deploying, developing, and promoting teachers strategically to realise their aims (Lorentzen, 2020). Beyond individual schools, teachers wishing to share their 'best practices' without coordinated orchestration may foster competition rather than cooperation (Bungum and Sanne, 2021). Muijs and Rumyantseva (2014) call this 'coopetition' and espouse its benefits.

PA3: Empowered autonomy

Empowered autonomy counteracts managerialism by promoting collaboration, creativity, and PL (Bodman et al., 2012). This professional growth model (Imants and Van der Wal, 2020) is associated with teachers of creative and 'non-core' subjects who experience less intense scrutiny (Thorpe and Kinsella, 2021). Despite working within an established system (Keay at al., 2019; Louws et al., 2020), such teachers enjoy greater professional discretion than their core-subject teaching peers (Fitchett et al., 2019). Aspirational career progression choices (Brady and Wilson, 2021; Wilkins, 2011) are negotiated within PD curricula (Fitchett et al., 2019; Worth and van den Brande, 2020), especially in loosely coupled settings (Lorentzen, 2020).

Supporting research engagement also promotes perceptions of empowered autonomy (Derrick, 2013), widening scope for extended professional identities and, thus, transformative PD (Evans, 2008). School leaders who personalise PD opportunities promote empowered autonomy (Brunetti and Marston, 2018). Teachers' confidence is developed through devolved leadership opportunities, which are understood as expressions of trust, and enable them to stretch and challenge themselves (Bungum and Sanne, 2021). Understanding of the invisible, previously unobserved leadership skills and processes associated with such roles is fostered (Eraut, 2004). Bottlenecks in career development caused by narrow pathways into senior leadership limits teachers' empowered autonomy after around 5 years of service (Worth and van den Brande, 2020). Teachers identifying as empowered who find their professional growth pathway blocked may seek satisfaction elsewhere, and leave (Joost Jansen in der Wal et al. 2018; Smith and Ulvik, 2017).

4.9 Concluding comments

My analytical framework was developed using phenomenographic (Marton, 1986) and interpretive phenomenological methodologies (e.g., Laverty, 2003; Neubauer et al., 2019). Through it, I offer the possibility of granular understanding of teachers' perspectives of their meso-cultures. I have synthesised a large body of academic literature which, when engaged with in survey format, provides a catalyst for reflection. In its practical application, mixed methods analysis, employing survey data alongside semi-structured interviews, is suggested as an indicative proxy for teacher openness

to PD, and, by extension, their capacity for PL. Giddens' (1984) structuration theory provides further theoretical grounding for analytical and practical credibility. This study is epistemologically bounded; whilst insight into ecosystems, and individual reflections thereof are possible, definitive diagnosis is not. Recognising this precludes specific recommendations, which must emerge from the reflections of participants.

This framework reveals a granular understanding of the cultural dimensions identified in the wider literature (2.5) as associated with transformative PD and sustained PL. The equivocal nuance of these terms serves to demystify these cultural dimensions and provide a vocabulary to support clear communication between stakeholders. The frequent references to the democratic professional paradigm indicate the character of the survey instrument I have developed from this framework (described in chapter 3). To explore the utility of this instrument, I developed five heuristic narratives and conducted a cross-case analysis. This methodological process is described in chapter 5, followed by presentation of my findings and discussion in chapter 6.

Part 2: Data Collection, Analysis, Findings and Interpretation

5. Methodology: Phase B

Here, I describe and position my methodological choices and rationale used in phase B of my study. This phase comprised analysis of survey data and its presentation to school leaders in semi-structured interviews, and my analysis of these interviews. This analysis informs my responses to my overarching research question:

What are secondary educators' perspectives of the relationships between their school ecosystems and teacher Professional Development (PD) and Professional Learning (PL)?

and its sub-RQs:

1. **What perspectives do teachers and school leaders have about their PD experiences?**

2. **What are teachers' and school leaders' perspectives and experiences of the conditions associated with teacher PL?**

It is first worth noting the ontological and epistemic 'output' I expect to claim in my responses to my research questions. Consistent with phase A (chapter 3), methodological decisions are made within the framework of interpretive hermeneutic phenomenology (Laverty, 2003; Neubauer et al., 2019). Responses to the RQs result from messy method assemblages (methodological choices and contextual lenses) through which I have attempted to weave allegorical heuristic narratives, rather than a

positivist truth (Law, 2004). This study, therefore, constitutes my contribution to an ongoing conversation, rather than definitive answers.

I have noted, during my research journey, a tacit positivist narrative and associated expectation of 'generalisability'. Efficiency seeking and performative pressures of the managerial macro-paradigm (2.4.1), manifest in an over-reliance on decontextualised PD and transmissive or 'trickle down' dissemination strategies. Such models assume that teachers have both the volition and capacity to undertake implementation independently (in loosely coupled organisations) or by coercion (under tight coupling). 'What works' and 'best practices' appear highly prized, and are often accepted uncritically (Wiliam, 2023), and assumptions about homogeneity of professional identities and match quality (2.4.3) convolute the path from PD events to sustained implementation. Two defences to positivist concerns about the utility of small exploratory studies can be made. Firstly, positivism is not immune to epistemic and generalisability problems (Fendler, 2006). Secondly, positivism is an inappropriate lens for the study of human social systems because it is reductive and unable to capture the richness of human experience (Law, 2004).

So, what can be claimed? Reciprocal relationships exist between human experience and the material world. This reality is synthesised through human discourse and is unknowable directly. Research 'output' comprises constructed narratives concerning human perceptions. I made deliberate methodological choices during data analysis.

These were not neutral; every act is analytic (Richards, 2015). Categorisation, reduction, paraphrasing, and synthesis through various analytical and theoretical frameworks all serve to pull at the threads of an emerging narrative. Insights, hidden or intuited before, became available through my choices (Law, 2004).

I acknowledge the ethical issues this raises. One intended purpose of the survey instrument is to engage teachers and school leaders with complex academic concepts in an accessible format. Survey engagement and semi-structured interviews may reveal unwelcome insights, such as indicators of misaligned assumptions between leaders' beliefs and teachers' perspectives. Whilst I have made all reasonable efforts to mitigate these issues (3.3), the risk remains. Below, I will describe and contextualise my methodological processes and decisions to give credibility to the emerging narratives, which constitute responses to my RQs, presented in chapter 6. Figure 2 (below) provides a visual representation of my methodological processes to support reader clarity. Whilst presented as linear for the sake of coherence of presentation, in practice I have taken a reflexive approach to promote rigour (Koch and Harrington, 1998), returning to stages for clarification, member checking or as my own 'interrater' frequently during the process (Richards, 2015).

ONTOLOGY AND EPISTEMOLOGY

Phenomenology – world-mind-world relationship (Husserl, 1969; Dreyfus, 1993)
Knowledge of others is indirectly accessible by interpretive hermeneutic analysis (Grondin, 1994; Laverty, 2003).
Facts and knowledge 'problematic' and subjective, and available for investigation (Elliot, 2015).
Findings represented as heuristic narratives (Law, 2004)

INITIAL LEADER INTERVIEWS

School leaders invited to reflect on current PD arrangements. Interviews transcribed and coded in NVivo by RQs and emerging themes.

1

2

SURVEY DEPLOYMENT

Teachers invited to complete online survey. Data analysed and reports prepared for each school leader.

FOLLOW UP INTERVIEWS

Data reports shared with leaders and discussed in follow up interviews. Qualitative data coded in NVivo by RQs and emerging themes.

3

4

HEURISTIC NARRATIVE DEVELOPMENT

Qualitative and quantitative data synthesised and reduced using Heideggerian hermeneutic circles to develop school narratives.

CROSS CASE QUANT. ANALYSIS

Quantitative data synthesised into scatter graphs, spreadsheets and radar charts to identify patterns and outliers, not 'smooth' it.

5

6

CROSS CASE QUAL. ANALYSIS

'Monster dog' spreadsheet created using thematic coding. Data paraphrased, reduced and colour coded, rendering it 'sortable' to identify patterns and outliers.

DISCUSSION

Synthesised data organised around a priori and emergent themes, and developed heuristic narratives addressing the RQs.

7

Figure 2: Phase B methodology overview

5.1 The schools

I opportunistically recruited a variety of secondary school contexts for this study, including my own workplace. Recruitment was initially through personal contacts, and I made further contacts via the social media platform, X (formerly Twitter) following the publication of my article in the Chartered College of Teaching's journal, *Impact* (Taylor, 2023), which attracted attention to my research. The sample comprised selective co-educational and single sex settings, a medium sized co-educational Free school, a large non-selective Academy Converter within a Trust, and a Local Authority comprehensive. Locations included the South-East of England, Yorkshire, and Scotland. School sizes varied, and I gained student numbers from school's websites and official published reports. I used HM Government (2022) published student/adult ratios for secondary schools in England to loosely infer teacher numbers. My commitment to participant anonymity (3.3); prohibits citation of identifying documents and websites.

Overall, n142 teachers engaged with my survey, giving a response rate of approximately 38%. Demographic data indicated a cross-section of teacher career phases in each school. I considered this data set acceptable for my study because small samples can provide meaningful insight (Richards, 2015).

School	Students (n - approx. using published sources)	Teachers (n - approx. using published ratios)	Survey respondents	% Teacher participation
Hilltop	1300	76	16 (3rd iteration)	21%
Baron	600	36	9	26%
Cromarty	1300	76	41	54%
Towerville	1700	110 (provided by leader)	20	18%
Parkway	1300	76	56	74%

Table 2: School context and teacher survey participation

Schools were self-selecting and engagement of all participants was voluntary for ethical reasons, allowing for individual participant consent (3.3), so the quantitative dataset is partial. Gatekeeper consent suggests that this data represents a commentary on schools with confident, open-minded leaders, since leaders closed to the research process are unlikely to consent to voluntary studies (Earley, 2020a). Within schools, teachers may subjectively dislike intended changes and unintended consequences of reform interventions (Giddens, 1984), perhaps exacerbated by poor match quality creating cognitive dissonance and burnout (Ball, 2008).

5.2 Rationalising survey data for school leaders

I captured a dazzling volume of data from the five schools over periods ranging from six to eighteen months. Following initial leader interviews and teachers' survey engagement, I prepared survey data reports and shared them with leaders before follow-up interviews. At Hilltop, teachers engaged with my survey at three developmental stages. The first two datasets were merged to produce a coherent report for school leaders (iteration #1: n10 and iteration #2: n19). I made the tentative nature of the report clear during the leader's interview and it was simply a cultural artefact and conversation starter. Later, I deployed the most recent, reduced survey iteration (#3), collecting n16 responses, enabling the production of a more coherent report, which I shared in a third interview.

Sense-making required synthesis and organisation of disparate but related parts through processes of method assemblage (Fox and Alldred, 2023; Law, 2004). Data comprised 'snapshots' of quantitative impressions of teachers' perspectives of the factors outlined in my analytical framework (chapter 4) (McChesney and Aldridge, 2019a). These included supplementary qualitative survey comments, and semi-structured interview data gathered over time from senior, and in one case, middle leaders in the schools. Rich, extensive data presents multiple avenues for future exploration. The scope of this EdD thesis necessitates limiting what is presented here to an exploration of common and interesting themes arising following the development of heuristic narratives and subsequent cross-case analysis (5.6).

I will describe the process of report creation first because data analysis undertaken to produce them contextualises subsequent analytical steps outlined later in this chapter. I took a two-step approach to survey data analysis informing the report shared with school leaders. I designed the survey using a Likert scale of 1 (strongly disagree) to 4 (strongly agree) (3.5). First, I calculated individual participant mean scores per factor using the items within each factor. Secondly, individual factor mean scores were used to calculate mean scores for each factor. This enabled me to infer prevailing teacher perspectives about each factor in individual schools. I presented the data visually for school leaders, selecting radar charts, which I judged supported the holistic intentions of my study in surfacing impressions of teachers' perceptions of the culture for PL:

Example radar chart for report to school leaders
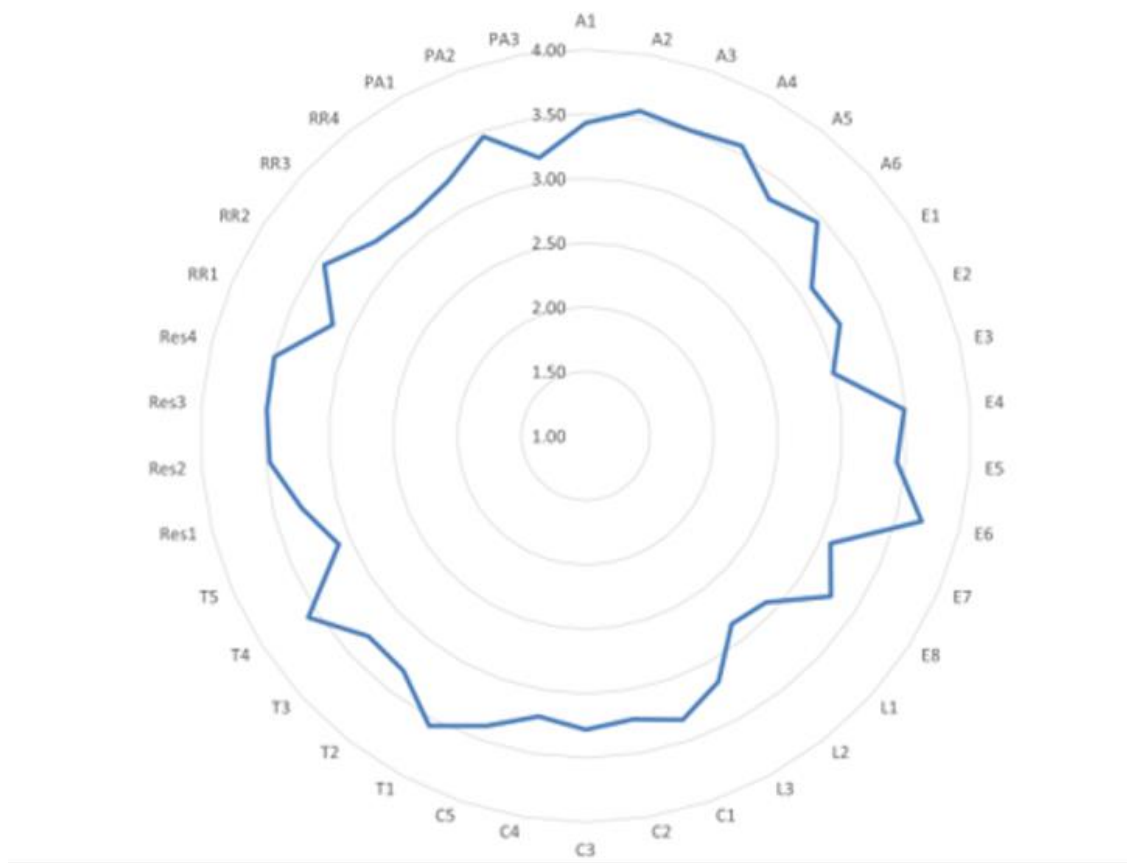
Figure 3: Sample radar chart showing whole-school teachers' mean scores per factor ID

The mean score presentation in figure 3 offers insight, but smooths the data, removing nuance. The range of teachers' views enriches the data's story by affording the possibility of noticing typical and outlying perspectives, i.e., identifying the difference between a mean of 3 + 3 + 3 + 3/4 = 3 indicating congruence (accepting subjectivity of perspectives) vs. 1 + 3 + 4 + 4/4 = 3, which share a mean score, but not factor congruence. In the first example everyone shares a moderately content perspective,

whilst the second indicates a happy majority and a miserable minority. I intended this information to support school leaders' enhanced insight into the overall 'picture' of how teachers in their schools experienced their environment. Box and whisker charts were used to visualise this data:

Example variance chart for school leaders
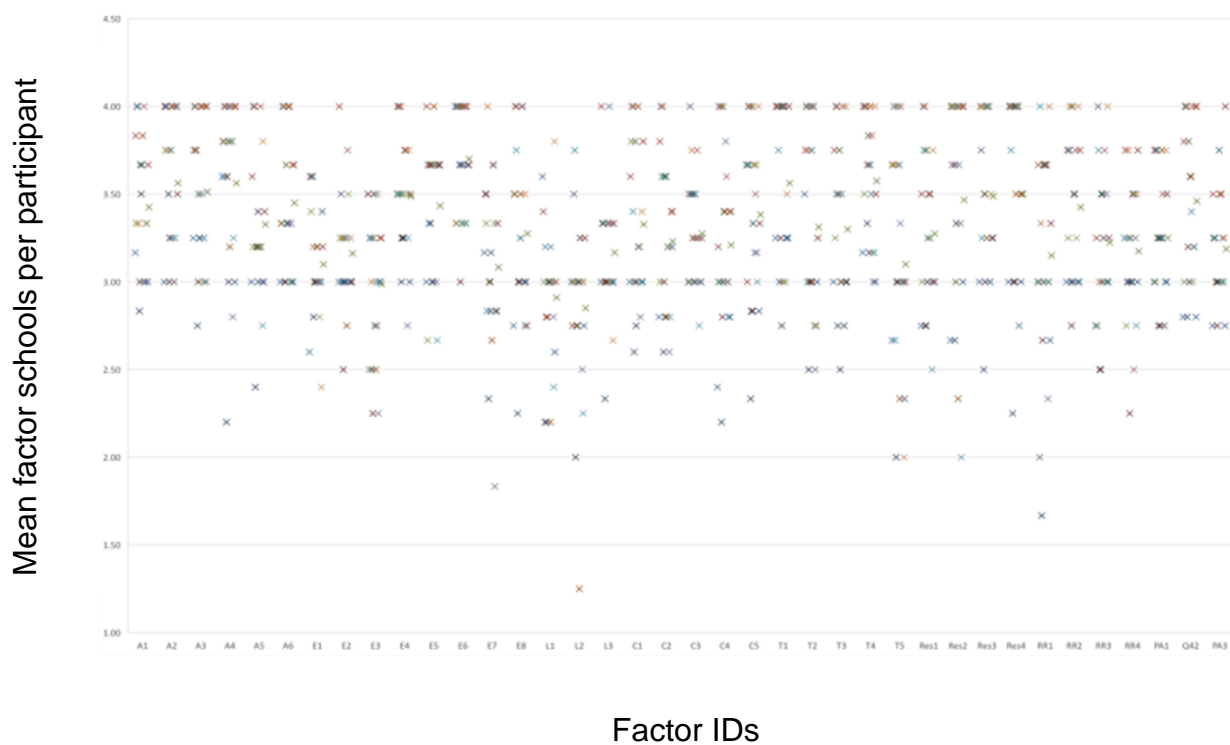
Figure 4: Sample variance chart illustrating sub-factor congruence amongst teachers

Resultant graphs were 'busy' and I replaced them with variance tables in later reports. These tables included some demographic analysis (below), but I shared this sparsely with school leaders to avoid compromising teacher anonymity, a risk with small

datasets, providing leaders with only headline whole-cohort data. The colour schemes of my reports were also carefully considered to balance conveying meaning with minimising participant alarm or potential defensiveness implied by my use of red for negative teacher perceptions of their school's cultures. Both these issues are considered in 3.3).

	Mean	Vari-ance	0-3 years (n3)	4-8 years (n4)	9-15 years (n4)	16-23 years (n2)	24-29 years (n0)	30+ years (n2)	Un-known (n1)	Total (n16)
A1 <2.99 >3.5	3.37	1.43	0 2	1 1	1 2	1 1	0 0	0 0	0 0	3 6

Table 3: Sample mean and variance table, with demographic analysis.

Colour coded lists of analytical constructs (derived from chapter 4) with numerical mean (indicating perception 'typicality') and variance scores (indicating factor congruence) were provided to support interpretation of the graphs.

Factor ID	Mean Score	Short description
E3	2.99	Identity-driven observer practitioner. Compares own practice to that of others.
E4	3.49	Motivated, optimistic outlook. Up for trying new ideas. Willing to give things a go.
E6	3.7	Skilled, adaptive practitioner. Gets to know students, adapts as they go.

Table 4: Sample of 'RAG rated' mean scores from a report to school leaders

Factor ID	Variance Score	Short description
E6	3.7	Skilled, adaptive practitioner. Gets to know students, adapts as they go.
E7	3.08	Collective, invested belonging. Their age and stage are catered for in their school.

Table 5: Sample from 'RAG rated' variance scores from a report to school leaders

I considered report intelligibility highly important in presenting the data to school leaders because of my intention for strategic utility (Schein, 2017). Therefore, I determined a colour coding scheme through a loose application of Stoll and Fink's (1996) typology of

school cultures (2.4.3) to differentiate between higher and lower scoring items. They did not quantify their framework, so I applied intuitive, yet arbitrary boundaries (moving: >3.5; cruising: 3.49-3; strolling: 2.99-2.5 and struggling: <2.49) to render the data available for meaningful discussion (Law, 2004). I avoided judgemental language like 'struggling' in my reports and discussions, preferring terms like 'risk' which I considered more constructive and optimistic.

5.3 Developing heuristic narratives

I used consistent methodological processes to develop accounts of the five schools following the procedures described in 3.2. Here, I exemplify my methodological rigour, providing credibility for my subsequent cross-case analysis (5.6) (Miles and Huberman, 1994). Methodological transparency also provides clear protocols for future researchers wishing to replicate or build on my study (Hyett et al., 2014).

I gathered a vast quantity of data. Organising this by school formed a necessary step in preparation for cross-case analysis. I have drawn upon Flyvbjerg's (2006) epistemic argument for developing heuristic narratives because human activities, unavailable to deductive reasoning, must be apprehended using context-driven methodologies via inductive and abductive reasoning. These can *only* infer probability, and it is no criticism to deny deductive proof where none is possible. For each school, analysed survey data (described in 5.2) contributes, with analysed interview data, to rich heuristic accounts (Hyett et al., 2014) which draw together the threads of schools' ecosystems from

teachers' and leaders' perspectives. This messiness supports the framing of this study (Law, 2004) as people synthesise perceived experiences, attributing meaning and interacting with extrinsic structures to shape perceptions and behaviour reciprocally (Searl, 1996). Highly personal and complex perspectives about experiences and phenomena result. Organising my data in this way engages with the data's complexity, enabling me to 'paint a picture' of contextualised human experiences and 'ordering' data to cut through the 'dazzle' (Law, 2004, p.111). Further, existing analytical frameworks can be applied to steer their development (Meyer, 2001), guarding against overly descriptive work. Researchers must remain open-minded to new insights, resisting dogmatic thinking (Gummerson, 2000).

I align with Flyvbjerg's (2006) view that narrative development surpasses theorisation from literature alone, supporting human learning and expertise. By interviewing leaders before and after teacher engagement with my survey and sharing my report, I have sought to enrich school leaders' reflexivity. Practical logistics made it impossible to visit most schools, but the advent of videoconference meetings, routine since Covid 19, made virtual 'face to face' interviews possible. Technology use allowed me to create records of verbal and non-verbal cues, enriching my analysis. My interpersonal distance as an 'outsider' researcher perhaps enabled interviewees to be candid in a way they might not be had I been an employee or colleague. Only at Hilltop, as an employee, was I deeply embedded in the school culture having worked there for many years. My intimate knowledge of the school afforded the benefits of in-person access

to leaders and increased the potential for casual conversations with participants. I believe the good will fostered through long-standing relationships with colleagues significantly aided my recruitment of participants to the early, user 'unfriendly' iterations of the instrument. I also needed to negotiate tensions associated with being an insider researcher, including my subjectivity and the need to maintain working relationships (Czerniawski, 2023; Malone, 2003).

I have benefitted from the process of developing each uniquely compelling heuristic narrative. My insider researcher status afforded me deep, longitudinal knowledge of Hilltop; Baron captures a vicious cycle research-fuelled impatience; Cromarty sits within a 'looser' macro culture than the rest; Towerville appeared to have the most highly structured PD programme, which correlated to positive teacher perceptions of the school's culture, and Parkway provided the largest dataset. Ethical considerations and my closeness to some participants inhibits my frankness in public reporting (Czerniawski, 2023). Word-count limitations make my inclusion of full heuristic narratives impossible. I have shared selected illustrative examples below, which. I intend to constitute interesting and instructive assurances of the credibility of my analytical processes and subsequent findings.

5.4 Data analysis procedures

Each school narrative was developed through iterative, non-linear processes. My semi-structured interviews with school leaders 'sandwiched' teacher engagement with my

survey and my creation of a report from quantitative data. To aid my memory, I transcribed semi-structured interviews as soon as possible after recording, supported by transcription software. I undertook most qualitative data analysis after data collection was complete. This provided some 'distance' from the materials, which benefitted my appeal to objectivity (such as it is possible). Transcripts were reviewed again later to provide a degree of 'interrater' checking. This also enabled me to provide a summary of our previous discussion to interviewees for member checking purposes (Richards, 2015).

During my follow up interviews, I noted the significant signposting and explanation my reports required. Later visual representations (shown in figure 6, see 5.5) may be more accessible in future development of my survey instrument in enhancing its supportive utility. Generating graphics, tabulations and using colour coding supported my analytical process by enabling me to detect patterns and outliers whilst guarding against unconscious bias. No formulation of the data was considered definitive, but all enriched my understanding.

I analysed interview transcripts and other qualitative comments using thematic coding strategies (Boyatzis, 1998). Sorting and filtering themes using NVivo software enhanced my familiarisation with the data (Guest, 2018). Initially, I loosely applied Stoll and Fink's (1996) framework of cultural change for orientation and comparative purposes but rejected the judgemental language of this approach in the context of the

supportive aims of my study (see 5.2). Quantitative survey data enabled cross-referencing and contextualisation of teachers' and leaders' comments, deepening my insight into the relationships between interventions, attitudes, and practices.

Throughout my analysis, I explored intersections between codes, which enriched the story of the data. The non-linear nature of my analysis is exemplified by the development of my theoretical framework for phase B. After initial orientation and 'broad brush' thematic coding, the 'orders' of comments emerged from the data. This became the basis for a further layer of thematic coding: 1. Pedagogy; 2. Evaluation and reflection; 3. Structuration and 4. Ontology and Epistemology. I will expand on the development of this framework in 5.5. Applying this framework to thematic analysis underpinned my enquiry with a theoretical foundation, increasing the credibility of my findings and conclusions as a contribution to the field.

Having completed my initial analysis of each school's data, I employed hermeneutic circles to reduce and consolidate data, surfacing assumptions and implicit meanings. Through this process, I developed heuristic narratives containing thick descriptions of each school (Geertz, 2017). In some cases, I was able to ask leaders follow-up questions and included these reflective comments and clarifications in my analysis.

5.5 Developing a theoretical framework for qualitative data analysis

In my exploration of the relationships between teachers' and leaders' experience of PD and PL in their environments, a theoretical framework has emerged from my data analysis. Through this, I seek to encompass ontological and epistemic positionings, praxis and theory. Theorisation renders abstract processes accessible to stakeholders, providing a source of practical utility within social systems. Schools (communities as opposed to buildings) constitute social systems since they contain people working within institutionally defined parameters (Burridge et al., 2010). Four 'orders' of related lenses emerged from my analysis, complementing each other and interacting to develop an ecological understanding of my data and literature review pertaining to teacher PD and PL. Orders of understanding range from abstract fourth order ontological and epistemic assumptions, through Giddens' (1984) explanatory framework (third order), which provides a theoretical framework which offers a timelessly abstract account of how social systems may be explored meaningfully, and a practical explanatory change mechanism. Second order processes concern the synthesis of theory both through praxis and then analytical frameworks promoting the generation of artefacts (second order). These feedback into third order processes of structuration and promote cultural evolution. The first order comprises the ideas which form the contents of PD, which becomes available for synthesis within organisations through second order analysis activities.

Order	Example
PD4 – 'Global' ontological and epistemological positioning (truth claims and knowledge of reality)	Phenomenology – world-mind-world relationship (Husserl, 1969; Dreyfus, 1993)
	Others' knowledge (etc.) indirectly accessible through interpretive hermeneutic analysis (Grondin, 1994; Laverty, 2003).
	Facts and knowledge (specifically about theories in education, in this context) 'problematic' and subjective (only available through interpretation). Should be available for question and investigation (Elliot, 2015).
PD3 – Explanatory influence in shaping social systems	Structuration – world-agent-world relationship entailing mutual influence facilitating and explaining change (Giddens, 1984).
PD2 – Structured interventions for reflection, analysis and evaluation	Phenomonography: systematic analysis of language making it available for hermeneutic interpretation (Hasselgren and Beach, 1997; Marton, 1986).
	Hermeneutic textual analysis procedures (thematic analysis etc.) (Boyatzis, 1998).
	Cultural island creation (Schein, 2017)
	Heuristic narrative development and cross-case analysis (Flyvbjerg, 2006).
	Curriculum broadly defined: agent acts as a researcher (Elliott, 2015; Stenhouse, 1991).

	Praxis inquiry (Burridge et al., 2010).
PD1 – pedagogical interventions and techniques	e.g., Rosenshine's (2012) principles of instruction. WalkThrus (Sherrington and Caviglioli, 2020).

Table 6: Summary of theoretical framework developed during qualitative data analysis

In summary, I ontologically assume interdependent and reciprocal relationships between human experience and phenomena. Epistemologically, humans perceive reality through their interactions with the world and go on to respond in ways that influence phenomena in the world in intended and unintended ways through structuration processes. I assume the impossibility of direct access to the intimate experience of others' minds. Positioning myself at an epistemic distance to all text data, I must take a hermeneutic, interpretive position. My interpretation is facilitated using an ecological lens to notice interrelatedness of facets and interactions within the environment (Preistley, et al., 2015). Accepting Giddens' account of structuration processes (third order) as convincing due to its ontological and epistemic compatibility with my fourth order assumptions, and by engaging in second order processes, I can interpret and hope to glimpse others' perceptions through artefact analysis, namely my captured survey and interview data.

It is helpful to explore PL-supportive cultural conditions using two orders of PD: first order (PD1): focusing on the structure and content of the intervention or pedagogical

procedure, and second order (PD2), describing the cultural/organisational/procedural arrangements associated with analysis and evaluation of PD1 interventions. The ontological and epistemic positions described above are global assumptions and may be regarded as fourth order conditions of 'what is the case' in human relationships with phenomena. Giddens' (1984) structuration theory is incorporated as a third order lens because it is sufficiently accessible and pragmatic to have utility for stakeholders, whilst remaining sufficiently abstract as to be applicable in multiple contexts, bridging the gap between fourth order abstractions and the practicalities of PD1 and PD2.

Expressions of praxis support my analysis of the heuristic narratives making them relatable and accessible to readers (Flyvbjerg, 2006). What is being done, by whom, and why? (Elliott, 2015). Such discussion is useful, and this framework provides a language to add contextualising comments and references to PD1 and PD2 initiatives and procedures. The presence of systematic reflection (PD2 activities) forms an important part of any attempt to bridge the theory-practice gap (Elliott, 2015). Sense-making of pedagogical content, or PD1 interventions e.g., WalkThrus (Sherrington and Caviglioli, 2020) or Rosenshine's (2012) principles of instruction is supported by PD2 evaluative/analytical procedures. These constitute mechanisms to accessibility of pedagogical techniques and principles to teachers e.g., through a curriculum conceived to position teachers as researchers (Elliott, 2015; Stenhouse, 1991), or praxis inquiry (Burridge et al., 2010). Thus, PD2 structures can consistently be analysed under the

umbrella of Giddens' (1984) structuration theory, because they are examples of intersections between agents and structures (Burridge et al., 2010).

PD2 interventions further support Giddens' (1984) description of the way in which the creation of artefacts and collective, meaning making discussions provide catalysts for change in routines and rituals, which promote cultural evolution. Therefore, PD2 interventions are an integral stage of the mechanisms of structuration theory. PD1 interventions are likely to be present but situated in context and influenced by individual schools' self-evaluation of their own needs. In this sense, their presence may be expected, but their significance is associated with how they are reflected upon in discursive ways (PD2), and interpretation of any changes they facilitate (third order) rather than their content.

A key underpinning assumption here concerns a fourth order epistemic positioning that holds knowledge or 'facts' as inherently 'problematic' and subject to critical analysis (Elliott, 2015). This facilitates use of PD2 structures to investigate PD1 interventions. PD2 interventions serve as a mechanism to disruption of ontological security (concerning teachers' practice, knowledge, and attitudes etc., not in a global radical way) which promotes teacher reflexivity. In this way teacher practices are elevated from unconscious and un-noticed actions, through practical consciousness of deliberate actions into discursive consciousness, which appears to be a condition of sustained individual and cultural change (Burridge et al., 2010). This framework is interwoven and

complex; hermeneutics can be understood as both, epistemologically, a fourth order way of knowing *and* a PD2 process of analysis (e.g., through Boyatzis, 1998), forming artefacts that participate in third order processes of social evolution (structuration).

Incorporation of this framework into my thematic analysis was instrumental in my cross-case analysis, enabling me to identify commonalities and outlying themes. The following sections illustrate my analytical processes.

5.6 Cross-case analysis

The approaches described above combined the quantitative and qualitative data in a mixed method approach (Denzin and Lincoln, 2000; McChesney and Aldridge, 2019a). A cross-case analysis was used to deepen understanding of the data, enhancing the credibility of findings by increasing the volume of data available (Hyett et al., 2014). Importantly, cross-case analyses do not seek to combine multiple heuristic narratives to develop a smoothed 'mean' account, representing no-one (Miles and Huberman, 1994). Nor is the aim to produce a report of multiple existing studies, such as a systematic review of literature (Hyett et al., 2014). Rather, by following established methodological protocols, credible insights can be noted, both in emergent patterns, and through the identification of outliers (Miles and Huberman, 1994; Law, 2004). Cross-case analysis makes sense of data beyond a single school, supporting the identification of structural conditions which may be associated with the maximisation or suppression of phenomena of interest (in this case, teacher perspectives on the cultural

dimensions associated with PL). This supports the use of structuration theory (Giddens, 1984) as an analytical lens because it enables the creation of artefacts for reflexive use to steer human behaviour within organisational meso-spheres. Below, I exemplify my analytical processes.

To aid readers in navigating data presentation, all quantitative data is RAG rated according to this key:

Block fill yellow	Lowest 10 ranking mean factor scores
Block fill green	Highest 10 ranking mean factor scores
No colour fill	Mid-range ranking mean factor scores
Dark green text	**Mean scores >3.5**
Light green text	**Mean scores 3-3.49**
Red text	**Mean scores <2.99**

Table 7: RAG rating key for quantitative data tables

Factors are referenced by their factor ID (e.g. A1) and name (e.g., Proactive Agency). Full factor descriptions are available in chapter 4, and a headline summary is available in Appendix 9.

5.6.1 Quantitative data

Visualising the data enhanced and deepened my understanding (5.2), so I extended similar techniques to my cross-case analysis. In analysing the quantitative data from

multiple schools, I wanted to avoid smoothing it, so overall mean scores were not considered helpful (Miles and Huberman, 1994). I cleaned the data to enable intelligible comparisons. This was necessary because Hilltop used the reduced version of the instrument, so some factor numbers required alignment. I used my record of combined items developed during instrument reduction (3.7), taking an average of the combined mean factor scores in older versions, and corresponding them to the new. Because these items had scored similarly, there were minimal differences between the amalgamated factor scores and the originals. Rationalisation enabled 'like for like' comparisons between schools' data. This is tabulated here and visualised as a radar chart in figure 5 below:

ID	Factor Title	Hilltop	Baron	Cromarty	Towerville	Parkway
A1	Proactive Agency	3.37	3.15	3.28	3.43	3.28
A2	Authentic Agency	3.35	3.09	3.28	3.53	3.42
A3	Empowered agency (and resisters)	3.31	3.16	3.28	3.56	3.26
A4	Collaborative agency	3.31	3.13	3.30	3.33	3.24
A5	Reflexive agency	3.33	3.11	3.20	3.45	3.22
E1	Individual extended efficacy	3.03	2.87	2.97	3.10	3.05
E2	Open-minded efficacy	3.20	2.89	3.10	3.16	3.35
E3	Identity-driven efficacy	3.11	3.17	3.17	2.99	3.18
E4	Motivated optimism	3.44	3.19	3.38	3.49	3.56

E5	Inspirational efficacy	3.39	3.41	3.42	3.43	3.62
E6	Skilled adaptor	3.52	3.22	3.59	3.70	3.64
E7	Invested belonging	2.78	2.49	2.94	3.08	3.15
E8	Extrinsic efficacy	2.70	2.72	3.07	3.28	3.27
L1	Collaboration time	2.60	2.64	2.80	2.91	3.02
L2	Collaboration space	2.61	2.61	2.79	2.85	2.86
L3	Collaborative research	2.31	2.63	2.84	3.17	3.07
C1	Activist Collegiality	2.99	3.27	3.20	3.23	3.20
C2	Edumenism	3.09	3.36	3.30	3.28	3.39
C3	Democratic professionalism	3.00	2.93	3.20	3.39	3.18
C4	Collegial hierarchy	3.35	3.15	3.30	3.33	3.38
T1	Contextual sensitivity	2.69	2.64	3.07	3.31	3.44
T2	Bold innovation	3.13	2.97	3.16	3.30	3.31
T3	Open optimist	3.47	3.30	3.39	3.58	3.39
Res 1	Relational resilience	3.21	2.59	3.51	3.47	3.46
Res 2	Bespoke resilience	2.84	2.67	3.18	3.49	3.38
RR1	Pragmatic co-learning	2.98	2.41	2.97	3.15	2.95
RR2	Professional praxis	3.08	2.86	3.37	3.43	3.28
RR3	Systematic reflexivity	2.95	2.75	3.15	3.23	3.04
RR4	Reciprocal reflexivity	3.09	2.86	3.11	3.18	3.16

PA1	Efficient autonomy	3.41	3.06	3.29	3.25	3.46
PA2	Congruent autonomy	3.19	2.96	3.26	3.46	3.41
PA3	Empowered autonomy	2.98	2.86	3.13	3.19	3.20

Table 8: Cross-case quantitative data
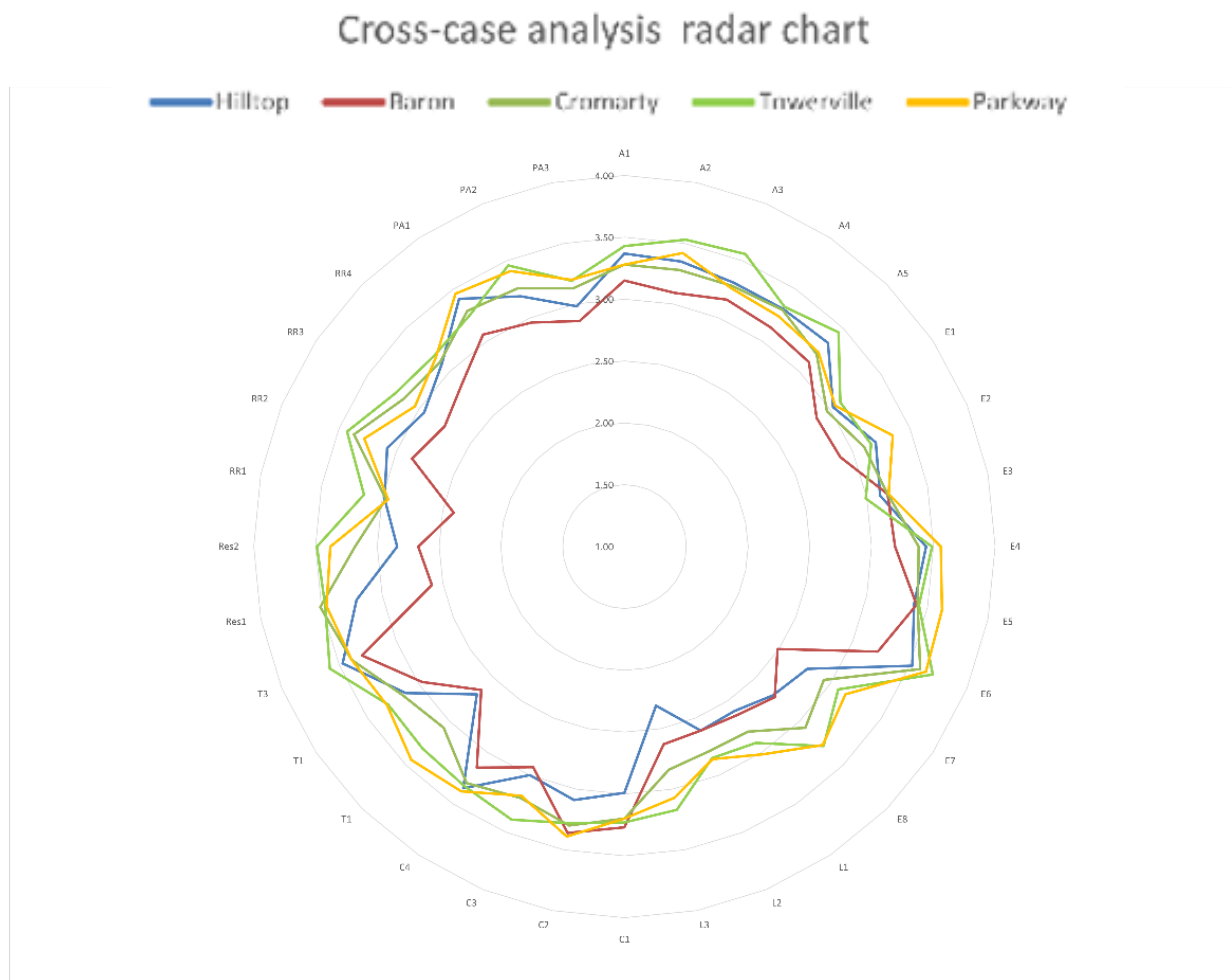
Figure 5: Cross-case analysis radar chart

I used filter and sort functions in Excel to rank each school's data from low to high, block colour-coding the top 10 scoring items for each school green, and the lowest 10 yellow. The RAG rating scheme indicates the strength of each school's mean scores in the text: dark green for >3.5, light green for 3-3.49, yellow for 2.99-2.50 and red for <2.49 (table 7 in the introduction to 5.6). This surfaced patterns and outliers. I applied this codification loosely and found it a useful process which revealed a further dimension to the data.

Relationships between mean and congruence scores seemed ripe for exploration, so scatter graphs comparing them were created for each school to surface patterns and outliers. Noteworthy signs of the presence and absence of phenomena were sought (Law, 2004). Scatter graphs were contextualised by schools' qualitative data (see 5.3). Systematic PD2 arrangements appear to correlate to the intersection of high mean/high congruence data, clustering towards the top left of the table, which I have called the Professional Development Acceptance Zone (PDAZ), outlined in red below. I discuss my observations about the factors appearing in this zone for different schools, in 6.1.5.
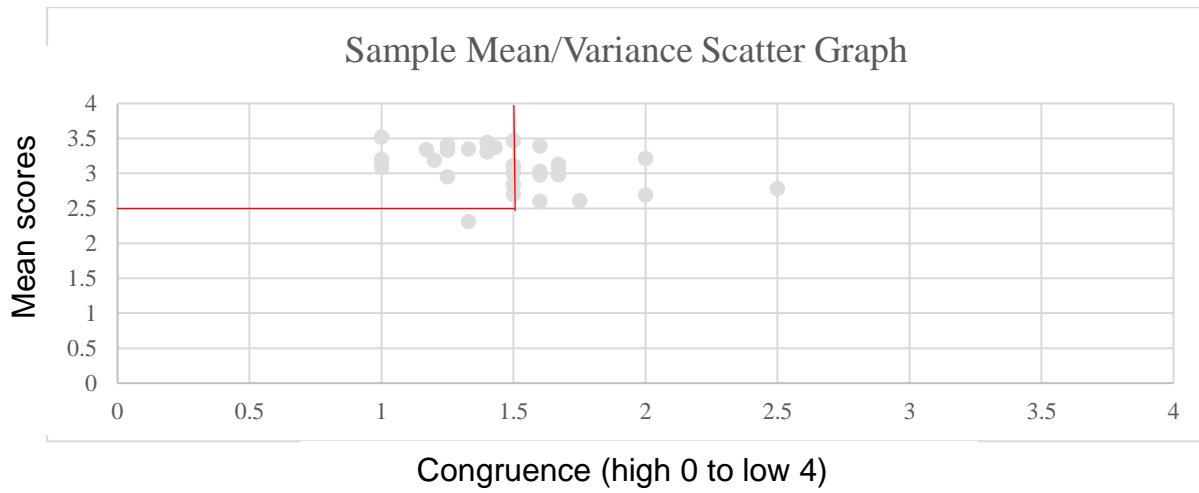
Figure 6: Scatter graph showing inferred PDAZ (Hilltop school data)

Factor ID	Name
A1	Proactive Agency
A2	Authentic Agency
A3	Empowered agency (and resisters)
A4	Collaborative agency
A5	Reflexive agency
E2	Open-minded efficacy
E3	Identity-driven efficacy
E4	Motivated optimism
E6	Skilled adaptor
C2	Edumenism
C3	Democratic professionalism
C4	Collegial hierarchy
T3	Open optimism
RR4	Reciprocal reflexivity
PA1	Efficient autonomy
PA2	Congruent autonomy

Table 10: 'PL strengths' identified in the PDAZ in figure 6 (Hilltop school data)

Following this procedure, I identified the PDAZ factors for each school, tabulated here

(I develop inferences and discussion in 6.1.8):

Factor ID	Name	Schools (green = inclusion in the PDAZ)				
		Hilltop	Baron	Cromarty	Towerville	Parkway
	Total factors in the PDAZ	**16**	**13**	**11**	**20**	**6**
A1	Proactive Agency	green	green	green	green	
A2	Authentic Agency	green		green	green	
A3	Empowered agency (and resisters)	green	green	green		
A4	Collaborative agency	green	green	green		
A5	Reflexive agency	green	green		green	
E1	Individual extended efficacy				green	
E2	Open-minded efficacy	green			green	
E3	Identity-driven efficacy	green	green			
E4	Motivated optimism	green	green		green	green
E5	Inspirational efficacy		green	green	green	green
E6	Skilled adaptor	green	green	green	green	
E7	Invested belonging					
E8	Extrinsic efficacy					
L1	Collaboration time					
L2	Collaboration space					
L3	Collaborative research					

Code	Factor	1	2	3	4	5
C1	Activist Collegiality		✓		✓	
C2	Edumenism	✓	✓	✓	✓	✓
C3	Democratic professionalism	✓				
C4	Collegial hierarchy	✓	✓			
T1	Contextual sensitivity				✓	
T2	Bold innovation			✓	✓	
T3	Open optimism	✓	✓	✓	✓	✓
Res1	Relational resilience					
Res2	Bespoke resilience				✓	
RR1	Pragmatic co-learning					
RR2	Professional praxis			✓	✓	✓
RR3	Systematic reflexivity				✓	
RR4	Reciprocal reflexivity	✓			✓	
PA1	Efficient autonomy	✓	✓	✓	✓	✓
PA2	Congruent autonomy	✓			✓	
PA3	Empowered autonomy				✓	

Table 11: Factors included in the PDAZ with high mean teacher perception scores coinciding with high congruence

An ecological exploration demands the contextualisation of tentative findings. Questions remain concerning the significance of demographic differences, and patterns of the factors and their sub-categories within the PDAZ clusters indicating threads to pull in this study (see chapter 6) and potential ideas for future research (Law, 2004; Miles and Huberman, 1994; Richards, 2015).

5.6.2 Qualitative data

Cross-case analysis of qualitative data was also undertaken. Development of five heuristic narratives had generated over 20,000 words, resulting in descriptive, report-like writing containing a dazzling volume of data (Law, 2004). Further sense-making analysis was necessary. I created a database table, providing an overview of the schools from the analysis already undertaken (Yin, 2009). This included both quantitative and high-level qualitative insights, which informed my subsequent analysis.

School	PD model (Kennedy 2014)	Macro-professional paradigm (Evans, 2008; Kennedy, 2014; Sachs, 2001)	Meso-paradigmatic context	>3.5	3.49 - 3	2.99 – 2.5	<2.49	Order 1 (pedagogies)	Order 2 (reflection and contextualisation)	Research engaged leader
Hilltop	Transmissive / deficit	Traditional	Managerial/ Tight	3.5% (E6)	60%	33%	3.5% (L3)	Directed PD and self-chosen	Emerging, loose, opt-in	Minimally
Baron	Transmissive / deficit	Traditional, aspirational democratic	Managerial/ Tight	0%	47.4%	47.4%	5.2% (E7, RR1)	Entrepreneurial/ early adopter	Emerging, structured, opt-out	Highly
Cromarty	Community of enquiry (short term project)	Traditional	Traditional/ Loose	5.2% (E6, Res2)	79%	15.8% (E1, E7, L1, L2, L3, RR1)	0%	Self-chosen	Emerging, opt-out, short term project	Highly (ML)

Towerville	Mailable/ transmissive (emerging)	Democratic	Managerial/ Tight	18% (A2, 3 4, E6, T1, 4, Res1)	74%	8% (E3, L1, L2)	0%	Directed PD Strong core	Established, structured, directed with optional extra	Very Highly
Parkway	Mailable/ Community of enquiry	Democratic	Managerial/ Tight	8% (E4, 5, 6)	87%	5% (L2, RR1)	0%	Directed PD	Yes	Highly

Table 12: Schools database

Heuristic narrative preparation promoted my data familiarity. Following Miles and Huberman's (1994) protocol, I produced a 'monster dog' spreadsheet from my NVivo coding. This, I reduced and summarised, colour coded, partitioned and sorted in ever decreasing themes and clusters:

E: Order 1 Pedagogical initiative named
Time for PD adds up (e.g., book/webinar).
Teachers refusing to engage in PD in a positive way. Resistant behaviour.
Student behaviour makes PD implementation difficult.
Some negativity about National PD courses.
Wants to see small changes that are easy to do and benefit students and teachers.

Table 13: Monster dog sample

I sorted the 'sliced' data by sub-categories and school, reducing and categorising it (e.g., V = Valued) which provided the basis for my qualitative cross-case analysis. Excel's filter function enabled identification of patterns and outlier data:

Type	Comment	School	Code
V	Interventions are inauthentic; no-one listens.	3	Teacher Qual comments

Table 14: Slicing document sample (teacher comments on perspectives on PD)

I quantified the sliced data by numbering schools (1-5), and coding themes. Scatter graphs visualised the data (figures 7 and 8), accompanied by legend tables (table 15). Where significant teacher voice was available, I created two graphs. Otherwise, I produced graphs displaying leader comments only (Appendix 8).
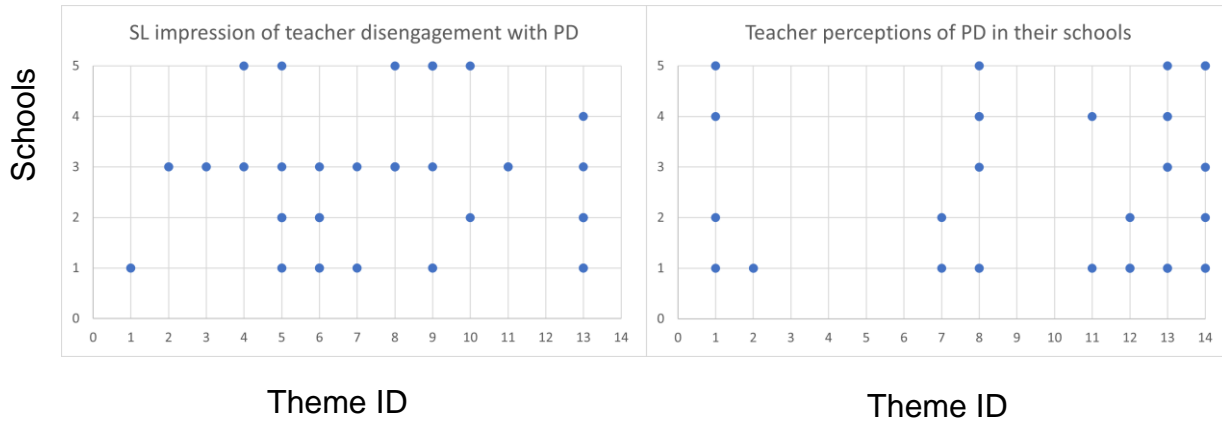
Figures 7 and 8: Scatter graph visualisations of leaders' and teachers' qualitative comments about PD experiences

ID	Description	Leader comments by school	Teacher comments by school
1	Pointless, generic, irrelevant	1	1, 2, 4, 5
2	Burnout	3	1
3	Behaviour barriers	3	
4	Wires crossed	3, 5	
5	Pragmatic	1, 2, 3, 5	

6	Puzzled/frustrated	1, 2, 3	
7	PD quality	1, 3	1, 2
8	Teacher resentment and resistance	3, 5	1, 2, 3, 5
9	Slow burn	1, 3, 5	
10	Teachers will mentor but not be coached	2, 5	
11	Macro structures inhibit PD	3	1, 4
12	Trust undermined		1, 2
13	Workload/capacity	1, 2, 3, 4	1, 3, 4, 5
14	Feeling unvalued		1, 2, 3, 5

Table 15: Cross-case coding from slicing process focused on leaders' and teachers' perceived barriers to PD.

Finally, I sliced the qualitative data from the monster dog according to sub-RQs and subjected the data for each theme to a process of hermeneutic circles to reduce it, improving its intelligibility. Each RQ comprised data explicitly related to its theme, and I prepared separate tables incorporating associated contextualising comments emerging during analysis, e.g., professional identity and comments relating to PD2. An example is provided in table 16. Other tables are available, alongside other data relating to each RQ, in Appendix 8.

School	Leaders	Teachers
Hilltop	Recognition of complexity and tension between whole-school priorities and teacher preferences. Frustration with low take up of voluntary PD.	Interventions feel rushed, impacting work-life balance and satisfaction. Some PD feels repetitive and contrived; 'for 'Ofsted'. Some PD is experienced as indicative of leaders' lack of trust in teacher professionalism.

Table 16: RQ1 Sample qualitative themes concerning perspectives about PD

These processes helped 'quiet' the data's 'noise', amplifying themes and absences (Law, 2004). These are discussed in chapter 6, where I address the RQs.

5.7 Reflections

Methodological rigour (Miles and Huberman, 1994) supports credible insight into social phenomena, allowing exploration of their inherent complexity, subjectivity, and instability. Authenticity of participant responses is supported through use of an anonymised, robustly designed instrument. Internal consistency of the data is supported through contextualising interviews, analytical clarity is demonstrated in robust methodological processes, and this thesis provides an intelligible output (chapter 6). I have constructed insightful, heuristic narratives (Law, 2004) exploring interesting emergent themes (Guest, 2018).

6. Research Findings: An interpretation of my data

Here, I address my overarching RQ: **What are secondary educators' experiences of the relationships between their school ecosystems and teacher PD (Professional Development) and PL (Professional Learning)?**

and my associated subsidiary RQs:

RQ1: What perspectives do teachers and school leaders have about their Professional Development (PD) experiences?

RQ2: What are teachers' and school leaders' perspectives and experiences of the conditions associated with teacher Professional Learning (PL)?

I have explored these through data captured in five UK secondary schools across England and Scotland. The nexus of the meso- and micro-spheres of schools' ecosystems fosters teachers' perspectives of their school environments. My data highlights the importance of collegial relationships in supporting teacher PL from PD opportunities. My IFS (Taylor, 2021), highlighted correlations between PD resistance, and teachers' perspectives of low agency and autonomy. Organisational-meso (individual schools as opposed to multi-academy trusts) and nested micro-cultures have myriad, inter-connected influences. Schools are, themselves, nested within macro-cultures which exert influence through policy and the inspectorate. An ecological lens helps elucidate teachers' lived experiences in their interconnected contexts (Priestley et al., 2015).

Schools are social systems; dynamic, unstable sites of human interactions with each other and the material world (Giddens, 1984). Cultures perpetually shift, risking entropy without maintenance (Stoll and Fink, 1996). My data 'snapshots' teachers' and leaders' assumptions, tensions, practices and routines, which I have synthesised using a cross-case analysis. My mixed methodologies approach has enabled me to illustrate a rich and nuanced account (Schein, 2017). A definitive picture is not possible; human beings hold multiple, often incompatible beliefs and attitudes (Law, 2004). In this discussion I outline themes which may resonate with readers and enrich understanding of these complex issues by offering a glimpse of teachers' and leaders' lived experiences of PD in their contexts.

The quantitative survey data is contextually relative. For instance, Hilltop's score for E3: Identity driven efficacy (3.11) sits mid-table, objectively lower than Parkway's equivalent (3.18), which sits in their lowest ten. Disparate sample sizes and survey conditions (i.e., in a meeting or in teachers' own time) also resist generalisation of findings. Word constraints of the EdD have necessitated decisions of what to show in depth or note in passing. The dataset is rich, with many themes ripe for further exploration, which I acknowledge as I go. I offer selected highlights, in a manner analogous to a tour guide showing you around an interesting town (Guest, 2018), in response to my RQs.

Cross-case analysis saw data reduced, coded, sliced and sorted. My analysis procedures of the qualitative comments is outlined in section 5.6.2 above, exemplified in figures 7

and 8 and table 15 on pages 216-7, derived from the 'monster-dog' spreadsheet I used to undertake my cross-case analysis. Further tabulation of the frequency of comments are available in appendix 8. In this chapter, I have described both frequent and outlier findings and selected qualitative comments from across all five schools to exemplify and enrich the heuristic quality of my thesis. I present my interpretation of the data associated with each subsidiary RQ in 6.1 and 6.2. My interpretations relate to existing theorisation and empirical evidence from chapter 2, from which I develop further theorisation. Holistic concluding comments follow in chapter 7. To aid reader navigation, colour coding is consistent with that used in table 7, in 5.6. Full factor descriptions are in chapter 4, and a headline summary is available in Appendix 9.

6.1 RQ1: What perspectives do teachers and school leaders have about their Professional Development (PD) experiences?

Interview data indicates leaders' PD planning stems from their desire to improve student outcomes. PD priorities often arose from self-assessment, as exemplified below:

> "Our core purpose is teaching and learning, so we're always [focused on] developing that. The [in-house] 'outstanding teaching' document [was] put together 18 months ago. So, firstly, we're thinking about that. Secondly, we think of the findings from our subject reviews and learning walks. And we think, OK, which aspects, therefore, do we feel, as a leadership team, could we do with developing?"
> Deputy Headteacher, Hilltop

Alongside the purpose of improving student outcomes, leaders indicated that PD content should be interesting, relevant and, as Towerville's deputy headteacher put it, an 'enjoyable entitlement' for teachers. However, as I shall explore below, frustrations were evident in both the quantitative and qualitative data from both leaders and teachers. This suggests misaligned assumptions and experiences of PD planning and implementation. More optimistically, data also revealed some correlations between teachers' positive perceptions of school cultures and PD, especially where collegiality and contextualisation of interventions was explicitly supported by leaders.

6.1.1 Experiences of whole-school Professional Development (PD)

My analysis suggests that sustained implementation was challenged by teachers' and leaders' divergent and conflicting assumptions, and meso- and macro-cultural, and structural issues, indicated here in these comments from leaders and teachers at Parkway:

"[There are] barriers to engagement. Even when we're doing whole school [PD] delivery […] I'm constantly looking to see what that engagement looks like. And in most people, it does appear to be engagement. But there are absolutely members of staff who will, you know, try to do their marking at the back of the room or will answer questions in a sort of a slightly more obstructive kind of way. So, they definitely exist. And the barriers they will

give is absolutely the time and the need to get on with the other work that

they have to do."

Deputy Headteacher, Parkway

Here, the deputy headteacher is aware of the existence of barriers to teacher PD engagement and seems to attribute them to workload concerns. Teacher comments reveal a more complex picture, however. Below, one teacher expresses their enjoyment of subject-specific PD opportunities at Parkway, but recalls negative experiences of poorly delivered, whole-school 'best practice' (inverted commas used here to indicate their low opinion of such PD) in previous roles:

"In most schools it seems formal/timetabled professional development opportunities have very little to no focus on teaching a specific subject. They are usually whole school focused. I get excellent subject specific training in my current school (things like trialling new experiments). This subject specific training is rare or non-existent in many schools. Research/evidence based is only useful if the research/evidence is of good quality. Often it isn't."

Teacher, Parkway

Comments like this indicate that generic, deficit PD models irritate teachers because they want something practical and useful for their specific role. Thus, PD is not rejected *per se*, but teachers appreciate more targeted and relevant activities.

Evidence of teachers' frustration at their perceived under-employment were also present. Here a teacher with a master's degree feels their expertise is overlooked and hopes that someone (perhaps me with my thesis report!) will improve the PD situation:

> "[This survey has] fascinating questions that have given me food for thought about what I do and how it is valued/or in fact unnoticed and unappreciated in my school. Despite being very happy here. It would be of value to promote myself better. I have an MA in educational studies and no one but me benefits from my research. It would be interesting to know what the overall results of this survey are and how they can inform and promote the value of CPD in different schools and to raise the perception of the professional standards of teachers in the UK. Most other professions are required to complete a certain number of CPD hours each year to maintain their status."
> Teacher, Parkway

The theme of auditing teachers for what they *could* offer to extend beyond their roles was not apparent in the leaders' interview data. Instead, a deficit position to PD planning was evident in leaders' comments tended to relate to identifying and addressing gaps in teachers' practice (individually or collectively) or introducing teachers to new evidence-informed practices. As the comment below indicates, whole school PD was intended to bring coherence to the PD programme. Nevertheless, recognition of the importance of teacher choice in PD pathway was evident. Parkway's deputy headteacher presented whole-school PD as an important foundation for their suite of PD opportunities from which

teachers can choose. This comment acknowledges the need for a core 'message', which, they believed, all teachers should receive:

> "I suppose [this] is where the whole staff training comes in so that everybody
> receives something that's important, either because it's contextually new or
> because it's absolutely fundamental to the culture of the school [so that it
> is] wrapped around something."
> Deputy Headteacher, Parkway

Aware of an undertone of teacher disengagement, Parkway's leaders had taken a creative approach, and provided a book to each teacher to read in anticipation of the school's identified priorities as a way of minimising group 'transmissive' PD. The deputy headteacher reflected pragmatically and optimistically on this approach:

> "There is an acceptance that everybody has to be able to access things
> on their own level to start with because again, it's nudge theory. Just
> because they haven't engaged and fully immersed themselves [yet], it
> doesn't mean that it hasn't had some impact or that it won't have some
> impact at another point when they need it."
> Deputy Headteacher, Parkway

These comments illustrate a tension that school leaders must navigate when planning and delivering whole-school PD. Challenges include (but are not limited to) the breadth

of teachers' interests and experience, workload pressures and previous experiences (positive and negative). Another tension was apparent in comments associating the value of PD instrumentally with career development, not understanding the purpose of a particular intervention, not feeling able to use it in their practice, or simply feeling too old and tired to change anything. Leaders appeared to be aware of these kinds of teacher sentiments. This is exemplified in the previous comment from Parkway's leader, which acknowledges the multiple pressures on teachers' time, and the 'resistance' behaviours they had observed:

Reflections like these suggest leaders' recognition of the complexity of PD planning and the need to try and balance competing demands and professional values in high stakes contexts with limited physical and human resources (Epstein, 2019). Workload pressures were seriously considered by leaders, manifesting in a reluctance to make collaborative or coaching PD activities mandatory or add further directed time to the school calendar. These considerations were often in tension with most leaders' wish to facilitate teachers' access to research-informed content and address issues identified in the school development plan. Consequently, as I discuss below, much PD appeared to rest on transmissive delivery and assumptions about teachers' capacity to implement strategies autonomously. This model was associated with frustration from both leaders and teachers.

6.1.2 Experiences of personalised Professional Development (PD)

As suggested above, transmissive delivery (PD1) frequently provided a mechanism for signposting pedagogical strategies. Several leaders' comments implied assumed expectations that teachers, as professionals, would experiment with and implement the showcased strategies independently following training (indicated in Parkway's leader's reflections following the distribution of the book). Relying on such assumptions sometimes had disappointing results, as Baron's leader describes:

"One of the things that we've tried to introduce is walkthroughs. We [tried to] use walkthroughs [but it was] very much driven by autonomous learning and kind of led by individual needs […] I'm not persuaded we've got any significant engagement with walkthroughs and I'm not sure that it gets used in the way that [we expected], and that's my weakness perhaps."

Deputy Headteacher, Baron

PD interventions launched with limited follow-up support seemed poorly received by teachers, whose qualitative comments described generic, 'box ticking' PD content (see 6.1.1). Some structured PD2 sense-making and implementation strategies were described, including coaching and practitioner research, but PD2 participation was usually voluntary; mandatory coaching at Towerville was the exception. Most schools also offered personalised support with PD interventions. Leaders had noticed that those teachers who engaged in coaching opportunities reported positive experiences in their internal PD evaluations, exemplified by this comment from Hilltop's deputy headteacher:

"I noticed that people enjoyed collaborating, coaching and being evidence informed ultimately, which was good to know because if we run the coaching programme, we often do things collaboratively."

Deputy Headteacher, Hilltop

Most leaders were aware of the ongoing debates around terms like coaching (see 2.2.1). Thus, implementation decisions were made on the basis that coaching is generally a good idea, but lacked a clear conceptual foundation, as this leader's comment suggests:

"I think the coaching bandwagon has many, many people on it now, and many trucks behind it. But I think if we say that having a clear sense of where you want to develop professionally, to be in a supportive conversation with someone that you respect and value […], if you're not being appraised by someone you respect and value, then maybe you need to change your appraiser. Then you're looking at how you put [the changes in your practice] into action. Whatever you call that, I see that as a really helpful process, but I haven't got a coaching qualification. I haven't got the intention to get a coaching qualification at the moment."

Deputy Headteacher, Baron

Here, the basic principle of the supportive conversation between two professional adults is clearly articulated (see 2.2.1) – if they are not supportive, you should find someone

else. Nevertheless, the term 'appraiser' suggests a mentoring relationship. It is unfair to be overly critical of people mis-using conceptual language in 'relaxed' conversations, since even the most skilled experts conflate technical terms and use them imprecisely (Law, 2004). However, there does appear to be a gap between conceptual clarity in practice where coaching activities are being implemented. The final comment regarding the absence of formal qualifications in coaching techniques indicates that these conceptual confusions are unconscious, or not seen as significant, and may remain so.

The gap between leaders' expectations of teacher PD engagement and the reality was mutually frustrating. Logistical challenges were clear:

"[Ideally, coaching] would be part of your working week. And I managed to steer my breakout groups into it… We need to push, as school leaders, we need to push it all the way back to the top. If you want people to be coached, great. But you need to look at our working time agreement."

Middle leader, Cromarty

Logistical barriers to offering the kinds of PD opportunities leaders and teachers appear to want were a constant theme across the data. All leaders described tensions balancing school priorities, teacher interests, and workload, and expressed frustrations about low teacher engagement. Nevertheless, many interventions gained momentum over time, as Parkway's leader described, as a wider range of teachers became involved in the coaching pathway:

"And it you're either going to say, right, this is what we're gonna do whole school, or I think it's quite slow growth. The first year that I advertised [coaching] we [only had interest from teachers at the] very start of their career who were looking for anything. And interestingly, the next time, we've actually had about six or seven people say, I would really like to be coached, and they are very much higher up in terms of leadership."

Deputy Headteacher, Parkway

The reasons for teachers' interest in or resistance to coaching opportunities are speculative here. Perhaps, at Parkway, seeing others participate and hearing of their positive experiences 'normalised' the prospect and emboldened teachers to engage with the opportunities. Further investigation would enrich understanding of how teachers experience the implementation of such initiatives over time.

Themes from teacher qualitative comments indicate tensions between leaders' intentions in implementation, and teachers' experiences:

"I am a reflective practitioner and do try to stay on top of pedagogical developments in my subject area, but I do find that the rigidity and frequency of the coaching schedule (3 week cycle) difficult to manage. Non-contact time is used for walkthroughs which is increasingly difficult to manage on a two-week full teaching timetable. Some coaches will have more time to

devote to this if they have responsibilities and I feel that this situation may only get worse as our non-contact periods are reduced next year. I also find that there are some pressure points in a half term where our focus has to be on assessment marking and so the professional development, we have to allocate during these weeks becomes hard to manage. I believe coaching should be done less frequently and evidence should not just be based on a walkthrough, as it has been in my case. I also feel that the timing of coaching can reduce its effectiveness- before or after planning- following a 5 period day doesn't feel like the best time to have a creative or meaningful discussion- we also suffer from cognitive overload!"

Teacher, Towerville

Considering the ecological lens taken in my study, the range of issues and pressures appear to converge to render teachers too exhausted to engage in PD. As Cromarty's leader describes in this comment:

"[…] what we've got is teachers who are under the Kosh and are knackered. And I think you know, we're all still, I don't want to blame everything on covid because that's what we say of everything, but we are all still getting over that as well."

Middle leader, Cromarty

As exemplified above, teacher comments revealed some dissatisfaction. Barriers to PD reflected McChesney and Aldridge's (2019b) typology: structural (PD scheduled after busy days or at marking 'pinch points'), acceptance (e.g., PD that is generic, contains complex new terminology, or is poorly delivered), implementation (too many new strategies at once or insufficient time for award-bearing courses). The squeeze on teachers' time is exemplified in this teacher's comment from Cromarty:

> "I have recently taken part in a master's level headship course (into headship) and I felt the course expectation was huge alongside a full time and demanding post in school. It has tested my professional resilience."
>
> Teacher, Cromarty

This highlights the logistical barriers to PD that teachers might choose to engage in for career progression motivations; the opportunities may be available, but the practicality of undertaking such courses seems onerous in practical terms.

Only Cromarty's leader highlighted poor student behaviour as a barrier to PD implementation, as described here:

> "It's the low-level stuff, it's attendance, punctuality, uniform and [students] just not being prepared for lessons, that kind of thing, and ultimately SLT have decided to tackle it, which is long overdue."
>
> Middle leader, Cromarty

These comments serve as a reminder that PD arrangements are undertaken in an ecosystem with multiple pressures and considerations.

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Although complaints were infrequent, and 'loud' voices may not represent a quiet majority, complaints emerged in all schools' data. PD2 activities were received more positively, and many teachers found them developmental, even if they were logistically challenging or were not felt to be well implemented.

In the following discussion, I will explore these barriers to PL through themes arising from the data. My presentation of this discussion is linear for practical reasons, but I remain mindful of the non-linear complexity and, interconnectedness of these issues.

6.1.3 Teachers as learners

Quantitative data suggests teachers' high motivation to learn, develop new skills and inspire students to support improved outcomes. The high mean scores for the factors E4 (motivated optimism), E5 (inspirational efficacy), E6 (skilled adaptor) and T3 (open optimism) suggest that teachers are passionate about their work, have strength of moral purpose, and are skilled, adaptive and open minded (see table 17). This quantitative data was captured using a Likert scale of 1 (strongly disagree) to 4 (strongly agree). These values were calculated by first using individual participant mean scores per factor using the items within each factor and then individual mean scores per factor to calculate overall

factor mean scores. The resultant figures enabled me to infer prevailing teacher perspectives about each factor in each school.

ID	Factor	Survey mean scores				
		Hilltop	Baron	Cromarty	Towerville	Parkway
E4	Motivated optimism	3.44	3.19	3.38	3.49	3.56
E5	Inspirational efficacy	3.39	3.41	3.42	3.43	3.62
E6	Skilled adaptor	3.52	3.22	3.59	3.70	3.64
T3	Open optimist	3.47	3.30	3.39	3.58	3.39

Table 17: Mean scoring factors indicating positive PD engagement

Alongside these encouraging results, teacher perceptions of isolation, low efficacy and limited resilience were also apparent. The lowest mean scores (in red, table 18 below) indicate likely teacher rejection of, or apathy towards PD. This suggests teachers experience some PD arrangements as uninspiring and challenging to apply (McChesney and Aldridge, 2019b).

ID	Factor	Survey mean scores				
		Hilltop	Baron	Cromarty	Towerville	Parkway
E1	Individual extended efficacy	3.03	2.87	2.97	3.10	3.05
E2	Open-minded efficacy	3.20	2.89	3.10	3.16	3.35
E8	Extrinsic efficacy	2.70	2.72	3.07	3.28	3.27
RR1	Pragmatic co-learning	2.98	2.41	2.97	3.15	2.95

Table 18: Mean scoring factors indicating challenges to PD engagement (shown in red text and/or yellow background)

Low perceptions of RR1, concerning receptivity to coaching and mentoring, are noteworthy. For context, RR1 *is* well perceived at Towerville (scoring >3), where coaching is mandatory, but other factors are perceived more strongly (see table 8 on p.204-6 in section 5.6.1). It is noteworthy that this 3.15 mean quantitative score was found in the only school in which coaching was mandatory for all teachers. Low mean teacher perceptions for RR1 suggest the presence of teachers who do not want to review their practice with colleagues; they want to be left alone, and their professional judgement trusted (exemplified by teachers' qualitative survey comments below). This suggests the presence of traditional professionalism in which experience, creativity and individuality are prized, and standardisation rejected as described by Evans (2008):

"I need to be trusted to do my job not how those above think I should be doing my job."

"Let teachers teach the way they are happy, creative, and comfortable. Prescriptive teaching will lead to trying to 'clone' teachers and make them lose their love of teaching."

Teachers, Hilltop

Indeed, autonomy of practice was appreciated by several teachers, who articulated a distrust that standardised whole school PD was akin to 'Pavlovian' style conditioning (as colourfully described by one Towerville teacher). Teachers' willingness to learn, adapt and improve may have been tempered by the kinds of criticism they had previously received, as articulated here:

"I love the autonomy offered at this school. I do not feel micromanaged. I feel trusted as a teacher. Nobody comes into my lesson and tells me afterwards that it was not outstanding because "you did not have the keywords written on the whiteboard" "you did not have the learning objective on every slide" "3 students had not written the title" or some other ridiculous reason that has no impact on the ability of students to learn. You didn't write the date- how does that relate to them enjoying and participating in the lesson, it does not matter."

Teacher, Parkway

This indicates that teacher perceptions of poor-quality observation feedback created barriers to future PD acceptance. This highlights the need for high quality coaching/mentoring conversations; a poor experience can create barriers to future PL.

Teachers' professional aspirations can also be limited by narrow professional pathways and assumptions about career aspirations. As one teacher at Parkway noted, what is PD for, if the possibility of promotion, recognition or increased pay is limited? Future iterations of the survey might explore T5: Stepping into leadership (now incorporated into PA3: Empowered autonomy) to take account of distributed leadership and other career pathways. I will explore this further in .

My analysis suggests tensions between teachers' interest in and willingness to learn and their experiences of PD, observation feedback and lack of career development prospects, which appear to undermine openness to PL. These findings challenge the stereotype that teachers' openness to PD is inversely related to increasing experience because of traditional professional attitudes. Supporting Ball, 2008, disengagement with PD appears symptomatic of 'burnout' caused by teachers' passage through the system over time.

6.1.4 Logistics

The ubiquity of negative teacher perspectives about logistics in the quantitative data highlight teachers' frustrations associated with demands on time and resources.

		Survey mean scores				
ID	Factor	Hilltop	Baron	Cromarty	Towerville	Parkway
L1	Collaboration time	2.60	2.64	2.80	2.91	3.02
L2	Collaboration space	2.61	2.61	2.79	2.85	2.86

Table 19: Quantitative themes – logistics

Opportunities for collegial reflection and contextualisation of interventions are often squeezed out of busy schedules, leaving PL dependent upon individuals' proactivity (6.1.1, 6.1.2). Opportunities to create PL nurturing conditions were limited by stakeholders' capacity; leaders know they cannot achieve what they would wish to implement in an 'ideal world':

"[Policy makers say] 'everybody should have the right to a coach'. Absolutely. But there's no capacity, so you can't."

Middle Leader, Cromarty

Most leaders expressed frustration on this tension between their developing understanding of research-informed practices and the limitations of time, resources and funding that would support the realisation of these 'optimal' practices. The middle leader at Cromarty was particularly frustrated by the 'loose' macro-policy arrangements they experienced in Scotland, and which they perceived as inhibitive to making meaningful progress with their PD vision:

"If I didn't own this house, I would be straight back down South, honestly, if we hadn't already signed on the line. But yeah, it's maybe something for the future. To be honest. I'm… I feel like I'm a really positive person, but I'm not feeling very positive about the Scottish education system at the moment."

Middle Leader, Cromarty

Leaders and teachers in all schools indicated frustrations of this nature; resource poverty appears to be a significant barrier to PL at all levels:

Frustrations with transmissive PD1 (6.1.1), poor uptake of voluntary PD2 (6.1.2) and chronic logistical poverty go some way to explaining why many stakeholders' views of PD tend towards frustration or apathy. But what happens when PD2 is systematically integrated?

6.1.5 PD2 and the Professional Development Acceptance Zone

I use PD2 to describe structured opportunities for reflection, analysis and evaluation of PD1 (see 5.5). In addition to logistical support, T1: Contextual sensitivity, and RR3: Systematic reflexivity appears significant in supporting collegial sensemaking and codification of PD1 initiatives. Positive perceptions of these factors are associated with co-creation of meaning for individuals and groups. The association between PD1 and PD2 and teacher PL has academic precedent: 'germ-cell' ideas via PD1 followed by PD2

sense-making activities is analogous to Vygotskij's double stimulation theory of learning (Engeström, 2011), positioning learning at the group *and* individual level. Cromarty, Towerville and Parkway recorded the highest teacher perceptions of these factors, which correlated to leaders' interview data confirming the presence of PD2 arrangements. At Cromarty, the leader's MA project provided structure through small groups working on Teaching Sprints (Breakspear, 2024). Towerville's leaders had implemented a structured programme of mandatory coaching, whilst at Parkway, voluntary participation in structured PD2 pathways was building momentum.

| ID | Factor | Survey mean scores | | | | |
		Hilltop	Baron	Cromarty	Towerville	Parkway
T1	Contextual sensitivity	2.69	2.64	3.07	3.31	3.44
RR3	Systematic reflexivity	2.95	2.75	3.15	3.23	3.04

Table 20: Quantitative themes – systematic local contextualisation through PD2

PD2 structures group learning affording opportunities for testing and sense-making of PD1 stimuli, refining strategies for cognitive acceptance and practical adoption. Edwards' (2011) concept of relational agency supports this process, which is socially constructed dialogically. Structured PD2 activities also support Tschannen‑Moran and McMaster's (2009) findings which highlight the significance of the quality and nature of PD

implementation, and their power to enhance or undermine teachers' self-efficacy, and, thus, PL (2.5.2).

PD2 requires leaders to create 'cultural islands' in which stakeholders with different experiences and perspectives can share ideas and engage in mutually respectful sense-making and co-construction (Schein, 2017). Protocols are helpful in establishing ethical ground-rules supporting robust, yet respectful productive dialogue (Benhabib, 1992, cited in Edwards, 2011). PD1 content should be curated to foster common understanding of interventions' 'active ingredients' (Sims et al., 2021) without diminishing teachers' expertise, and leaders must anticipate differences in the degree of adaptation between departments (Edwards, 2011). Towerville's leader exemplified this:

> "Credibility. That's the word. And therefore, more people try it, and they consider the nuances of what it looks like in their subject. So, to go back to the example around marking and feedback, we ended up hitting upon the idea that whole class feedback was more efficient and effective, but how that's delivered in Maths looks different to how it's delivered in English."
>
> Deputy Headteacher, Towerville

This systematic approach to in-school strategy piloting and contextualisation at Towerville, where leaders used teacher experiences and recommendations developed during dedicated PD2 activities to inform school policy. Such systematic approaches to contextualisation during implementation reflect Schein's (2017) view that successful

organisations are really two organisations, one specialised and the other innovative. This duality facilitates the contextualisation of reforms whilst also challenging organisational dogmatism. UK schools have been subject to decades of efficiency-seeking, standardising managerialism, which has undermined trust between teachers, leaders and policy makers. This manifests in wide-spread frustration as leaders struggle to accommodate PD2-style activities and reassure teachers that experimentation and discussion about PD1 underpin change. Here, Cromarty's leader articulates their developing appreciation of the complexity of implementing interventions with the aims of changing teachers' practices:

"… just because I think it it's effective doesn't mean it is, just because [teachers] think it's ineffective doesn't mean that it is either. I get that I have got a real hand to play in all of this […]. I'm trying to take a giant step back because I really […] don't mind if the actual outcome of what I thought was a good idea, has been terrible. That's OK, [but] I need to know."

Middle Leader, Cromarty

They appear to be developing a nuanced understanding of the importance of a wider perspective of teachers' experiences in the classroom, as opposed to PD that sought to implement 'what works'.

These findings align with the starting point for this study, inspired by Gray and Summers (2015) and Lee and Lee (2018), that co-creative learning is associated with teacher PL.

Given the competing demands on teachers' time, PD2 should be planned to promote team, as well as individual learning (Crome, 2023). Helpful protocols might include:

1. PD1 and 2 time protected and published in advance

2. PD2 explicitly links to high quality PD1 and to school development priorities

3. Clear pilot, evaluation and feed-forward mechanisms

4. Concurrent de-implementation strategies (Hamilton et al., 2024)

I have inferred evidence of PL associated with the presence of PD2 arrangements. For example, at Cromarty, the teachers' 35 hours of protected PD time was used to support the middle leader's master's degree research into group reflections using Breakspear's (2024) teaching sprints (although they were frustrated that the time allocated was last thing on Friday afternoons). The clearest evidence of structured protocols associated with PL emerged from Towerville's data, which I will illustrate in comparison to Parkway's. Both schools' data revealed high mean survey scores but infer greater overall PL capacity from Towerville's 20 factors in the Professional Development Acceptance Zone (PDAZ, explained in 5.6.1), compared with Parkway's 6.

School	Leader-reported PD arrangements	PDAZ factors
Hilltop	Voluntary coaching and mandatory PD training (focus on questioning)	16
Baron	Various interventions introduced to all staff and voluntary working parties	13
Cromarty	Teaching Sprints (Breakspear, 2024) using the 35 hours annual PD allocation	11
Towerville	Mandatory coaching and well-established action research informing policy	20
Parkway	Voluntary PD pathways including research groups and working parties	6

Table 21: Correlations between-leader reported PD arrangements and cultural factors appearing in the PDAZ

Further exploration of a larger dataset would elucidate these differences further, but I tentatively suggest that structured PD2 opportunities at Towerville support the greater presence of PL-supportive factors in the PDAZ. I acknowledge that the self-selecting nature of the samples may present a 'rosier' picture at Towerville (although teachers there did articulate complaints and frustrations) in comparison to the larger dataset captured at Parkway. The 'completeness' of Parkway's data reveals a greater breadth of teacher perceptions. Despite Towerville's small, self-selecting sample, table 21 indicates more factors associated with dimensions of culture associated with PL where coaching is mandatory, in comparison to Parkway's voluntary model. This finding has theoretical grounding in Schein (2017) who argues that routines, even unpopular ones, stabilise

organisational cultures because they reduce the anxiety of individuals constantly having to work out what they are supposed to do. Thus, my data leads me to infer a positive relationship between the structured and logistically supported presence of mandatory PD2 and PL. Thus, further exploration is needed to understand relationships between compulsory structured PD and an increased number of cultural factors included in the PDAZ.

PD2 was voluntary at Parkway, and momentum was building, but leaders were pragmatic about full teacher engagement:

> "It's never going to be everybody […] I'm OK with that. Although I would like it to be everybody. I understand it's not always going to be, and I suppose that is where the whole staff training comes in so that everybody receives something that's important, either because it's conceptually new or because it's fundamental to the culture of the school."
>
> Deputy Headteacher, Parkway

Parkway's leader's hesitance to further direct teachers stemmed from workload considerations, but their comments revealed frustration suggesting a basic assumption that teachers should use their professional autonomy to choose extended PD. As section 6.1.1 suggests, the reality is much more complex.

Contrastingly, at Towerville, coaching was directed for all teachers, each with personalised development foci. Coaching frequency depended on career length, and time was used by more experienced teachers for other development tasks when coaching was scheduled for ECTs but not for them.

> […] that original [voluntary] model… was problematic in our mind because it was cohort based, so some staff were thinking, you know, 'why me' and other staff are thinking 'why not me'. […] It also relied on people coming to meet with us outside of directed time because we wanted them in [directed] planning time because everyone else was there. So, what we did [was we] got to a place that enabled us to say, out of that hour and a half [directed time], 30 minutes is going to be for coaching.
>
> Deputy Headteacher, Towerville

This comment highlights the reflection that PD2 activities need to be carefully structured and logistically supported. This supports the content of teacher learning through personalised feedback and opportunities to co-create development targets but also mitigates the psychological 'work' that teachers seemed to undertake as they tried to second-guess leaders' motivations. This supports Schein's (2017) view that structures, even unpopular ones, have a settling effect on organisational culture.

My comparative analysis of quantitative data for factors included in the PDAZ, contextualised by leaders' testimonies suggests the involvement of PD2 structures in

promoting teacher engagement following PD1. I suggest that this positively influences teachers' openness to PL (indicated in the high number of factors in the PDAZ), mitigating the theory-practice gap. The highest mean/congruence scores were associated with the presence of structured PD2, including working parties, action research and coaching to promote reflexivity.

Habitual, supported reflexivity facilitates collaborative generation and systematic evaluation of artefacts, systems and procedures. The basic assumption and espoused value that teachers ought to and will have the capacity to choose voluntary enriching PD seems like wishful thinking. Arguably, neoliberalism, in the guise of managerialist professionalism, which drives standardisation and efficiency (Freidson, 2004) contributes to the erosion of unquantifiable interpersonal behaviours and relationships because they are difficult to measure. During this period, teachers' PD experiences have been impoverished, manifesting in poor health, cynicism and decisions to leave the profession (Ball, 2003; 2008; 2016). If PD resistance has become the last refuge of the disempowered (Ball, 2016; Taylor, 2021), strategically combined PD1 and PD2 may offer an antidote.

6.1.6 Problems of comfort and ambition

Interestingly, Towerville's mean score for E3: Identity-driven efficacy is amongst their lowest (2.99), and the lowest across all schools.

ID	Factor	Survey mean scores				
		Hilltop	Baron	Cromarty	Towerville	Parkway
E3	Identity-driven efficacy	3.11	3.17	3.17	2.99	3.18

Table 22: Mean scores relating to teachers' proactivity in seeking PD opportunities

E3 describes teacher activism and proactivity in seeking PD. Reasons for Towerville's low score are speculative. Is the comprehensive PD curriculum sufficient that teachers do not supplement it? Perhaps, after working on coaching action points, teachers lack further capacity. This finding is worth problematising. According to structuration theory (Giddens, 1984), human activities cause unintended consequences. This is true for PD provision, even when teachers enjoy it. Despite the high mean and congruence quantitative data, which I position as a proxy for PL, tight PD curation may be problematic for two reasons: comfort, and the management of ambitious individuals. The problem of comfort questions the criticality of engagement with PD1, which leaders pre-selected. Whilst PD2 is beneficial, the discussion content may be narrow in scope. This is a cost-benefit trade-off between the fruitful cross-pollination of innovations weighed against the unmanageability of a multitude of ideas, not to forget workload implications. Leaders must curate PD1 content to steer PL to meet organisational needs.

Leaders' PD1 gatekeeping may cause problems managing ambitious individuals. Towerville's leaders proudly describe how PD yields strong internal promotion candidates, but what about unsuccessful candidates? Teachers' scope for exploring professional

interests beyond the curated offer is unclear. Joost Jansen in der Wal et al. (2018), suggests teachers engage in PD either to seek promotion or alternative employment, and Smith and Ulvik, (2017) found that some teachers leave the profession, not because of burnout, but to scratch an entrepreneurial itch. Dissatisfied teachers may be motivated to undertake qualifications independently in attempts to resolve cognitive dissonance (Hawkes, 2016). A teacher acting thus could disrupt a schools' carefully curated PD arrangements by introducing un-curated ideas into the organisation at the grassroots level. This may address the problem of comfort by introducing fruitful incongruity because it separates the 'chain of command' from the flow of communication, which promotes group learning (Epstein, 2019). Future research might explore the optimal balance of curation and 'disruptive' ideas. This may elucidate relationships between career length and relational resilience (Gu, 2014), and relationships between perceptions of school cultures and curated PD vs. PD independently arranged by professionally frustrated individuals.

6.1.7 Professional match quality

Nested within meso-structures are individual teachers, each with complex, contradictory and dynamic professional identities. Low match quality perhaps explains the development of cynicism over time, manifesting to resolve cognitive dissonance borne of the mental exhaustion of working in an environment in which you feel you do not fit. High demand/high accountability environments time and resource poor contexts is associated with risk aversion and burnout in teachers (Ball, 2008). This was exacerbated by the

disruption of Covid, which saw the suspension of 'normal' PD arrangements (Kim and Asbury, 2020).

Pace of change and multiple competing priorities were also experienced as problematic. PD1 content intended to support the democratisation of research-informed strategies (by showcasing a range for teachers to experiment with) was experienced as 'faddy' micro-management. De-contextualised PD1 can be rejected as 'workload' (McChesney and Aldridge, 2019b). This vicious narrative deters some leaders from directing teachers beyond a core PD1 offer. Unspoken cultural assumptions can amplify this PL barrier; teachers 'left alone' when the going is good tended to associate interactions with leaders with censure. Towerville's leaders responded by incorporating mandatory coaching into core PD routines, 'normalising' it. Positive teacher perceptions of this policy are evident in the high scoring for RR1 of 3.15 (mean), which, although at the lower end of mean scores for Towerville, was higher than in all other schools where that measure was perceived as <2.99 (see table 8 on p.203-5 in section 5.6.1). Pragmatic co-learning. Intervention maturity may also account for apparent high teacher PD capacity; they had had time to experience benefits, thus transforming leaders' ideas (selected PD1) into group assumptions (Schein, 2017). This highlights the crucial role of intervention contextualisation (PD2); all stakeholders need opportunities to see the benefits of change for themselves. Unfortunately, the high stakes/poorly funded managerial macro-culture demands quick fixes and so PD2 contextualisation can be sacrificed in favour of standardisation (Forde, 2016; Hall, 2013; 2.4).

Changing, competing demands mean teachers cannot prioritise non-compulsory PD. Despite stabilisation as teachers' careers progress (Day and Gu, 2007; 2009; Want et al, 2018), they remain dynamic as other challenges emerge, both personal and work-related (Day and Gu, 2007; 2009; Bennet et al. 2008). This emerged in the data in the low scores for E7: Invested belonging, which consistently appeared in the lowest 10 mean-scoring factors:

		Survey mean scores				
ID	Factor	Hilltop	Baron	Cromarty	Towerville	Parkway
E7	Invested belonging	2.78	2.49	2.94	3.08	3.15

Table 23: Mean scores relating to work-life balance and competing demands on teachers

Teachers' personal lives do not always compliment the demands of the job, exemplified here in this comment, which indicates a degree of not only personal sadness, but also a sense of performative pressure and paranoia:

"I am low in confidence due to issues in my personal life. School is supportive on the surface, but I don't feel they fully understand how grief and mental health struggles have impacted the way I conduct myself in school. I often feel alone or like I am being watched and judged but not spoken to directly."

Teacher, Baron

Such feelings suggest that teachers' changing personal lives are in tension with expectations of their capacity for voluntary PD engagement. Leaders I interviewed presented as compassionate and considerate of teachers' workload and wellbeing, but they also hold responsibility for realising a strategic vision for PD. Teachers' voluntary engagement with PD was often assumed, and leaders expressed both frustration and pragmatism regarding low engagement, as explored above.

Work-life balance is a challenge for many, particularly mid-career teachers and career changers in their 30s and 40s. Competing demands for teachers' time must be taken seriously. Data in two schools suggested challenges to the stereotype of grumpy, burnt-out late-career teachers outlined in Hargreaves and Fullan (2012). At Towerville, the most dissatisfied teacher was in their mid-career phase, and, at Baron, leaders reported their struggle to engage Covid-trained ECTs into a structured PD schedule. This suggests structured PD, accommodated with respect to work-life pressures supports sustained teachers' engagement. Teacher disengagement with PD may have more to do with poor induction and socialisation, and work-life pressures than simply age and experience.

Leaders appear to advocate democratically professional assumptions, inferring teachers' PL capacity and suggesting that the availability of research-informed materials is a natural catalyst for teacher PL. For example, Baron's deputy headteacher describes the increasing availability of accessible research-informed literature in positive terms; they appear to enjoy becoming evidence-informed and applying these strategies in practice. This appetite for the demystification of 'what works' suggests their alignment to

democratic professionalism, which leads them to seek such materials out for their own development and disseminate them to teachers, which they did regularly and enthusiastically:

"The research evidence base, and the action research underpinning things is really good. I think these days teaching is becoming more overtly evidence-based as a profession. I think there is much more of a need to ask ourselves, why are we doing activity X or process Y with our learners, with our teachers, in our planning. [We should stop] doing it because of the demands of the regulator, or the perceived demands of the regulator. [Democratic access to the evidence-base] is good."

Deputy Headteacher, Baron

Here, democratic professionalism appeared 'sought' in the hope of transmitting it to colleagues, suggesting their underlying assumption that teachers should engage willingly with these opportunities and enjoy them.

I have noted my survey's leaning towards the democratic professional paradigm. Individuals aligned to traditional or managerial paradigms may interpret these factors differently or reject them as undesirable or impossible, and thus, perceive poor match quality. The ubiquity of the managerial macro-culture is concerning because professional formation within an agency-limiting paradigm inhibits innovation, activism, individual and

team learning and, thus, change (Buchanan 2015; Mockler 2011). Nevertheless, Evans (2011) demonstrates resilience of teacher professionalism (conceptualised as 'extended' and research-engaged) to macro-managerial influences.

Although teacher qualitative comments were sparce, they reveal acceptance of high-quality, appropriately pitched and contextualised PD alongside references to feeling affronted and defensive by other, transmissive, deficit model PD, which is experienced as micro-management. The presence of leanings towards both democratic and traditional professionalism is apparent. However, as I note above (see 6.1.3), further research is needed to understand distinctions between a 'traditionally' minded teacher and a 'burnt-out' one.

It is important not to paint too pessimistic a picture. Negative voices are ever- present and often loud, but they sit alongside many positive perspectives. As Towerville's quantitative data suggests, the strategic combination of PD1 and PD2 appears to promote teacher PL. Since teacher PL has been associated with protection from burnout (Sullanmaa, 2023), it is reasonable to infer a relationship between PD2 and teacher wellbeing. This adds to evidence of correlations between high-quality implementation activities and increased teacher self-efficacy noted by Tschannen‑Moran and McMaster (2009). A key finding of this study, worthy of further exploration, is the significance of implementation practices in promoting 'PL conducive' conditions.

6.1.8 Organisational coupling and professional match quality

The organisational coupling lens (2.4.3) is useful in interpreting the data, offering a language to describe and discuss relationships between school's meso- and micro-systems, into and within which teachers' professional identities are nested and evolve. Whilst this framing over-simplifies complex relationships to a decontextualised zero-sum game, tensions between structure and autonomy are highlighted. Preserving the status quo is attractive, even whilst agreeing with the rationale for change (Stroh, 2017). Broadly, traditionalists align to low (managerial) demand, high agency, loosely coupled environments, suffering burnout and becoming, cynical and resistant to PD in tightly coupled contexts (Hökkä, and Vähäsantanen,2014). Conversely, democratically orientated individuals may prefer the research and co-construction fostered in agent-centred contexts, becoming frustrated by both loose and tight arrangements. Leaders may tighten coupling arrangements for performative purposes, or to respond to emerging issues. Whether they agree with them or not, the burden of managerial scrutiny via the inspectorate and other workplace legislation is accepted pragmatically:

> "I mean, obviously, some of it is compulsory. Health and safety training, and
>
> things in the Ofsted criteria. But that's just beige, you know? Just necessary
>
> tick box things."
>
> Teacher, Hilltop (IFS data, Taylor, 2021)

Comments of this nature indicate a pragmatic acknowledgement of statutory training requirements (e.g., safeguarding). However, the inclusion of training 'for Ofsted'

describes compliance of a different kind, suggesting teachers' perceptions that some PD serves a performative purpose, separate from the merit of the intervention. This kind of attitude is concerning for genuinely democratically minded leaders of PD because teachers may begin from an attitude of apathy and rejection talk (Ball, 2016; McChesney and Aldridge, 2019b). If teachers perceive instrumental value of PD rather than an intrinsic worth, a misalignment of purpose and value of PD may develop into teacher perceptions of poor match quality.

High match quality is associated with high performance and job satisfaction (Epstein, 2019). Poor match quality occurs when teachers' perceptions of professionalism and organisational coupling misalign. This causes teachers to leave their schools, perhaps even the profession (Perryman and Calvert, 2020). Worryingly, many remain, increasingly burnt-out by chronic cognitive dissonance (Ball, 2008), feeling 'trapped' (Day et al., 2006). Reform is slow in historically loosely coupled contexts (Hökkä, and Vähäsantanen, 2014). Leaders wishing to 'tighten' their approach towards agentic coupling may encounter resistance, resulting in a 'tail' of low congruence (see 6.2 for development).

A prima facie comparison between Parkway and Towerville illustrates this. Parkway's high mean factor scores indicate democratic strategies are building momentum. Low congruence was noted, indicating pockets of resistance. High mean perception scores were considered >3, indicating most participants selected either agree (3) or strongly agree (4) on the Likert scale for that factor. High congruence scores were considered

<1.5, indicating the absence of outliers. I infer that teachers positively perceive factors appearing in this top left-hand of the scatter graphs, in the Professional Development Acceptance Zone (PDAZ), indicated by the red box (see table 11 and explanation in 5.6.1). Parkway's PDAZ included six factors, compared with 20 at Towerville (see table 24 for a side-by-side comparison).
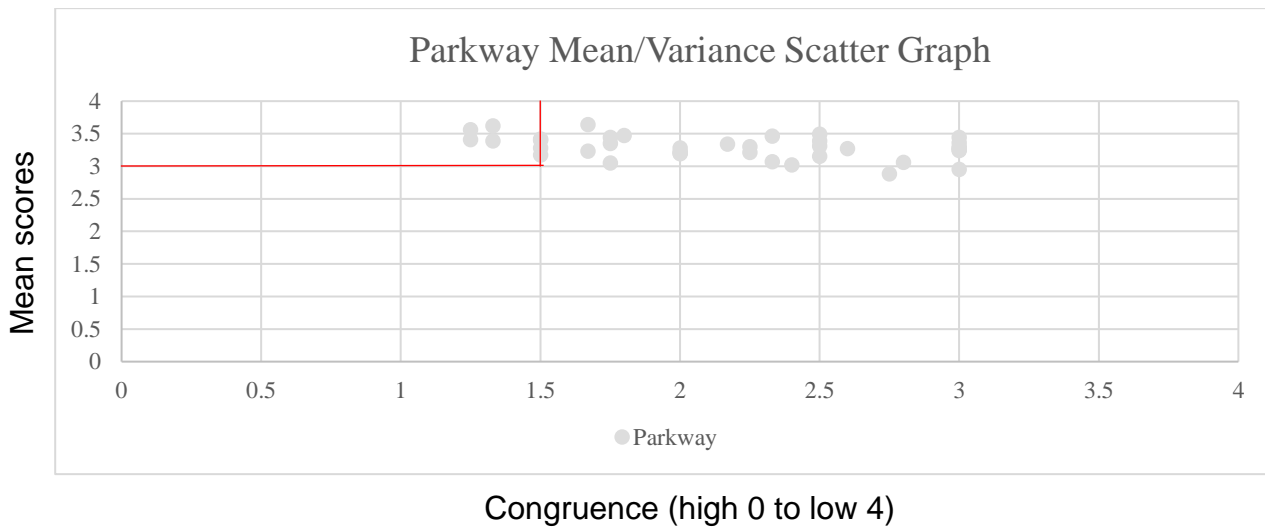
Figure 9: Parkway's mean vs variance scatter graph (n56 participants)

Contrastingly, Towerville's PD arrangements were highly structured. Leaders' intention for democratic, agentic coupling, as opposed to tight managerial, was indicated by systematic collegial reflexivity (PD2). This included mandatory coaching and working parties whose recommendations informed school policy, as explained in this comment:

"[…] by the time we say, actually this is an amendment to school policy... and I think there was a period where policy became a bit of a dirty word, but actually, codification doesn't need to be constraining, and especially when

there is co-construction, especially when there's a balance between how much is policy and how much is just kind of best practice. You know, that's really contextual."

Deputy Headteacher, Towerville

This comment indicates that leaders at Towerville have implemented PD2 systems enabling teachers to pilot and contextualise PD1 before recommending strategies for codification into school policy. The PDAZ is more densely populated indicating consistently high perspectives of these factors from which democratic professional identities can be inferred.
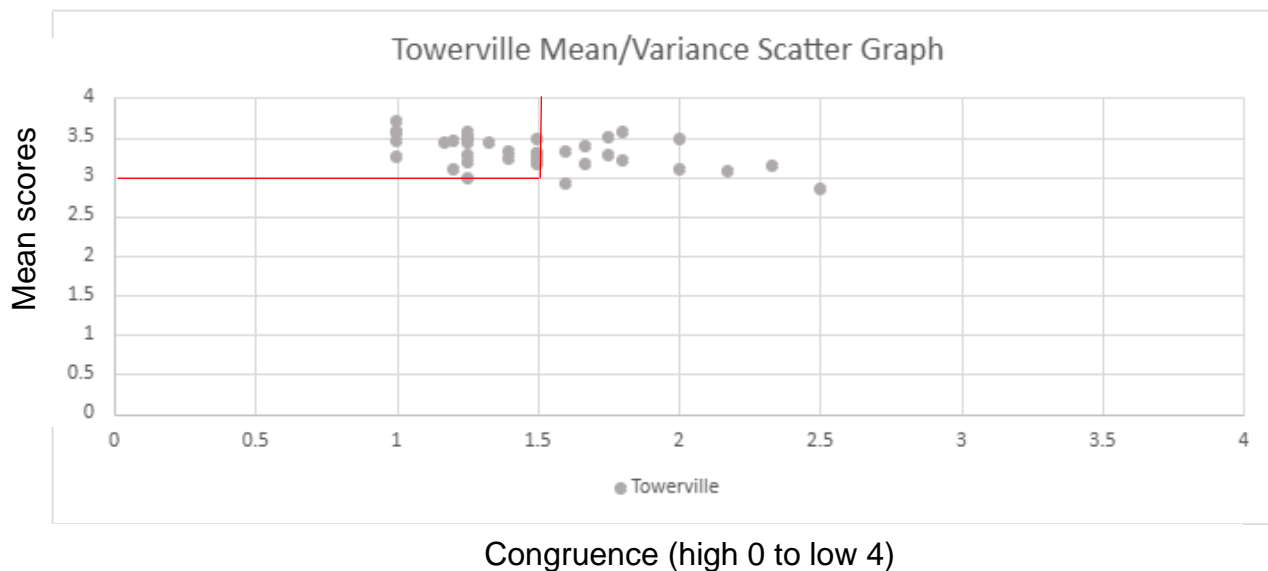
Figure 10: Towerville's mean vs variance scatter graph (n20 participants)

Factor ID	Name	Towerville	Parkway
A1	Proactive Agency	🟩	
A2	Authentic Agency	🟩	
A5	Reflexive agency	🟩	
E1	Individual extended efficacy	🟩	
E2	Open-minded efficacy	🟩	
E4	Motivated optimism	🟩	🟩
E5	Inspirational efficacy	🟩	🟩
E6	Skilled adaptor	🟩	
C1	Activist Collegiality	🟩	
C2	Edumenism	🟩	🟩
T1	Contextual sensitivity	🟩	
T2	Bold innovation	🟩	
T3	Open optimism	🟩	🟩
Res2	Bespoke resilience	🟩	
RR2	Professional praxis	🟩	🟩
RR3	Systematic reflexivity	🟩	
RR4	Reciprocal reflexivity	🟩	
PA1	Efficient autonomy	🟩	🟩
PA2	Congruent autonomy	🟩	
PA3	Empowered autonomy	🟩	

Table 24: A side-by-side comparison of factors in the PDAZ at Parkway and Towerville

(Green indicates inclusion in the PDAZ)

Note, absence of factors from the PDAZ does not indicate their absence from the school, rather absence from the PDAZ indicates lower factor congruence. High mean scores with low congruity may indicate the presence of individuals experiencing low organisational match quality (6.1.7). Because the survey design leans towards the values of the democratic professional paradigm (chapter 4), high mean scores indicate a prevailing democratic organisational culture. The absence of a factor from the PDAZ suggests the presence of teachers aligned to traditional and/or managerial paradigms. The longer list of factors in the PDAZ at Towerville indicates a meso-system in which capacity for PL is developed. This correlates to the presence of mandatory PD2 activities (discussion in 6.1.4). Where PL is supported by PD2 structures, a culture may be conceptualised as 'tightly democratic' because the conditions associated with democratic professional flourishing are deliberately curated (further discussion in 6.2.3). Small sample size and intervention maturity may amplify this pattern. These inferences are lightly made, and worthy of future research.

6.2 RQ2 What are teachers' and school leaders' perspectives and experiences of the conditions associated with teacher Professional Learning (PL)?

Structure and protocols are needed for groups to work productively together, both promoting individual and group learning (Crome, 2023), and this was reflected in the data. Teachers in all schools appear to value opportunities to collaborate productively, understand their place in the system and make efficient use of their time for the best possible outcomes.

		Survey mean scores				
ID	Factor	Hilltop	Baron	Cromarty	Towerville	Parkway
A4	Collaborative agency	3.31	3.13	3.30	3.33	3.24
C4	Collegial hierarchy	3.35	3.15	3.30	3.33	3.38
PA1	Efficient autonomy	3.41	3.06	3.29	3.25	3.46

Table 25: Mean scoring factors indicating strengths for PD engagement

Structural barriers inhibiting PL were ubiquitous, always appearing amongst the ten lowest scoring factors. As noted above, work-life balance is a wicked problem. Growing teacher demands for flexibility, including part-time working patterns, are challenging for poorly resourced and economically restricted schools. Weak E7: Invested belonging (6.1.7) is often associated with weak L3: Collaborative research, highlighting the importance of logistical support for PD2.

		Survey mean scores				
ID	Factor	Hilltop	Baron	Cromarty	Towerville	Parkway
L3	Collaborative research	2.31	2.63	2.84	3.17	3.07

Table 26: Mean scoring factors indicating challengers for PD engagement

Here, I present my analysis of school leaders' and teachers' qualitative comments relating to teacher preferences concerning PD. Leaders had more input here, having been asked

directly during qualitative interviews, however, I also included teachers' qualitative comments in my analysis.

Workload emerged as a key issue for leaders, influencing PD planning decisions. Structure was imposed to varying degrees to promote teacher engagement. Depending on leaders' beliefs and assumptions about teacher professionalism and autonomy, and school priorities, the signposting of PD1 strategies and knowledge were held as efficacious. A tentative typology emerged from the cross-case analysis:

1. Loose democratic
2. Moderate/inconsistent democratic
3. Tight democratic (distinct from tight managerial, 2.4.3)

The following accounts are drawn from multiple schools, conflating elements of similarity for heuristic effect. I have visualised each cyclically for clarity, however these are an over-simplification. Real-world situations are dynamic and complex. Schools and the people within them are subject to myriad pressures and demands and must be reactive as well as strategic in their PD provision. All plans and actions in social systems are subject to unintended consequences. Thus, I do not suggest that such characterisations are predictable, directly cyclic or linear. Indeed, they are likely to be temporary and conflated within organisations, and different individuals may find that different patterns resonate under different circumstances within different departments and at the whole-school level. Rather, I aim to 'sketch' dynamics within school PD provision which are recognisable to

teachers and leaders in the spirit that they might prompt reflexivity to disrupt unconscious and unwanted patterns of behaviour in their schools.

6.2.1 Loose democratic
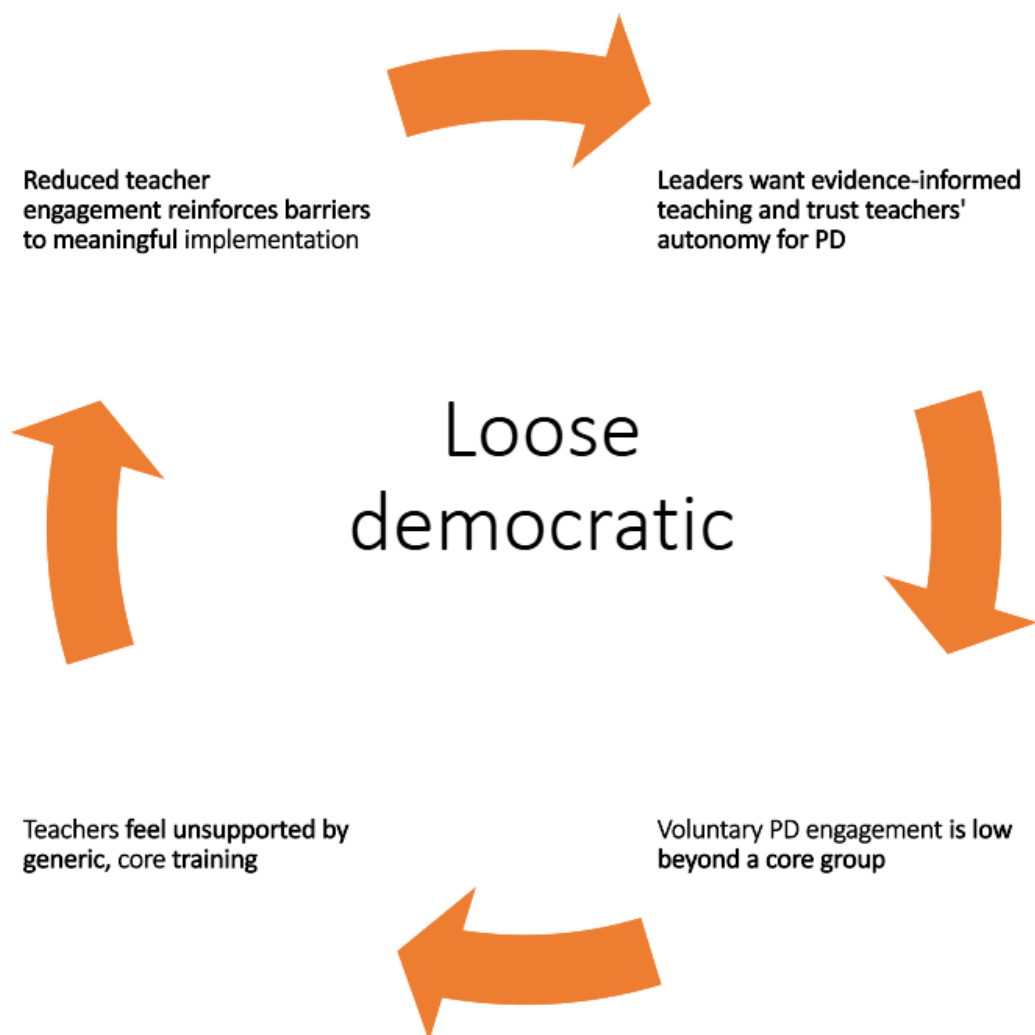
Figure 11: Loose democratic

In systems characterised by loose democratic PD provision, leaders want evidence informed teaching and learning, but workload concerns prevent tight PD arrangements.

Low teacher engagement with voluntary PD is a persistent frustration. Two consequences are associated with loose arrangements. Firstly, PD1 is often transmissive, and experienced by some teachers as a de-facto deficit model (Kennedy, 2014). Lacking PD2 contextualisation, teachers experience PD as infantilising, generic or irrelevant. Secondly, despite leaders' explicit intentions to trust teachers' autonomy according to their professional judgement, the laissez faire approach to PD implementation contributes to tacit sub-cultural counter-narratives. For instance, teachers are trusted and left to get on with the job (which some want, see 6.1.3), but the absence of micro-affirmations demotivates others (Taylor, 2021). Teachers experience frustration if their experience or qualifications are overlooked, diminishing feelings of belonging. Further, concern over teacher practices is communicated only after student or parental complaints or falling results. Commenting on responses to occasional teachers' negative reactions to whole school CPD, one leader pragmatically accepted that some teachers would not wish to change their practices. Low-level teacher disengagement with PD was tolerated, unless other concerns arose with their practice or results. Conversations of that nature were delegated to line managers using the school's annual performance review procedures:

"[Negativity about PD would only be a problem] if what was going on in the classroom was concerning. You can't... [force them to engage with PD]. Ultimately, we want the drive for CPD and professional learning to come from the staff member themselves… [We would use] the appraisal

process and a conversation with the line manager who can talk openly about CPD, I think."

Deputy Headteacher, Hilltop

Evidently routine appraisal and target setting is risks becoming conflated with corrective leader interventions. This approach may risk undermining teachers' trust of line managers because some teachers may experience intervention as corrective, not developmental. Loose coupling arrangements are associated with minimal managerial intervention, meaning that teachers may not expect intervention from their line manager when things were going well. Thus, when challenged following a crisis, teachers may feel their practice is 'suddenly' problematic after being 'fine' for many years. Loose democratic coupling rests on assumptions that PL will occur naturally under radically autonomous conditions following PD1 delivery, but this laissez-faire approach has unintended consequences. 'Ruinous empathy' in leader/teacher interactions allowed under-performance to 'drift' unless a crisis occurred (Scott, 2017), undermining teachers' trust in leaders, constituting a PL barrier (Schein, 2017). In my role as union representative and insider researcher, I have noticed this dynamic. Interviewing teachers subject to these processes was beyond the scope of this study and inappropriate, but I am party to this contextual information. The dynamics and use of informal capability plans is worthy of future research.

Poor communication about PD exacerbated teachers' frustrations, tacitly implying its low priority. PD content agendas were rarely published, causing confusion. If sessions were

cancelled (sometimes at short notice), time was released for mandatory online training, serving dual purposes of training and compliance monitoring. Online training was physically isolating and annoyed those who had arranged childcare for asynchronous tasks.

6.2.2 Emerging/inconsistent democratic

Reduced teacher engagement reinforces creates barriers to meaningful implementation

Highly evidence-informed leaders may drive PD efforts

Emerging or inconsistent democratic

Teacher resistance and apathy, especially in historically loose meso-contexts, often block reform

Other barriers, e.g., student behaviour, inhibit PD implementation

Leaders' attempts can overwhelm teachers or be ignored

Figure 12: Emerging/inconsistent democratic

Emerging or inconsistent patterns of PD provision are associated with highly evidence informed and research engaged leaders. Leaders' formal qualifications (such as an NPQ or a Master's degree) may provide a springboard for PD revival efforts. Teacher resistance and apathy can become barriers to reform. Although leaders' attempts to implement evidence-informed strategies may be coherent, they may be inhibited by logistical challenges and/or historic loose meso-contexts. Here, Baron's leader challenged the stereotype of disengaged experienced teachers having experienced significant resistance to structured PD interventions from ECTs after covid, which halted most PD activities:

"We have a slightly higher proportion of UPS3 teachers, but we're pretty evenly spread […] There was a cluster of ECTs who had only been here at a time when there wasn't effective CPD [during Covid]. So, we had some resistance to [our new CPD] because they had never had experience of professional development, and I saw, broadly speaking a greater degree of acceptance and enjoyment from [experienced] colleagues who have worked in other schools. So, there wasn't the traditional curmudgeonly stereotype."

Deputy Headteacher, Baron

This was an interesting reflection because it points to the importance of routines, structure and expectations around PD arrangements in schools; socialisation into what is expected

or normalised in a school seem to play a role in teachers' attitudes towards and willingness to engage with PD. This supports Giddens' (1984) view that structuration facilitates reflection and change.

Depending on leaders' status and influence they may feel empowered, or perhaps overwhelmed. For the middle leader at Cromarty, their Master's degree had caused them to reflect on the complexity of developing PL-supportive conditions. They were moving from unconscious to conscious awareness of organisational change dynamics, and the limits of their, and their colleagues' understanding (Kruger and Dunning, 1999):

> "Some people are starting where I'm starting and there are some people who are starting 1,000,000 miles away and I don't necessarily want to bring them towards me, but I think they need to understand what we mean by professional learning and then look at the evidence […] what research shows us leads to better outcomes."
>
> Middle leader, Cromarty

Such awareness and reflexivity are an important aspect in leaders' development of their ability to affect and sustain the changes they seek (Earley and Bubb, 2023). Without this kind of self-awareness and introspection, leaders' fervour may 'shock' and overwhelm teachers into inaction and resistance, or their efforts may simply be ignored, leaving leaders disempowered and frustrated (Schein, 2017). Application barriers to teacher PL,

such as poor student behaviour further inhibits teachers' PD engagement (McChesney and Aldridge, 2019b).

6.2.3 Tight democratic
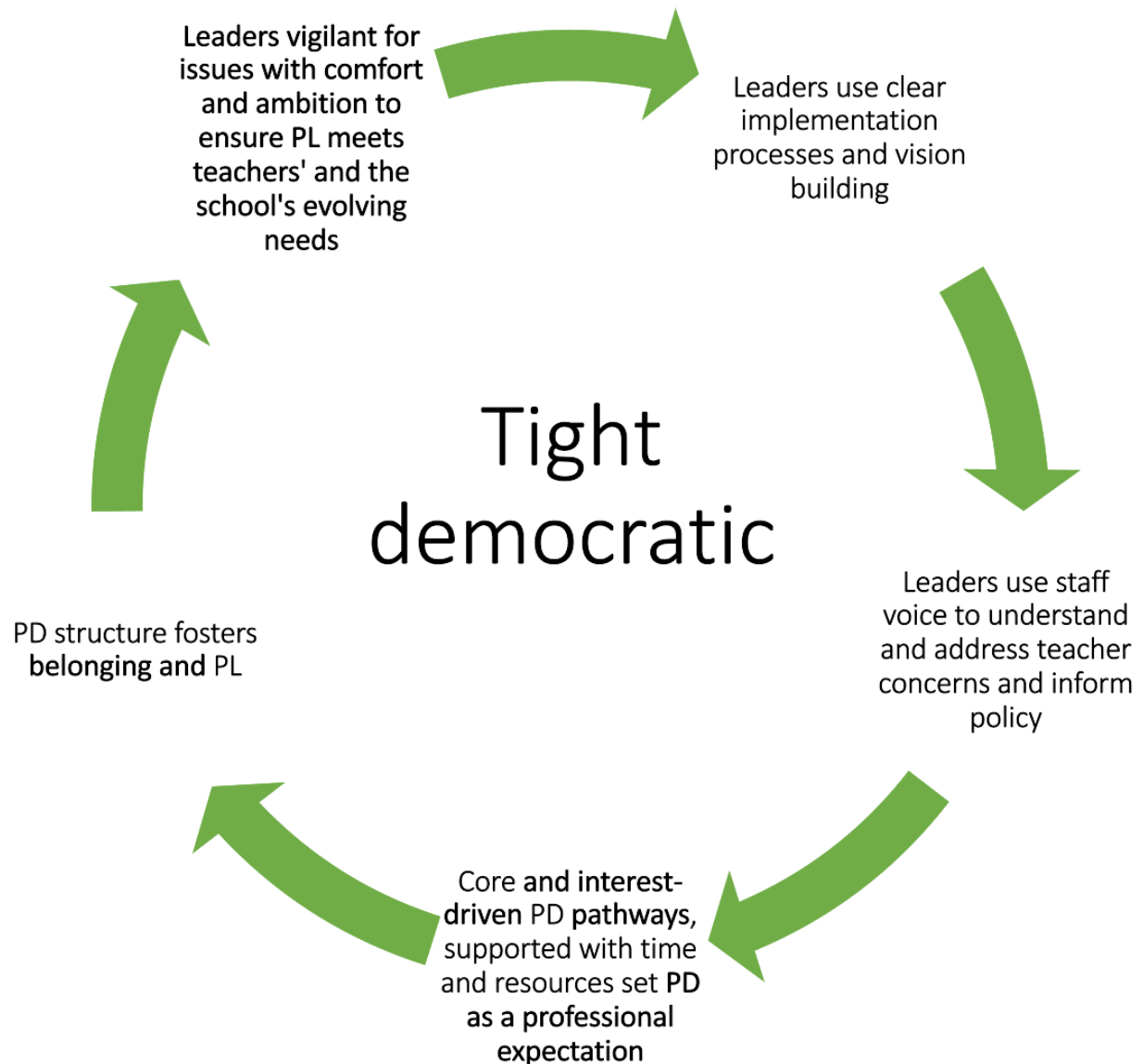
Figure 12: Tight democratic

Embedding a democratic, evidence informed school PD culture takes time and effort to establish. This results in a 'tail' of incongruent teacher perspectives during implementation. Leaders mitigate this by communicating a clear vision in which research informed PD engagement constitutes a professional expectation. Tight democratic differs from tight managerial because of the explicit collegial exploration of pedagogical strategies and contextualisation, as opposed to managerial diktats. In the following comment. Towerville's deputy headteacher describes the process of taking an intervention from research-evidence to policy through a process of deliberate school-based action research and contextualisation. Here, having identified a promising teaching and learning strategy, teachers are given time to explore and contextualise those strategies in their departments. Following this co-creative process, adaptations to the strategy were integrated into the school's teaching and learning policy:

"[…]100% [teacher] autonomy with no teaching and learning policy [and] no understanding of best bets wouldn't be right. So when the things have been hit upon through teaching and learning teams become policy, our staff are already aware of it and lots of the staff are doing it already and it's already been talked about in collaborative planning time and therefore it's not a surprise... we have buy in because people know they've been part of, or have the opportunity to be part of a consultation process. […] we [start from] a credible [research-informed] source [which] sits alongside trials from our school, in our classrooms, in our context, with our staff, our students, our subjects. and I think that's really important."

Deputy Headteacher, Towerville

Thus, staff input plays an integral role in policy development, supporting the acceptance and sustainability of interventions.

In tightly democratic school contexts, core and interest-driven pathways are provided, but all must engage with something. Coaching is mandatory. To use Stenhouse's (1991) analogy, teachers may choose what moves to make on the chess board, but everyone is expected to play. My data suggests that the tight democratic pattern is associated with the highest quantitative mean survey scores associated with high congruence (6.1.7). This indicates a correlation between teacher openness to PL and tightly curated democratic conditions (mandatory or at least high voluntary engagement with PD2), implemented at a manageable pace over time. Organisational belonging and pride (understanding universal acceptance is an impossible ideal) is also indicated. Leaders should remain mindful of problems of comfort and ambition (6.1.5).

7. Conclusions

The divergence of usages of the vocabulary that describe organisational cultural dimensions associated with teacher PL in literature and in lay conversations can lead to miscommunication and confusion (Taylor, 2023). Instability of the phenomena being studied (organisational cultural ecologies), and the divergent descriptive language require secure analytical and methodological foundations to support meaningful research output. Such grounding helps avoid distracting and unproductive debates (Chatman and O'Reilly, 2015). My analytical framework is offered as an aid to further academic exploration, providing a useful lens through which the cultural dimensions relevant to PL can be described and discussed.

My survey instrument constitutes 'proof of concept' of my analytical framework's utility. My analysis of the data captured using this survey indicates teachers' research interest and engagement, and their desire to innovate to mitigate workload. This is supported by the high mean and congruence results for these factors across all schools in my study:

ID	Factor Name	Short description
C2	Edumenism	Deliberate efforts to review evidence-informed practices systematically and open-mindedly, identify active ingredients and surface the 'best bets' (even if contrary to own preferences). De-implementation features as well as implementation
T3	Open optimism	Resilient, not cynical or burnt out
PA1	Efficient autonomy	Teachers feel able to work in ways that work smarter, not harder, and resent having their time wasted

Table 27: Factors with high mean/congruence scores across all schools

My data analysis suggests teachers' open-mindedness to learning (6.1.3), indicating that teachers' PL *capacity* poses a greater threat to PL than their disengagement or rejection of PD *content*. My analysis suggests relationships between PD2 structures, which support contextualisation, co-construction and meaning making of interventions, and teacher PL. Deliberate planning to incorporate PD2 allows provisional 'best bets' to become espoused values and embedded practices, and guards against practice dogmatism. Structuration theory (Giddens, 1984) and lessons from the business world (Schein, 2017) support the importance of such collegial learning opportunities as well as providing, through structuration processes, a mechanistic explanation of how theory can be used to steer and curate changes in practice.

Democratic professionalism promotes the development of teachers' expertise in what demonstrably works whilst simultaneously striving for improvement through innovation. These dynamics are represented in my theorisation of tight democratic structures, which

I found to be associated with a high number of factors in the Professional Development Acceptance Zone (PDAZ), where high mean survey scores and congruence converge, and which I have taken as a proxy indication of teachers' PL openness and capacity to engage with PD.

The utility of PD2 acknowledges the phenomena of unforeseen consequences (Giddens, 1984). Every school necessarily engages a unique group of individuals. Participants engaging with the survey do so uniquely in their contexts and, having engaged with it, will, through their consequent actions (intended and otherwise), influence their cultures. PD2 activities facilitate sense-making of artefacts, steering cultural change by providing opportunities for co-creation and, thus, a degree of community curation. My data analysis suggests that the time required to nurture such change is often lacking, seen as workload, an imposition and/or an unreasonable investment of time and resources. This can result in a 'tail' of teacher negative perceptions of the PL-supportive dimensions of the school's culture. Assumptions about teachers' professional behaviour relating to voluntary PD engagement means some leaders by-pass robust implementation strategies, only to become frustrated when change is slow, or stalls entirely.

The addition of PD2 into strategic planning represents one implementation mechanism through which leaders might begin to repair the PL pipeline. After all, if the pipeline is dysfunctional, research evidence concerning pedagogical content knowledge will yield patchy benefits, at best. PD2 requires systematic organisational protocols for collective

sense-making. Without direction and curation, there is significant potential for unforeseen consequences, and outcomes may be disparate, incoherent, and contradictory.

I conclude, firstly, that the efficacy of deliberate and logistically supported PD2 correlates with elevated and shared teacher perspectives of the cultural dimensions associated with PL. Secondly, my survey goes further in breadth and depth than other instruments in previous academic literature. I offer 'proof of concept' of this, and suggest that, if used as part of implementation processes (Schein, 2017; Sharples et al., 2024) my survey can be used to elicit teachers' perceptions of their PL capacities. This data can be synthesised into rich, evidence-informed artefacts for PD2 evaluation and inform reflexivity as leaders plan PD provision and the associated supportive structures. Thirdly, in my characterisations of loose, emerging/inconsistent and tight democratic PD arrangements, I offer theorisation which suggests the efficacy of deliberate PD2 structures in leaders' curation of school cultures, which can be used to steer evolution through structuration processes.

7.1 Contribution and impact

My contribution to knowledge and practice comprises:

1. A nuanced 'translation' of theoretical perspectives analyzed and synthesized to render it accessible to teachers 'on the ground'.

2. A practical tool to elicit teachers' perspectives of the cultural dimensions associated with PL in a context.

3. Theoretical underpinning to support planning, implementation and review harnessing structuration processes.

At the time of writing, my work has had several impacts. Given my emotional, problem focused (see Reflective Statement) starting point, undertaking this study has enabled me to develop greater 'objectivity' on the issues. This enables me to engage with these matters with an increasingly mature perspective underpinned by appreciation of paradigmatic context and methodological literacy, as well as a deep appreciation of developments in theorisation and empirical research in the field. My findings have given me cause for optimism that theories of organizational culture and implementation can promote and embed democratic professionalism in schools. These dual areas of personal and professional growth provide focus for the third strand of the impact of my work: my activist identity. I was pleased to see this acknowledgement in the editorial of the Chartered College of Teaching's *Impact* magazine in reference to my most recent publication (Taylor, 2025):

"Her perspective troubles the traditional hierarchical structures within education and advocates for a more collaborative and participatory approach to professional practice." (Lee, 2025)

Whilst I remain frustrated that some of the concepts I 'trouble' are over two decades old, I feel optimistic that these issues are becoming embedded in the professional as well as the academic discourse.

7.2 Limitations

Whilst it is true that meaning can be gleaned from small data sets (Howitt and Cramer, 2017; Richards, 2015), transparency in methodological limitations adds to, rather than detracts from, their credibility. I acknowledge, therefore, that, whilst my EFA processes drew upon established procedures (see 3.5), the sample size of 10 in the initial process cannot constitute a sufficient sample for a 'true' EFA process, in the fullest statistical sense. Instead, I utilised these techniques to create a basis for a CVI process, which was subsequently peer assessed. The EFA process insofar as I was able to utilise it, served to mitigate my potential biases in developing the factors, but does not constitute a robust statistical basis for the factors' conceptualisation. A significantly larger dataset would be required to meet the statistical conventions necessary to make any stronger claim. Given the small-scale nature of the study and the limited access to and dependency on the good will of participants in the earliest developmental stages, a larger dataset was impossible.

Future studies might revisit the early formulation of the survey instrument and capture a larger dataset or apply a CFA process to data captured on a larger scale using the most recent iteration. Work at such scale is beyond the scope of a single student researcher and would require time and perhaps user incentives (such as a gift voucher) to attract

participants to undertake the user-unfriendly early iteration. These steps would be difficult without funding. Replication studies using larger datasets and re-examination using EFA or, later CFA would strengthen the validity of my instrument.

7.3 Next steps

I make several suggestions above for further research development; my rich dataset contains myriad avenues for further exploration. These include:

- Career pathways – promotion of ambitious individuals and flexibility of working patterns
- The role of 'disrupters' and grass-roots innovation in school cultures
- Teachers' experiences of support working in differently coupled school cultures
- Instrument development to understand the role of teacher professional identities and PD/PL
- Implementation processes and practices in schools
- Exploration of the significance of factors' 'groupings' in the PDAZ (e.g., L3 + C1 +C2 + RR2, which seem to share common themes and complement each other)

Survey items should remain responsive to developments and theorisation in the field to maintain utility and relevance. Larger datasets are advantageous, as are replication studies. Longitudinal studies would also be revelatory in gaining insights over time. Further instrument development to capture career trajectories to differentiate between

teachers' ideals and lived experiences would also be interesting. I welcome opportunities to develop this research further.

References

This reference list is organised into two sections distinguishing the literature underpinning this study from the methodological processes undertaken for my phenomenographic analysis (3.4). Items used in both sections appear only in the general list.

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Appendices

Appendix 1: Ecological representations of teacher professional identity formation
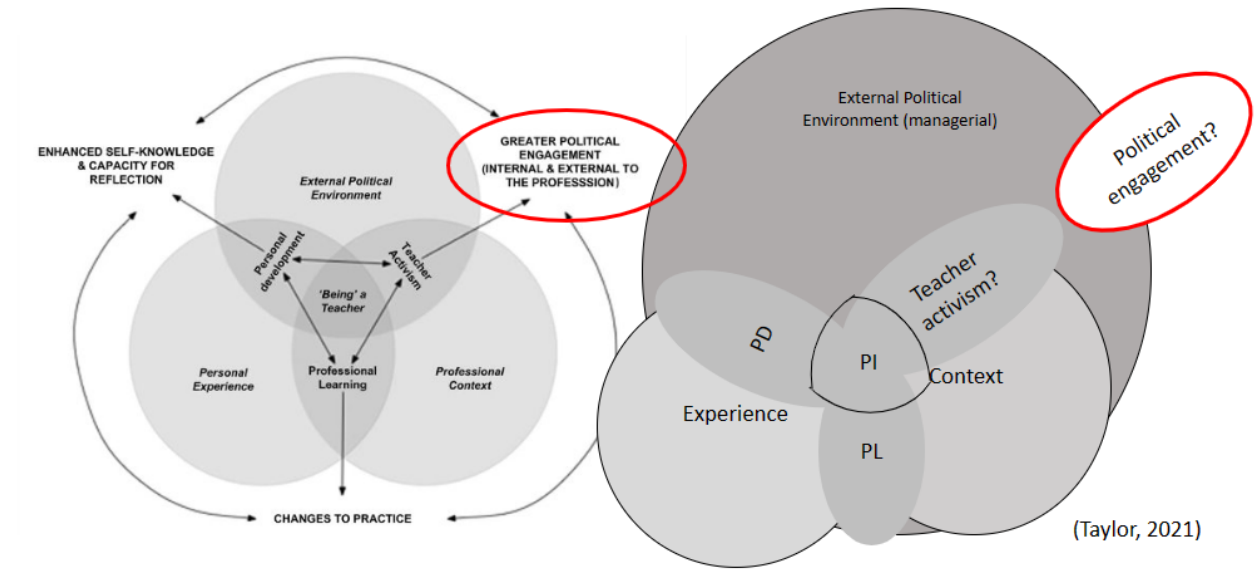
Figure 14: Ecological representations of teacher professional identity formation

Appendix 2: Phase A factor analysis tables with Cronbach's alpha results

2.1 Agency

Factor 1: Proactive deliberate reflective practice

Cronbach's alpha = 0.908

2.5 Reflection and refinement of my practice are a source of professional learning for me	0.950
2.7 I strive to reflect upon and refine my practice	0.950
*2.32 The way things are going in education are diverging from my ideals of how professional practice should be	0.870
2.1 My practice is as creative as it can be in the context of local and national policy demands	0.676
2.17 I am effective in my role	0.655
2.4 I can act in a way that makes a difference in my context and beyond	0.600
2.22 I do what I am allowed to do in my practice	0.509

Table 28

Factor 2: Authentic intrinsically motivated practice

Cronbach's alpha = 0.896

2.30 I get things done	0.955
2.9 I outwardly act like the teacher I am inside	0.857
2.8 I act to realise my moral purpose	0.834
2.29 I have the confidence to be authentic and vulnerable in my practice	0.788

2.18 I have a social conscience and try to promote wellbeing	0.603
2.3 I can act strategically using my professional judgement in my context	0.601
2.14 I have clear ideas of how my life bought me to this point, and what I intend to do in the future	0.558

Table 29

Factor 3: Adaptive problem-solving practice

Cronbach's alpha = 0.852

2.24 I act assertively when I need to	0.919
2.25 I approach problems creatively to seek solutions	0.905
2.23 I respond intuitively to students and cope skilfully with unexpected situations	0.801
2.28 My practice is adaptable and evolving	0.733
2.31 Sometimes new initiatives align with my own views of how teacher practice should develop	0.668
2.27 I act autonomously and with professional freedom	0.527

Table 30

Factor 4: Collaborative practitioners

Cronbach's alpha = 0.871

2.13 I am confident, competent, and like to collaborate	0.915
2.19 The respect of my colleagues is important to me	0.879

*2.15 I can resist new fads	0.814

Table 31

Factor 5: Responsive autonomous practice

Cronbach's alpha = 0.858

2.21 I think you can have too many new fads and we should stick with what works	0.925
*2.16 I enjoy innovating in my practice	0.884
2.10 I notice and respond to student needs that other people don't seem to notice	0.704
*2.2 I rely on structures, resources, and other people to teach in the way I want	0.524

Table 32

Factor 6: Reflexive agentic practice

Cronbach's alpha = 0.709

2.11 My experience has made me the teacher I am today, and I am still developing into my best professional self	0.771
2.12 I can be the professional I am because of my context	0.770
2.26 I notice when something isn't working, and I need to up-skill and update my practice	0.624

2.20 I am becoming more skilled in adapting my practice in response to emerging student needs during lessons	0.595

Table 33

Factor 7: Sceptical practitioner

No Cronbach's calculated

2.6 New strategies make sense to me once I have tried them out and reflected on them	0.938

Table 34

2.2 Efficacy

Factor 1: Vocational extended professional

Cronbach's alpha: 0.928

5.22 I am working towards the kind of professional I want to become	0.914
5.25 My career development pathway is clear to me	0.844
5.13 I am in control of my emotions	0.821
5.23 As a workforce, we can make a real difference	0.808
5.7 I feel like what I do makes a wider contribution	0.728
5.10 I feel professionally validated	0.689
5.4 I look forward to professional development	0.653
5.14 The quality of my induction to my role has made a difference to how effective I am in my practice	0.570

5.8 I feel empowered by my team of colleagues	0.554

Table 35

Factor 2: Confident, open-minded practitioner

Cronbach's alpha: 0.824

5.1 I am the kind of person who makes a difference	0.933
5.2 I believe that I am effective in my role	0.874
5.40 I feel open to new ideas	0.666
5.42 I know what I'm doing	0.626
*5.43 I am happy to put the effort into things that get results, but it's got to be a good pay off	0.614
*5.30 My early career was a 'baptism of fire', but I am starting to thrive now	0.597

Table 36

Factor 3: Identity-driven 'political' practitioner

Cronbach's alpha: 0.870

5.44 I feel responsible for providing students with values as part of their education	0.918
5.35 I have learnt a lot from inspirational people	0.835
5.34 I am the teacher I am because of who I am (protected characteristics e.g., gender, race, disability, religion etc.)	0.803
5.37 I think about the 'bigger picture'	0.764
*5.19 My ideas about effective practice have changed over time	0.708
5.46 I benefit from opportunities to develop and extend my skills in my context	0.607

Table 37

Factor 4: Motivated optimistic outlook

Cronbach's alpha: 0.892

5.45 I can overcome barriers to my professionalism caused by difficult colleagues	0.889
*5.38 I can choose when I work	0.876
5.3 I am motivated and committed in my role	0.726
5.12 I feel motivated	0.710
5.9 I feel that people value the work that I do	0.638

Table 38

Factor 5 Inspirational, knowledgeable practitioner

Cronbach's alpha: 0.819

5.20 My familiarity with my school, subject knowledge and my classes mean I am confident to change my approach during lessons if I need to	0.978
5.16 I feel that I am doing a good job when I am meeting student's needs	0.761
5.32 I am knowledgeable in my subject area and feel I deliver my lessons well	0.732
5.33 There are times that I think that a lesson has gone really, really well and I think 'I've cracked it!'	0.631
5.31 I think I am an inspiration to my students	0.569

Table 39

Factor 6: Skilled adaptive practitioner

Cronbach's alpha: 0.852

*5.41 New ideas won't change the way I teach	0.941
5.15 I think about whether I am doing a good job or not	0.784
5.21 I go the extra mile	0.750
5.11 I feel confident and confident in a range of strategies in my practice	0.673
5.5 I like to learn and develop my practice	0.500

Table 40

Factor 7: Collective practitioner

Cronbach's alpha: 0.935

*5.39 I am solely responsible for my student's results	0.787
5.29 I feel consulted and involved when major decisions are taken	0.780
5.17 I agree with most directives my school give me about how to deliver lessons	0.763
5.36 I am in the right place, at the right time, with the right people, to become my best professional self	0.720
5.28 My workload is manageable	0.594

Table 41

Factor 8: Extrinsically enabled practitioner

Cronbach's alpha: 0.831

5.6 When everything I need is in place, I can do my best work	0.888
*5.24 There are very few organisational limits or directives dictating how I need to conduct my lessons	0.764
5.18 My best practice happens when students are open to learning	0.741
*5.26 There is no feeling of 'the way we do things around here' that I am bound by	0.724

Table 42

2.3 Logistics

Factor 1: Work-life and professionalism

Cronbach's alpha: 0.872

8.14 Teaching fits in with my family life	0.931
8.11 Time is made available for debriefing and reflection after implementation of new initiatives	0.921
8.2 My school is set up to enable time meetings and we all know how to make the most of collaboration opportunities	0.921
8.3 Time is identified and protected for professional development	0.829
8.9 Professional development is built into (not on top of) my regular working hours	0.803

Table 43

Factor 2: Deliberate collaboration spaces

Cronbach's alpha: 0.739

8.1 I struggle to find time when my colleagues are available to meet	0.987
8.4 I have the rooming and resources I need	0.931
8.13 I have opportunities for flexible working	0.812

Table 44

Factor 3: Deliberate research activities

Cronbach's alpha: 0.822

8.6 I feel a sense of belonging in my organisation	0.952
8.5 I understand and agree with the organisation's vision and values	0.829

8.12 I am happy with the boundaries between work and my personal life	0.662
8.10 It is easy to arrange meetings during the working day	0.588

Table 45

Factor 4: Practically supported development

Cronbach's alpha: 0.970

8.8 I have sufficient administrative support	0.968
8.7 I feel supported with everything I need to implement initiatives	0.857

Table 46

2.4 Collegiality

Factor 1: Common professional purpose and support

Cronbach's alpha: 0.959 (after re-calc checking)

11.34 There are shared 'norms' and patterns of behaviour in our community	0.975
11.25 We stick together and back one another up	0.975
11.33 I feel motivated because of interactions with my colleagues	0.975
11.32 My colleagues offer emotional support	0.948
11.31 My colleagues offer practical support	0.943
11.39 I undertake moderation of student work with colleagues	0.885
11.2 We all learn together	0.828
11.7 I benefit from being a mentor to others	0.803

11.45 We are all works in progress and need to stay open to robust yet kind professional conversations	0.793
11.38 My colleagues and I split the workload to get things done and borrow and exchange ideas	0.776
11.18 My colleagues are very like me and I fit in well	0.766
11.4 My colleagues and I discuss and deliberate together	0.691
11.20 I take my cues from observing colleagues to help me fit in	0.682
11.1 My colleagues validate my feelings	0.664
11.15 Observing colleagues reassures me that good enough is good enough	0.662
11.19 I compare myself against colleagues	0.540

Table 47

Factor 2: Intrinsic activist democratic identity

Cronbach's alpha: 0.964 after re-calc checking

11.42 I like it when teams form for a project and then move on to new teams and new projects (agile working)	0.974
11.10 Together, we can drive change	0.953
11.23 Social interactions with colleagues is important to me	0.924
11.29 I benefit from working in large teams	0.899
11.21 Interactions with colleagues has made me the teacher I am today	0.883
11.40 I have a good dialogue with school leaders	0.867

11.12 I develop leadership skills (facilitation and delegation) through my interactions with colleagues	0.801
11.43 I feel respected by colleagues at all levels	0.784
11.11 Coaching and professional conversations really help me develop as a professional	0.774
11.13 Professional conversations refresh and revitalise me	0.774
11.37 My colleagues are happy	0.673
11.3 colleagues and I make sense of new initiatives and information together	0.641
11.35 I sometimes feel that my voice is not heard	0.610
11.9 I have positive relationships with my colleagues	0.568

Table 48

Factor 3: Informal collegial interactions

Cronbach's alpha: 0.877

11.36 Informal conversations are very important to me	0.955
11.27 I notice non-verbal cues in my interactions with colleagues	0.784
11.14 I don't learn anything new from observing colleagues	0.740
11.16 I benefit from collaborating with colleagues with diverse experience	0.740
11.24 My colleagues and I share jokes together	0.713
11.17 My colleagues and I share common goals	0.656

Table 49

Factor 4 Democratic professionalism

Cronbach's alpha: 0.888

11.41 I have opportunities to discuss new initiatives and policies	0.966
11.5 Professional conversations have helped me to reimagine the kind of teacher I can be	0.924
11.8 Conversations with and observations of my colleagues are sources of learning for me	0.725
11.26 Our organisation has lots of leadership opportunities and is quite democratic	0.694

Table 50

Factor 5: Team players/chain of command

Cronbach's alpha: 0.742

11.28 I benefit from working in small teams	0.814
11.44 There's nothing wrong with a bit of healthy competition	0.779
11.6 I benefit from constructive mentoring	0.743
11.22 I know my place in the organisation	0.723

Table 51

Factor 6: Professional satisfaction

Cronbach's alpha: N/A

11.30 It feels satisfying to make something happen as a team	0.672

Table 52

2.5 Trust

Factor 1: Leaders encourage teachers and mediate policy

Cronbach's alpha = 0.963 (after re-calc)

14.15 I am supported to extend and develop my professional skills	0.968
14.31 I am left to get on with it, most of the time	0.962
14.16 In this organisation, we have each other's best interests at heart	0.899
14.17 My leaders deploy me to utilise my strengths and knowledge	0.828
14.19 The government doesn't trust teachers	0.816
*14.27 I am required to follow rigid lesson structures	0.796
14.22 My line manager knows me as a person	0.778
14.3 I trust my leaders	0.770
14.7 I am being well developed	0.733
14.32 Feedback from colleagues and leaders is important to me	0.566

Table 53

Factor 2: Organisational contextual sensitivity

Cronbach's alpha = 0.933

14.4 I feel that I am on the same pages as my colleagues	0.945
14.11 I know what is expected of me and where the 'hard lines' are	0.881
14.34 I am more resilient because of my network of colleagues	0.831
14.12 I am open minded to change if there is evidence to support it	0.816

14.13 I feel respected in the wider community	0.808
14.2 It takes time to build good working relationships within a team	0.803
14.10 I can depend on my colleagues, and they can depend on me	0.665
14.21 It is important to be sensitive to organisational context	0.504

Table 54

Factor 3: Risk-taking and experimentation in practice

Cronbach's alpha = 0.850

14.9 My qualifications give me professional authority	0.920
14.23 I have the training and skills I need to do my job	0.893
14.33 I feel confident to try new strategies in my practice	0.863
14.8 I am willing to make myself vulnerable in a professional context	0.706
14.35 I would expect my practice to evolve over time	0.610

Table 55

Factor 4: Suspicious and cynical

Cronbach's alpha = 0.892

14.14 There are cliques in my school	0.943
14.28 There is 'an agenda' and I feel I may get caught out	0.826
14.29 I feel judged in a critical and unconstructive way	0.797
*14.26 Observations are supportive and constructive	0.588

Table 56

Factor 5: Making the implicit explicit

Cronbach's alpha = 0.785

14.24 I have been asked to take on extra responsibilities	0.896
*14.18 Quite a lot of 'good practice' happens unconsciously	0.708
14.20 I am required to produce a lot of evidence to demonstrate what I do	0.685

Table 57

Factor 6: Leadership and organisational climate

Cronbach's alpha = 0.750

*14.1 Trust oils the wheels of professional conversations	0.886
14.6 Leaders create the climate in an organisation	0.726

Table 58

Factor 7: Guarded and paranoid

Cronbach's alpha = 0.563 if all items included, 0.757 if item 14.30 removed.

*14.5 My professional judgements about my practice should be respected	0.803
14.25 Some people are indiscrete and speak unkindly about colleagues	0.758
*14.30 Prior experiences have made be cautious to let my guard down in my current role	0.532

Table 59

2.6 Resilience

Factor 1: Accepting and overcoming challenges in teaching

Cronbach's alpha: 0.950

17.6 I feel motivated to carry on even when it is challenging	0.926
17.3 I can move through and beyond challenges	0.905
17.2 My working context helps me to cope	0.905
*17.15 I feel stressed and have to keep going even when I feel unwell	0.857
*17.23 I don't know what else I would do if I wasn't a teacher	0.824
*17.10 Teaching is my vocation and moral purpose	0.818
17.17 The good things outweigh the negatives	0.790
17.18 I am a teacher and professional challenges are part of the deal	0.782
17.30 The challenges are worthwhile because of the difference I can make to student's lives	0.677
17.19 I am able to smooth the bumps in the road in order to keep going	0.596
*17.26 I just put up with the challenges of the job	0.555

Table 60

Factor 2: Nurtured, supported and optimistic

Cronbach's alpha: 0.922

17.8 My colleagues and I keep each other going	0.961
17.7 My colleagues support me and help me keep going	0.909

17.31 My sense of humour and optimism keep me going	0.900
17.5 Lots of different factors enable me to cope	0.849
17.29 I feel a sense of camaraderie at work	0.837
17.12 My experience helps me feel confident in my abilities	0.689
17.11 I stay positive despite significant challenges	0.675
17.9 It is challenging to balance pressures from my work and home life	0.562

Table 61

Factor 3: Well supported high achievers

Cronbach's alpha: 0.727

17.25 I thrive on the challenges of the job	0.912
17.1 I can cope with and balance competing demands from the school	0.912
17.27 School leaders enable me to cope with challenges	0.876
17.21 I benefit from professional supervision to work through my challenging experiences at work	0.667

Table 62

Factor 4: Riding the storm

Cronbach's alpha: 0.761

*17.20 I can deal with risk	0.981
*17.4 My ability to cope changes over time	0.894
17.13 I can cope and survive at work	0.730

Table 63

Factor 5: Chalk-face

Cronbach's alpha: N/A

*17.28 Student behaviour is too challenging	0.941

Table 64

Factor 6: Healthy teachers, thriving students

Cronbach's alpha: N/A

17.22 Teachers need to be OK to enable students to thrive	0.874

Table 65

2.7 Reflection and reflexivity

Factor 1: Collegiate, practical sense-making

Cronbach's alpha: 0.908

20.1 Professional conversations are useful to me in making sense of my practice	0.946
20.20 I have opportunities to see good practice being modelled	0.844
20.22 I understand the 'big picture' vision that we are aiming for	0.837
20.21 I find professional mentoring useful	0.807
20.2 Discussing new ideas with others helps me to understand the theory behind new practices	0.779

20.11 I work hard to understand the context that I work in, and how it affects my practice	0.765
20.19 Student results drive me to make changes to my practice	0.607

Table 66

Factor 2: Reflection inherent to professionalism

Cronbach's alpha: 0.900

20.12 Being a professional means you are always learning	0.912
20.8 Reflection on my practice is a natural part of my planning	0.831
20.17 Reflection enables me to develop my knowledge and skills	0.826
20.7 I regularly reflect honestly about my practice	0.790
20.10 Systematic reflection gives me professional credibility	0.702

Table 67

Factor 3: Empirical, systematic reflective practitioner

Cronbach's alpha: 0.884

20.15 I find evaluation tools and frameworks useful when reflecting on my own practice	0.852
20.13 I am building the story of myself as a teacher	0.630
20.16 I enjoy problem solving in my context	0.614
20.4 Reflection raises my consciousness of professionalism	0.599
20.5 Professional experiences help me to learn about myself	0.599

20.6 I make changes to my practice after seeing new evidence of what works	0.599

Table 68

Factor 4: Organic, experimental reflexive practitioner

Cronbach's alpha: 0.800

*20.18 I learn a lot from the students	0.904
20.3 I make changes to my practice after CPD	0.859

Table 69

Factor 5: Tendency to reflect is a personality trait

Cronbach's alpha: N/A

20.14 I am a naturally introspective person	0.927

Table 70

Factor 6: Self-critical of own practice

Cronbach's alpha: N/A

20.9 I am my own harshest critic	0.886

Table 71

2.8 Professional autonomy

Factor 1: Modern (post 1988) Student focused professional judgement (ref parallel professionalism paper)

Cronbach's alpha: 0.830

23.7 What I say goes in my classroom	0.926
23.4 I can work around policies and directives	0.891
23.5 I can tailor my teaching to student needs when I plan	0.807
23.3 I work within national frameworks	0.632

Table 72

Factor 2: Ideal vision practitioner

Cronbach's alpha: 0.870

23.2 I can select the teaching methods that I feel most appropriate	0.891
23.1 I can teach as I see fit	0.865
23.9 I try to build a good professional reputation with my colleagues	0.850
23.13 My practice reflects my vision of what good education should be	0.546

Table 73

Factor 3: Creative, free practitioner

Cronbach's alpha: 0.767

23.6 I can tailor my teaching to emerging student needs during lessons	0.859
23.11 I try to be creative in my practice	0.785
*23.8 I get to choose what professional development I engage with	0.703

Table 74

Factor 4: Experienced practitioner (restricted professionalism if ONLY this type identified?)

Cronbach's alpha: 0.762

23.12 My practice is built upon long experience	0.954
23.10 I feel qualified to make professional decisions	0.954

Table 75

Appendix 3: Instrument reduction calculations and notes

3.1 Agency

Factor 1: Proactive deliberate reflective practice

Cronbach's alpha = 0.908 (0.926)

2.5 Reflection and refinement of my practice are a source of professional learning for me	.889	.905	.905
2.7 I strive to reflect upon and refine my practice	.889	.905	.905
*2.32 The way things are going in education are diverging from my ideals of how professional practice should be	.868	.880	.863
2.1 My practice is as creative as it can be in the context of local and national policy demands	.895	.906	.909
2.17 I am effective in my role	.903	**.920**	x
2.4 I can act in a way that makes a difference in my context and beyond	.895	.913	**.926**
2.22 I do what I am allowed to do in my practice	**.920**	x	x

Table 76

Factor 2: Authentic intrinsically motivated practice

Cronbach's alpha = 0.896 (0.914)

2.30 I get things done	.862	.877	*.885*	.913
2.9 I outwardly act like the teacher I am inside	.874	.884	*.891*	.892

2.8 I act to realise my moral purpose	.853	.889	*.914*	x
2.29 I have the confidence to be authentic and vulnerable in my practice	.867	.870	*.864*	.839
2.18 I have a social conscience and try to promote wellbeing	**.906**	x	*x*	x
2.3 I can act strategically using my professional judgement in my context	.892	.901	*.901*	.900
2.14 I have clear ideas of how my life bought me to this point, and what I intend to do in the future	.892	**.910**	*x*	x

Table 77

Factor 3: Adaptive problem-solving practice

Cronbach's alpha = 0.852 (.913)

2.24 I act assertively when I need to	.813	.827	.839	
2.25 I approach problems creatively to seek solutions	.825	.852	.897	
2.23 I respond intuitively to students and cope skilfully with unexpected situations	.809	.820	.903	
2.28 My practice is adaptable and evolving	.825	.851	.903	

2.31 Sometimes new initiatives align with my own views of how teacher practice should develop	**.878**	x	x	
2.27 I act autonomously and with professional freedom	.835	**.913**	x	

Table 78

Factor 4: Collaborative practitioners

Cronbach's alpha = 0.871 (remains)

2.13 I am confident, competent, and like to collaborate	
2.19 The respect of my colleagues is important to me	
*2.15 I can resist new fads (I welcome new initiatives)	

Table 79

*Factor 5: Responsive autonomous practice

Cronbach's alpha = 0.858 (remains – no item removal raises alpha)

To make all the higher answers show 'positive' traits, these need to all be reversed (negs returned to pos and pos turned to negs)

*2.21 I think you can have too many new fads and we should stick with what works	.847
2.16 I enjoy innovating in my practice	.818
*2.10 I notice and respond to student needs that other people don't seem to notice	.750
2.2 I rely on structures, resources, and other people to teach in the way I want	.825

Table 80

Factor 6: Reflexive agentic practice

Cronbach's alpha = 0.709 (.732 with item 2.20 removed)

2.11 My experience has made me the teacher I am today, and I am still developing into my best professional self	.524
2.12 I can be the professional I am because of my context	.653
2.26 I notice when something isn't working, and I need to up-skill and update my practice	.655
~~2.20 I am becoming more skilled in adapting my practice in response to emerging student needs during lessons~~	.732

Table 81

Factor 7: Sceptical practitioner

No Cronbach's calculated – I have tried adding questions here, but I am not sure whether this is the right approach.

2.6 New strategies make sense to me once I have tried them out and reflected on them	

Table 82

3.2 Efficacy

Factor 1: Vocational extended professional - individual (5.8 inverted to accentuate the perceived positives of individual self-development)

Cronbach's alpha: 0.928 (0.939)

5.22 I am working towards the kind of professional I want to become	.908	.911	.908	.921	.921	.923
5.25 My career development pathway is clear to me	.906	.908	.900	.908	.901	.872
5.13 I am in control of my emotions	.922	.924	.924	**.939**	x	x
5.23 As a workforce, we can make a real difference	**.930**	x	x	x	x	x
5.7 I feel like what I do makes a wider contribution	.929	.935	**.938**	x	x	x
5.10 I feel professionally validated	.918	.919	.916	.926	.930	.912
5.4 I look forward to professional development	.928	**.929**	x	x	x	x

5.14 The quality of my induction to my role has made a difference to how effective I am in my practice	.905	.905	.899	.909	.908	.908
5.8 I feel empowered in my team (**I feel driven to further my career**)	.915	.916	.917	.930	***.933***	x

Table 83

Factor 2: Confident, open-minded practitioner

Cronbach's alpha: 0.824 (0.914)

5.1 I am the kind of person who makes a difference	.794	.768	.888			
5.2 I believe that I am effective in my role	.762	.777	.855			
5.40 I feel open to new ideas	.789	.807	.861			
~~5.42 I know what I'm doing~~	.793	.824	**.914**	x		
~~*5.43 I am happy to put the effort into things that get results, but it's got to be a good pay off~~	**.845**	x	x	x		
~~*5.30 My early career was a 'baptism of fire', but I am starting to thrive now~~	.837	**.907**	x	x		

Table 84

Factor 3: Identity-driven 'political' practitioner

Cronbach's alpha: 0.870 (could only get to 0.874 with 5.19 removed – 5 items remain)

5.44 I feel responsible for providing students with values as part of their education	.831	.833	.822			
5.35 I have learnt a lot from inspirational people	.824	.823	.784			
5.34 I am the teacher I am because of who I am (protected characteristics e.g., gender, race, disability, religion etc.)	.840	.868	?			
5.37 I think about the 'bigger picture'	.845	.854	.843			
*5.19 My ideas about effective practice have changed over time	.874	x	X			
5.46 I benefit from opportunities to develop and extend my skills in my context	.864	.852	.865			

Table 85

Factor 4: Motivated optimistic outlook

Cronbach's alpha: 0.892 (0.917 – re-check with new wording because v similar: 5.3 I am committed to my role and 5.12 I feel motivated to do my best in my role)

5.45 I can overcome barriers to my professionalism caused by difficult colleagues	.837	.875		

*5.38 I can choose when I work	**.916**	x		
5.3 I am motivated and committed in my role	.853	.909		
5.12 I feel motivated	.846	.861		
5.9 I feel that people value the work that I do	.881	**.917**		

Table 86

Factor 5 Inspirational, knowledgeable practitioner

Cronbach's alpha: 0.819 (0.881 after ambiguous start)

5.20 My familiarity with my school, subject knowledge and my classes mean I am confident to change my approach during lessons if I need to	.697	.633		
5.16 I feel that I am doing a good job when I am meeting student's needs	.774	.750		

5.32 I am knowledgeable in my subject area and feel I deliver my lessons well	.810	.776		
5.33 There are times that I think that a lesson has gone really, really well and I think 'I've cracked it!'	.805	**.881**	x	
5.31 I think I am an inspiration to my students	**.815**	?	x	

Table 87

Factor 6: Skilled adaptive practitioner

Cronbach's alpha: 0.852 None removed at this time

*5.41 New ideas won't change the way I teach	.790	.778		
5.15 I think about whether I am doing a good job or not	.786	.788		
5.21 I go the extra mile	.831	.804		
5.11 I feel confident and confident in a range of strategies in my practice	.839	.847		

5.5 I like to learn and develop my practice	**.848**	?		

Table 88

Factor 7: Collective practitioner

Cronbach's alpha: 0.935 (nothing raised the alpha – red are candidates for removal)

*5.39 I am solely responsible for my student's results	.917	.911		
5.29 I feel consulted and involved when major decisions are taken	.912	.880		
5.17 I agree with most directives my school give me about how to deliver lessons	.836	.747		
5.36 I am in the right place, at the right time, with the right people, to become my best professional self	.915	.898		
5.28 My workload is manageable	**.923**	?		

Table 89

Factor 8: Extrinsically enabled practitioner

Cronbach's alpha: 0.831 (.861)

5.6 When everything I need is in place, I can do my best work	.809		
*5.24 There are very few organisational limits or directives dictating how I need to conduct my lessons I am required to follow set lesson structures and formats	.693		
~~5.18 My best practice happens when students are open to learning~~	**.861**		
*5.26 There is no feeling of 'the way we do things around here' that I am bound by My lesson planning and delivery has to fit in with a corporate 'way of doing things'	.674		

Table 90

3.3 Logistics

Factor 1: ~~Work-life and~~ (?) professionalism

Cronbach's alpha: 0.872

~~8.14 Teaching fits in with my family life~~	**.939**	x	

8.11 Time is made available for debriefing and reflection after implementation of new initiatives	.799	.930		
8.2 My school is set up to enable time meetings and we all know how to make the most of collaboration opportunities	.795	.869		
8.3 Time is identified and protected for professional development	.811	.938		
8.9 Professional development is built into (not on top of) my regular working hours	.847	.935		

Table 91

Factor 2: Deliberate collaboration spaces

Cronbach's alpha: 0.739 (3 items, no need to reduce). 8.1 Wording changed to retain meaning, but give a positive phrasing.

8.1 I struggle to find time when my colleagues are available to meet *(Working independently suits me in my context; everyone is very busy)*	
8.4 I have the rooming and resources I need	
8.13 I have opportunities for flexible working	

Table 92

Factor 3: Deliberate research activities

Cronbach's alpha: 0.822

8.6 I feel a sense of belonging in my organisation	.738			
8.5 I understand and agree with the organisation's vision and values	.778			
8.12 I am happy with the boundaries between work and my personal life	.755			
8.10 It is easy to arrange meetings during the working day	.783			

Table 93

Factor 4: Practically supported development

Cronbach's alpha: 0.970 (I am not overburdened by paperwork added, needs testing)

8.8 I have sufficient administrative support	
8.7 I feel supported with everything I need to implement initiatives	

Table 94

3.4 Collegiality

Factor 1: Common professional purpose and support

Cronbach's alpha: 0.959 (1.000)

11.34 There are shared 'norms' and	.953	.954	.957	.958	.960	.958	.960	.961	.965	.975	.980	

patterns of behaviour in our community												
11.25 We stick together and back one another up	.953	.954	.957	.958	.960	.958	.960	.961	.957	.967	.963	
11.33 I feel motivated because of interactions with my colleagues	.953	.954	.957	.958	.960	.958	.960	.961	.965	.975	.980	
11.32 My colleagues offer emotional support	.954	.955	.958	.959	.961	.963	.966	.966	.975	**.989**	x	x
11.31 My colleagues	.953	.955	.957	.958	.959	.958	.960	.961	.967	.977	1.000	x

offer practical support												
11.39 I undertake moderation of student work with colleagues	.958	.961	**.964**	x	x	x	x	x	x	x	x	x
11.2 We all learn together	.958	.960	.963	.963	.965	.968	**.971**	**.975**	x	x	x	x
11.7 I benefit from being a mentor to others	.957	.958	.961	.962	.964	.966	**.971**	**.975**	x	x	x	x
11.45 We are all works in progress and need to stay open to robust yet	.957	.959	.963	.964	**.966**	x	x	x	x	x	x	x

kind professional conversations												
11.38 My colleagues and I split the workload to get things done and borrow and exchange ideas	.956	.957	.960	.962	.965	**.969**	x	x	x	x	x	x
11.18 My colleagues are very like me and I fit in well	.958	.960	.963	**.966**	x	x	x	x	x	x	x	x
11.4 My colleagues and I discuss and	.956	.957	.960	.961	.963	.964	.969	.973	**.982**	x	x	x

deliberate together											
11.20 I take my cues from observing colleagues to help me fit in	**.96 1**	x	x	x	x	x	x	x	x	x	x	x
11.1 My colleagues validate my feelings	.95 4	.95 9	.96 2	.96 3	**.96 6**	x	x	x	x	x	x	x
11.15 Observing colleagues reassures me that good enough is good enough	.95 3	.95 9	.96 2	.96 3	**.96 6**	x	x	x	x	x	x	x
11.19 I compare	.95 8	**.96 3**	x	x	x	x	x	x	x	x	x	x

myself against colleagues											

Table 95

Factor 2: Intrinsic activist democratic identity

Cronbach's alpha: 0.964 (0.975)

11.42 I like it when teams form for a project and then move on to new teams and new projects (agile working)	.932	.933	.942	.941	.939	.943	.941	.954	.939			
11.10 Together, we can drive change	.957	.960	.965	.964	.963	.964	.966	.968	.936			

11.23 Social interactions with colleagues is important to me	.961	.964	.969	.969	.969	**.974**	x	x	x		
11.29 I benefit from working in large teams	.960	.964	.969	**.971**	**.973**	x	X	x	x		
11.21 Interactions with colleagues has made me the teacher I am today	.959	.961	.966	.966	.967	.971	**.975**	x	x		
11.40 I have a good dialogue with school leaders	.958	.961	.966	.965	.966	.968	.967	.968	.968		

11.12 I develop leadership skills (facilitation and delegation) through my interactions with colleagues	.962	.965	.970	x	x	x	X	x	x		
11.43 I feel respected by colleagues at all levels	.961	.964	.969	.969	.969	.971	.961	*.973*	x		
11.11 Coaching and professional conversations really help me develop	.960	.962	.966	.966	.967	.967	.951	.971	.966		

as a professional											
11.13 Professional conversations refresh and revitalise me	.960	.962	.966	.966	.967	9.67	.951	.971	.966		
11.37 My colleagues are happy	.965	**.970**	x	x	x	x	x	x	x		
11.3 colleagues and I make sense of new initiatives and information together	.961	.964	.969	**.971**	x	x	x	x	x		
11.35 I sometimes feel that my voice is not heard	**.966**	x	x	x	x	x	x	x	x		

| 11.9 I have positive relationships with my colleagues | .963 | .966 | **.970** | x | x | x | x | x | x | | | |

Table 96

Factor 3: Informal collegial interactions (loosely coupled, non-focused, not supported by coaching skills, lacking robustness?)

Cronbach's alpha: 0.877 (5 retained as alpha reducing – re-check with new data)

11.36 Informal conversations are very important to me	.864	*.872*	*?*	*?*		
11.27 I notice non-verbal cues in my interactions with colleagues	**.879**	*x*	*x*	*x*		
11.14 I don't learn anything new from observing colleagues	.852	*.845*	*.846*			
11.16 I benefit from collaborating with colleagues with diverse experience	.842	*.843*	*.826*			
11.24 My colleagues and I share jokes together	.843	*.851*	*.861*	*?*		
11.17 My colleagues and I share common goals	.850	*.854*	*.811*			

Table 97

Factor 4 Democratic professionalism

Cronbach's alpha: 0.888 – no items removed, nothing raised the alpha and 4 items OK

11.41 I have opportunities to discuss new initiatives and policies	.864			
11.5 Professional conversations have helped me to reimagine the kind of teacher I can be	.819			
11.8 Conversations with and observations of my colleagues are sources of learning for me	.849			
11.26 Our organisation has lots of leadership opportunities and is quite democratic	.885			

Table 98

Factor 5: Team players/chain of command

Cronbach's alpha: 0.742 Cronbach's alpha: no items removed, nothing raised the alpha and 4 items OK

11.28 I benefit from working in small teams	.731			

11.44 There's nothing wrong with a bit of healthy competition	.673						
11.6 I benefit from constructive mentoring	.632						
11.22 I know my place in the organisation	.674						

Table 99

Factor 6: Professional satisfaction

Cronbach's alpha: N/A

11.30 It feels satisfying to make something happen as a team	

Table 100

3.5 Trust

Factor 1: Leaders encourage teachers and mediate policy

Cronbach's alpha = 0.963 (with 5 items remaining 0.979)

14.15 I am supported to extend and develop my professional skills	.955	.958	.962	.966	.965	.964	.967
14.31 I am left to get on with it, most of the time	.956	.960	.970	**.977**	x	x	x
14.16 In this organisation, we have each other's best interests at heart	.954	.957	.965	.970	.969	.973	.974
14.17 My leaders deploy me to utilise my strengths and knowledge	.956	.959	.973	.971	.968	.968	.962

14.19 The government doesn't trust teachers	**.966**	**.973**	x	x	x	x	x
*14.27 I am required to follow rigid lesson structures	.964	.968	**.977**	x	x	x	x
14.22 My line manager knows me as a person	.959	.962	.969	.974	.972	.973	.972
14.3 I trust my leaders	.955	.960	.969	.976	**.979**	x	x
14.7 I am being well developed	.956	.960	.968	.973	.972	**.978**	?
14.32 Feedback from colleagues and leaders is important to me	**.966**	x	x	x	x	x	x

Table 101

Factor 2: Organisational contextual sensitivity

Cronbach's alpha = 0.933 (0.942)

14.4 I feel that I am on the same page as my colleagues	.915	.914	.920	.919	.900
14.11 I know what is expected of me and where the 'hard lines' are	.915	.913	.913	.909	.926
14.34 I am more resilient because of my network of colleagues	.913	.916	.928	.930	.940
14.12 I am open minded to change if there is evidence to support it	.920	.921	.929	.932	.930

14.13 I feel respected in the wider community	.927	.933	.933	**.942**	x	
14.2 It takes time to build good working relationships within a team	.927	.933	**.940**	x	x	
14.10 I can depend on my colleagues, and they can depend on me	.934	**.939**	x	x	x	
14.21 It is important to be sensitive to organisational context	**.935**	x	x	x	x	

Table 102

Factor 3: Risk-taking and experimentation in practice

Cronbach's alpha = 0.850 (.860 with 4x questions only 14.8 removed)

14.9 My qualifications give me professional authority	.798	.809			
14.23 I have the training and skills I need to do my job	.843	.830			
14.33 I feel confident to try new strategies in my practice	.769	.757			
14.8 I am willing to make myself vulnerable in a professional context	**.860**	x			
14.35 I would expect my practice to evolve over time	.822	.846			

Table 103

Factor 4: Suspicious and cynical

Cronbach's alpha = 0.892 (Keep all items but reverse all except 14.26 to ensure positives are a greater score than negatives – invert them)

14.14 There are cliques in my school There are very few cliques in my school	.878				
14.28 There is 'an agenda' and I feel I may get caught out Processes are open and honest; there is no hidden 'agenda' to catch me out	.874				
14.29 I feel judged in a critical and unconstructive way Constructive criticism is helpful to me; it is useful to get someone else's opinion on my practice	.794				
*14.26 Observations are supportive and constructive	.884				

Table 104

Factor 5: Making the implicit explicit

Cronbach's alpha = 0.785 Kept as is, wording of 14.18 updated

14.24 I have been asked to take on extra responsibilities		

*14.18 Quite a lot of 'good practice' happens unconsciously (The things I do in my practice are conscious and deliberate)		
14.20 I am required to produce a lot of evidence to demonstrate what I do		

Table 105

Factor 6: Leadership and Democratic organisational climate

Cronbach's alpha = 0.750

*14.1 Trust oils the wheels of professional conversations		
14.6 Leaders create the climate in an organisation		

Table 106

Factor 7: Guarded and paranoid (invert these to make positive high scoring)

Cronbach's alpha = 0.563 if all items included, 0.757 if item 14.30 removed.

*14.5 My professional judgements about my practice should be respected		
14.25 Some people are indiscrete and speak unkindly about colleagues		
~~***14.30 Prior experiences have made be cautious to let my guard down in my current role**~~		

Table 107

3.6 Resilience

Factor 1: Accepting and overcoming challenges in teaching - (Smith and Ulvik, 2017)?

Cronbach's alpha: 0.950 (0.956 – 8 items. Alphas were reducing past this point)

17.6 I feel motivated to carry on even when it is challenging	.937	.937	.939	.940	.937	.928	
17.3 I can move through and beyond challenges	.938	.938	.942	.944	.943	.938	
17.2 My working context helps me to cope	.912	.907	.905	.906	.908	.889	
*17.15 I feel stressed and have to keep going even when I feel unwell / *feel well supported if I am unwell*	.942	.942	.946	.950	.950	.940	
*17.23 I don't know what else I would do if I wasn't a teacher (Teaching has enabled me to develop a wide range of transferable skills, broadening my career options)	.941	.941	.944	.948	.947	.952	
*17.10 Teaching is my vocation and moral purpose (I will keep teaching as long as I find it professionally rewarding)	.946	.947	.951	***.955***	x	x	
17.17 The good things outweigh the negatives	.927	.925	.926	.921	.932	.950	

17.18 I am a teacher and professional challenges are part of the deal	**.951**	**.954**	x	x	x	x
17.30 The challenges are worthwhile because of the difference I can make to student's lives	.940	.9 43	.951	.951	*.95 1*	x
17.19 I am able to smooth the bumps in the road in order to keep going	**.951**	x	x	x	x	x
*17.26 I just put up with the challenges of the job	.949	.951	**.956**	x	x	x

Table 106

Factor 2: Nurtured, supported, and optimistic

Cronbach's alpha: 0.922 (.947 – 6 items remain as alpha was decreasing)

17.8 My colleagues and I keep each other going	.894	.920	.923	.911					
17.7 My colleagues support me and help me keep going	.897	.921	.927	.918					
17.31 My sense of humour and optimism keep me going	.905	.933	.943	.939					
17.5 Lots of different factors enable me to cope	.904	.930	.938	.937					

17.29 I feel a sense of camaraderie at work	.911	.933	.940	.937				
17.12 My experience helps me feel confident in my abilities	.914	.938	*.943*	?				
~~17.11 I stay positive despite significant challenges~~	.918	**.947**	x	x				
~~17.9 It is challenging to balance pressures from my work and home life~~	**.941**	x	x	x				

Table 109

Factor 3: Well-supported high achievers

Cronbach's alpha: 0.727 (0.791)

17.25 I thrive on the challenges of the job	.582		
17.1 I can cope with and balance competing demands from the school	.582		
~~17.27 School leaders enable me to cope with challenges~~	**.791**	x	
17.21 I benefit from professional supervision to work through my challenging experiences at work	.682		

Table 110

Factor 4: Riding the storm

Cronbach's alpha: 0.761

*17.20 I can deal with risk I keep things steady during turbulent times	
*17.4 My ability to cope changes over time I feel that I can cope with anything the job throws at me	
17.13 I can cope and survive at work	

Table 111

Factor 5: Chalkface

Cronbach's alpha: N/A

*17.28 Student behaviour is too challenging (Student behaviour enables me to deploy effective teaching strategies in my practice)	

Table 112

Factor 6: Healthy teachers, thriving students

Cronbach's alpha: N/A

17.22 Teachers need to be OK to enable students to thrive (My students do their best because I am at my best)	

Table 113

3.7 Reflection and reflexivity

Factor 1: Collegiate, practical sense-making

Cronbach's alpha: 0.908 (0.921, 6 items as alpha was declining)

20.1 Professional conversations are useful to me in making sense of my practice	.879	.891	.886			
20.20 I have opportunities to see good practice being modelled	.880	.905	.900			
20.22 I understand the 'big picture' vision that we are aiming for	.890	.905	.900			
20.21 I find professional mentoring useful	.892	*.917*	?			
20.2 Discussing new ideas with others helps me to understand the theory behind new practices	.901	.913	.911			
20.11 I work hard to understand the context that I work in, and how it affects my practice	.892	.907	.985			
20.19 Student results drive me to make changes to my practice	**.921**	x	x			

Table 114

Factor 2: Reflection inherent to professionalism

Cronbach's alpha: 0.900 – remains, no higher alpha

20.12 Being a professional means you are always learning	.896				
20.8 Reflection on my practice is a natural part of my planning	.873				

20.17 Reflection enables me to develop my knowledge and skills	.891				
20.7 I regularly reflect honestly about my practice	.840				
20.10 Systematic reflection gives me professional credibility	.851				

Table 115

Factor 3: Empirical, systematic reflective practitioner – remains, no higher alpha

Cronbach's alpha: 0.884

20.15 I find evaluation tools and frameworks useful when reflecting on my own practice	.845				
20.13 I am building the story of myself as a teacher	.860				
20.16 I enjoy problem solving in my context	.865				
20.4 Reflection raises my consciousness of professionalism	.848				
20.5 Professional experiences help me to learn about myself	.828				
20.6 I make changes to my practice after seeing new evidence of what works	.848				

Table 116

Factor 4: Organic, experimental reflexive practitioner

Cronbach's alpha: 0.800

*20.18 I learn a lot from the students I expect some student resistance to new ways of learning, but I am the professional, so they have to adapt	
20.3 I make changes to my practice after CPD	

Table 117

Factor 5: Tendency to reflect is a personality trait

Cronbach's alpha: N/A

20.14 I am a naturally introspective person	0.927

Table 118

Factor 6: Self-critical of own practice

Cronbach's alpha: N/A

20.9 I am my own harshest critic	0.886

Table 119

3.8 Professional autonomy

Factor 1: Modern (post 1988) Student focused professional judgement (ref parallel

professionalism paper)

Cronbach's alpha: 0.830 (0.902)

23.7 What I say goes in my classroom	.734	
23.4 I can work around policies and directives	.738	

23.5 I can tailor my teaching to student needs when I plan	.754	
23.3 I work within national frameworks	.902	x

Table 120

Factor 2: Ideal vision practitioner

Cronbach's alpha: 0.870 – remains as alpha did not decrease

23.2 I can select the teaching methods that I feel most appropriate	.806	
23.1 I can teach as I see fit	.844	
23.9 I try to build a good professional reputation with my colleagues	.801	
23.13 My practice reflects my vision of what good education should be	.868	

Table 121

Factor 3: Creative, free practitioner

Cronbach's alpha: 0.767 – remains, only 3 items.

23.6 I can tailor my teaching to emerging student needs during lessons	0.859
23.11 I try to be creative in my practice	0.785
*23.8 I get to choose what professional development I engage with (I follow a formal and structured professional development pathway)	0.703

Table 122

Factor 4: Experienced practitioner (restricted professionalism if ONLY this type identified?)

Cronbach's alpha: 0.762 – remains, only 2 items

23.12 My practice is built upon long experience	0.954
23.10 I feel qualified to make professional decisions	0.954

Table 123

Appendix 4: Instrument reduction table

Factors	Mean Score	Variances	Vignettes and questions comparison	Outcome
T5, PA3	3.16	0	Complementary. Both value creativity, good development, and leaderships opportunities. Entrepreneurial 'type'.	T5 removed and merged, updating PA3.
C1, RR2	3.31	0.3	Complementary. RR2 adds rigour that was a weakness of C1, which previously risked simplification into 'nice chats' rather than robust professional conversations. Hence, a low score here may now indicate that the chats are happening, but the coaching conversations are not robust or productive.	C1 removed, factors merged, updating RR2.
A4, PA1	3.34	1.1	Conceptually distinct. Both challenge performative cultures, but A4 is collective and PA1 is individualistic.	No changes.

A2, Res4	3.39	0.75	Complementary. Teachers are likely to engage in professional development which aligns with their own interests. This is complemented by and expressed in a willingness to take risks and experiment in their practice.	Res4 removed, factors merged, updating A2.
C2, T2	3.23	0.45	Not complementary. C2 is very philosophical and 'meta'. It is focused on professional identities and what teacher professionalism is in a fundamental sense. T2 is much more practical and focuses on school leaders' ability to build a vision with teacher input and buy-in.	No changes.
C5, Res1	3.33	0.67	Complementary. Both concern the importance of supportive working contexts to increase teachers' perspectives about	Res 1 removed, factors merged,

			their ability to overcome challenges at work.	updating C5 (renamed as C4).
C3, T1	3.36	0.25	Complementary. Both describe an open, democratic professional context aimed at demystifying teacher practice. Dependent on extended democratic professional identities and self-regulation.	T1 removed, factors merged, updating C3 (renamed as C2).
A3, T4, Res2	3.43	1.5 (A5-T4) 1.17 (T4-Res2) 0.33 (A3-Res2)	(A3-Res2) Complementary. These describe supportive interpersonal relationships. (T4) Conceptually distinct. This describes contextualised self-confidence.	A3 removed, factors merged, updating Res2 (renamed Res1). T4 (renamed as T3) conceptually unchanged.

Table 124

Appendix 5: Removed and amalgamated factors

This section contains the original factor labels and texts of the vignettes which were removed after the EFA and CVI processes or adapted and amalgamated during the instrument reduction process. The final and updated factor vignettes appear in chapter 4.

5.1 A3 removed, merged with Res2

A3 Adaptive problem-solving practice. This factor was identified in 23 papers, most extensively in Vähäsantanen et al. 2017. Here, agency is associated with professional learning, which perpetuates the evolution of teachers' professional identities (Vähäsantanen et al., 2017). Assuming practices change of teachers own volition, this is an activist, democratic perspective (Sachs, 2001) associated with Wenger's (2008) identity dimension of *negotiated experiences.* Professional learning is conceptualised as changes to teachers' practices and distinguished from PD activities (McChesney and Aldridge, 2019b). This may be an unconscious process which occurs as teachers 'skilfully cope' with the challenges of their professional lives, noticing and responding to problems as they arise (Aspbury-Miyasnishi, 2022). Teachers' ability to use adaptive, problem-solving agency is strengthened by collaborative relationships and access to resources (Pantić, et al., 2021). Therefore, this factor needs to be viewed in the contexts of collegiality, trust, and logistics, which provide the foundation for teachers inclined to this type of agency to thrive.

Res2: Personal relational resilience (Gu, 2014). Importantly, resilience in this factor depends upon professional and personal social inter-relationships (Gu, 2014). Belief that

one belongs to a group of like-minded colleagues with whom trust has been established over time (Gu, 2014) is central to this factor. Group membership provides a sense of stability in dynamic and unstable contexts; facing uncertainties together brings people closer together, in a fundamentally neurocognitive, biological way (Day and Gu, 2014; Goleman, 2007; Gu, 2014). It should be noted that these workplace dynamics can be viewed by outsiders as cliques (Bridwell-Mitchell, 2015). In either case, it has been argued that the relationship between structures (the workplace, the group) and individuals are highly interconnected; teacher resilience cannot be understood as an individual level without also understanding the group dynamics (Olukoga, 2018).

5.2 C1 removed, merged with RR2

C1 Common professional purpose. This factor was identified in 55 papers, most extensively in and Bridwell-Mitchell (2015) and Little (2005). This factor describes communities of practice; groups of teachers working collaboratively together to engage in professional learning. Participation can raise teachers' professional growth and sense of agency (Brunetti and Marston, 2018), and those who share their practice benefit from the act of doing so (Fielding et al., 2005); social learning is a beneficial activity (Bates and Morgan, 2018). Neuroscience supports the idea that social working and learning is beneficial to building resilience and supporting wellbeing (Day and Gu, 2014). Such communities do not constitute sufficient conditions for teacher PL (Muijs and Rumyantseva, 2014); their existence is correlated with, but does not cause PL (Caldwell and Heaton, 2016). The quality can vary considerably; they can be fragmented (Rivero García and Porlán Ariza, 2005) superficial and rushed (Little, 2005). They may enable

cooperation without accessing the more robust conversations which are required for professional problem solving and collaboration (Lofthouse and Thomas, 2017). Groups may focus on how teachers feel things are going, reflecting their contextual challenges and priorities (Bridwell-Mitchell, 2015; Little, 2005) rather than engaging in more robust discursive and reflexive practices, which would benefit such communities (Hargreaves and O'Connor, 2018). More concerningly, learning communities may become dominated by the social norms of the group or organisation, as newcomers can become socialized into an established group (Becker et al., 2014). This may inhibit innovation and creativity, as ideas suggested by incoming teachers are blocked (Bridwell-Mitchell, 2015). Such communities risk perpetuating cherished (but not necessarily effective) practices and prejudiced attitudes (Wenger, 2008). The perception of the existence of cliques within an organisation exacerbates this pattern (Bridwell-Mitchell, 2015). Professional communities appear most effective when a range of specialists and support staff collaborate, groups are coordinated collaboratively with leaders, and participants are open-minded to exploration of and change in practices (Pantić et al., 2021). The co-creation of professional learning can be developed when frameworks of practice (e.g., lesson study cycles) are utilized (Boylan et al., 2018).

RR2 Professionalism as praxis: active, experimental learners. Here, continuous cycles of praxis (action, reflection, and experimentation) are woven into teaching and learning practices (Bodman, 2012; Fitzgerald, 2014). This proactive approach can be used as a formal pedagogical strategy in PD design (Boylan et al., 2018 – citing Gusky, 2002 and Desimone, 2009). Facilitators may promote engagement by ensuring clarity of

participant roles and ensuring that the time allotted for active engagement is contained and finite promotes engagement (Gilbert, 2018). These procedural structures and processes make the praxis explicit and scaffold teachers' development of these skills (Little, 2005; Keay et al., 2019). This type of practice can also be experienced as a habitual attitude to one's own practice, where cycles of action, reflection and experimentation are internalised and used routinely (Boylan et al., 2018; Clarke and Hollingsworth, 2002). The habits of the experimental learner are associated with self-reflection, modification of practice and sensitivity to learner needs. This may be learned as a praxis, perhaps from an experienced mentor before becoming internalised and habitual over time (Boyer, 2013). Once internalised, this is an individual, intrinsic attitude to one's own professional learning through constant reflection and exposition. It is a democratic process, but one located in personal attitudes of reflexivity (Sachs, 2001) since it demystifies teacher practice for the individual. Learning is an incremental *negotiated experience* of identity in practice (Wenger, 2008). Leaders may encourage this kind of reflective practice as a paradigm within an organisation as a deliberate policy (Bosso, 2017). This may, over time, shape teacher identities along a paradigmatic trajectory, as it becomes the institutional 'way' of being a professional (Wenger, 2008). This process has autoethnographic qualities, characterised by reflexivity and self-consciousness (Cho and Trent, 2006). This can feel uncomfortable for participants who may prefer to take more passive roles in their learning (Gilbert, 2018). This kind of reflexive practice can also be framed as rejuvenating; deliberate efforts to mindfully reflect on practices and circumstances can facilitate healing and sense-making after episodes of burnout (McKillop and Moorosi, 2017).

5.3 T1 removed, merged with C3

T1 Leaders encourage teachers and mediate policy. Skill building (Avalos, 2011). Framework for success and confidence (Bodman et al., 2012). Democratic, teacher led, high trust developments in education (Clarke, 2017); Democratic, activist (Sachs, 2001). Teacher interests are allowed to develop (Craig, 2012 describes the antithesis of this). Sets up organisational cultures that are open to change over time (Datnow, 2012). This is invested in and taken seriously by all parties and is important because the culture permeates all parties' identities (Fielding et al., 2005). This should be transparent and not entirely data driven, as it does not provide a holistic picture (Göçen, 2021).

C3 Edumenism (the negotiation between competing ideas between educationalists and academics to make sense of them with a view of co-creating a clearer shared understanding). 25 files, 57 references. Discussions between colleagues are often tacit and taken from granted (Sachs, 2005), negotiated expectations to ensure collective goals. They are promoted by diversity of viewpoints to see issues in a new light and promote innovation (Bridwell-Mitchell, 2015; Sachs, 2005). Clear purpose and central resources, mutual engagement in projects and openness to scrutiny, (not necessarily by the State), but from a scholarly perspective of mutual quality assurance (Little, 2005; Stoll et al., 2006) drives this factor's conceptualisation. Demystified professional activities to demonstrate that goals of high-quality education are shared and pursued indicates a democratic paradigm (Sachs, 2001) and practice is de-privatised (Fielding et al., 2005; Louis and Marks, 1998). Diverse voices also increase the likelihood of competition and

tensions likely as people align themselves with those they agree with. Tensions can be overcome where there is a willingness within the group to co-create new meanings from divergent opinions and construct new understandings (Bridwell-Mitchell, 2015; Coburn, 2001). The volume of competing directives can make consensus challenging (Bridwell-Mitchell, 2015), requiring a kind of educational ecumenical attitude between the parties involved (edumenism?), or conviviality between practitioners and scholars (Ndhlovu and Kelly, 2020). Therefore, this type of identity falls within Wenger's (2008) category of *negotiated experiences*. When such relationships are sustained over time and mutual trust is developed, this dynamic context can be fruitful for collaborative research projects, if the goals and participants responsibilities in the project are clearly defined (Bungum and Sanne, 2021). Without clear leadership and mutual understanding of success criteria, collaboration will become 'stuck' (Cheng and Ko, 2012).

5.4 T5 removed, merged with PA3

T5. Making the implicit explicit – stepping into leadership. Here, teacher confidence is developed through the opportunities they are given to develop new skills. Being given responsibility is understood as an expression of trust and enable teachers to stretch and challenge themselves (Bungum and Sanne, 2021). Undertaking additional responsibilities also enables teachers to experience leadership from the perspective of the leader, rather than from that of a subordinate. This enables them to develop their understanding of the invisible, previously unobserved skills and processes associated with such roles (Eraut, 2004).

PA3. Empowered practitioner. This factor describes teacher professional autonomy as a counteractive force to the managerialist paradigm by promoting collaboration, creativity, and professional learning (Bodman et al., 2012). This has been described as the professional growth model by Imants and Van der Wal (2020) and associated with teachers responsible for creative and 'non-core' subjects who may experience less direct scrutiny (Thorpe and Kinsella, 2021). It entails teacher perceptions of control over their professional lives (Fitchett et al., 2019), characterised by opportunities for aspirational choices about career progression (Wilkins, 2011) and opportunities to select PD (Fitchett et al., 2019; Worth and van den Brande, 2020). Occurring within systemic boundaries to some degree, this is not absolute professional freedom (Keay at al., 2019). However, it may be experienced more frequently by teachers in loosely coupled settings (Lorentzen, 2020). Teachers must see the value of PD both intrinsically, and as a way of meeting their own needs (Brady and Wilson, 2021) as they negotiate their professional growth within their structural environment (Louws et al., 2020). Encouraging teachers to become research engaged can also promote perceptions of this kind of autonomy (Derrick, 2013), as it widens the scope for extended professional identities and, thus, PD that changes practices (Evans, 2008). School leaders who can provide personalised PD opportunities are likely to promote this kind of autonomy (Brunetti and Marston, 2018). The bottleneck of career development caused by the narrow career development pathway into senior leadership roles has been shown to limit teachers' perception of professional autonomy after 5 years of service (Worth and van den Brande, 2020). Thus, teachers who identify with this kind of autonomy but do not progress in their career trajectories for some reason are likely to seek professional satisfaction elsewhere (Smith and Ulvik, 2017).

5.5 Res1removed, merged with C5

Res1. Accepting and overcoming challenges in teaching. Resilience is an innate quality that many teachers share, however, it can be enhanced or challenged by personal and professional circumstances, working conditions and strength of aspirational beliefs. It is characterized by the ability to continue to grow, learn and move forward after challenges as opposed to the ability to merely withstand them (Day and Gu, 2014; Gu, 2014)). Characteristics associated with the ability to 'bounce back' include flexibility and problem-solving abilities (Ebersöhn, 2014). A strong vocational calling and moral purpose provides a foundation upon which the qualities of resilience can be developed, and it is sustained by teacher beliefs about their own efficacy to enable students to learn (Carrillo and Flores, 2018; Day and Gu, 2014). This is perhaps more indicative of teachers' longevity in the profession, as opposed to their capacity for resilience *per se*. Some teachers are resilient and leave the profession, and this can be accounted for as a less strong commitment to teaching as opposed to a lack of resilience to its challenges (Smith and Ulvik, 2017). Resilience can be encouraged within supportive and protective learning environments, characterized by positive social interactions (Day and Gu, 2014). These are both supportive and professionally challenging, encouraging teachers to understand what has happened and how similar issues might be mitigated in future. These can be robust, yet respectful conversations where responsibility is taken as opposed to the apportionment of blame (Ndhlovu and Kelly, 2020). Such a context facilitates and support reflection and self-correction of any undesirable behaviours (Day and Gu, 2014), adapting their practice as a result. In this regard, resilience entails reflection and change (Du et al.,

2021). This combination of openness and activism suggest a democratic professional paradigm (Sachs, 2001). This is not because the problems to be overcome are smaller, but because their context enables teachers to approach challenges with self-confidence and recognise their own strengths (Day et al., 2006), and because these achievements of overcoming problems are recognised and rewarded within their schools (Gu, 2014).

C5 Team players/chain of command. 16 files, 24 references. This type of teacher professional identity indicates someone who enjoys the security of an experienced mentor, supervisor, or line manager (Aslan and Öcal, 2012). This may be due to their inexperience (Boyer, 2013; Brunetti and Marston, 2018; Stone-Johnson, 2014a), but this is not necessarily the case. Opportunities to see good practice modelled are considered beneficial by teachers scoring highly on this factor (Avalos, 2011). This type of teacher seeks belonging and wants to adopt the 'norms' of the organisation (Campbell et al., 2022). This suggests the potential for a managerial, entrepreneurial professional identity (Sachs, 2001), with a *community membership* dynamic (Wenger, 2008). This person may find a degree of competition between colleagues or departments motivational and a source of belonging and collaboration (Muijs and Rumyantseva, 2014). The drive is not necessarily paradigmatic, and such a teacher would seek a more democratic organisational culture if they had access to a supportive mentor. This, then, may be characterised by a *relation between the local and the global* (Wenger, 2008), due to the pervasiveness of the managerialist macro-paradigm (Buchanan, 2015; Mockler, 2011).

5.6 Res4 removed, merged with A2

Res4. School organisational structures and individual resilience. Here, resilience is closely connected to the wider structure of school cultures. This is a relational, structural, professional dynamic (as opposed to one based on personal friendships as noted in factor Res2), although the structure-individual-structure dynamic relationship is similar (Day and Gu, 2014). Individual resilience is not a fixed biological capacity (Day et al., 2006) and a supportive school environment can lay the foundation for resilience which can be drawn upon when required (Fredrickson, 2004 – cited by Day and Gu, 2014). In practice, this may mean that support procedures are well signposted within the school, and teachers have access to leaders with whom they can be open about their needs without fear of judgement (Ebersöhn, 2014). Beyond the clear access to support, teachers also feel greater confidence in 'risk-taking' and experimentation in their practice, because they know that they will be supported if something does not work out as anticipated (Fielding et al., 2005).

A2. Authentic intrinsically motivated practice. This factor was identified in 58 papers, most extensively in Eteläpelto et al., 2013; Vähäsantanen et al., 2017; Namgung et al., 2020. Here, agency has a more subject-centered, intrinsic character, referring to personal capabilities, interests, and inclinations of the individual; it is agency as it is lived by individuals (Namgung et al., 2020). It is not contextless, however, and intrinsically motivated agency is exercised in response to external contexts and circumstances (Biesta et al., 2015, Imants and Van der Wal, 2020). Therefore, whilst it can be associated with activist professional identities and democratic professionalism, identity also draws

from the prevailing managerialist paradigmatic context (Sachs, 2001), suggesting a *nexus of multi-membership* identity dimension (Wenger, 2008). Nevertheless, activist identity is suggested in individual's abilities to notice affordances beyond the conventional, and then act in a principled way (Aspbury-Miyasnishi, 2022), exercising their judgement and control (Biesta et al., 2015). This does not imply that agency is fixed, rather, it evolves over time and develops with experience and is associated with teachers' professional identities (Eteläpelto et al., 2013; Sachs, 2001). Professional identity, however, is only one facet of a teachers' personal identity (McAdams, 2001). Agency as authentic, intrinsically motivated practice is shaped by influences such as nationality (Namgung et al., 2020) and generation (Aspbury-Miyasnishi, 2022; Stone-Johnson, 2014a). Therefore, it co-exists with other interests, responsibilities, and relationships (Eteläpelto et al., 2013). This does not mean that agency as conceptualized here cannot transform communities, but that the transformation begins with individual initiatives, which go on to expand. This perpetuates the individual's sense of agency as their contribution is recognised (Vähäsantanen et al., 2017). This conceptualization of agency is highly relevant to teacher PD activities because it means that individuals are likely to engage more meaningfully with activities that align with their own interests; success of leaders in on-boarding teachers to new initiatives is likely to influence teacher engagement and practices (Hökkä and Vähäsantanen, 2014). The suitability and commitment of teachers in their environment appears to be significant for teachers to exercise this kind of agency (Imants and Van der Wal, 2020).

Appendix 6: Survey items from original vignettes

6.1 Agency

A1.1 I enjoy making ambitious plans
A1.2 I like to work dynamically and respond proactively to challenges I encounter in my context
A1.3 Developing my practice is my way of contributing to change
A1.4 I want to make an active contribution to pedagogical reform
A1.5 Reflecting on and improving my practices in the classroom is important to me
A1.6 I enjoy seeing my plans through in my practice
A2.1 I feel driven and committed to making a different to student outcomes through developing my professional practice
A2.2 I feel a strong vocational calling to develop my practice
A2.3 I believe that creating change begins with the positive actions of individuals
A2.4 Pursuing my professional interests is means of developing my practice

A3.1 I value professional development opportunities as a way to enable me to refine and improve my craft

A3.2 I find professional development activities most useful when I can adapt and apply them in my context

A3.3 I learn as I experiment with new ideas in my practice

A3.4 I value being able to try new ideas out as way of addressing challenges I have noticed in my context

A4.1 I value feeling that I belong to a wider movement for change in my organisation

A4.2 I feel empowered when I am part of a whole school initiative

A4.3 The support of my colleagues enables me to feel confident in developing my practice

A4.4 I feel secure in my practice when colleagues share my views about new initiatives

A4.5 I believe that initiatives succeed or fail through teacher buy-in

A5.1 I enjoy learning together with colleagues

A5.2 Coaching and professional conversations with my peers builds my confidence

A5.3 I notice more in my practice because I have talked through pedagogical approaches and reflected on them
A5.4 I feel confident to be flexible and adaptive in my practice
A5.5 I feel able to choose which approaches to utilise in my practice, depending on the situation
A6.1 I feel most confident in my practice when it is evidence informed
A6.2 I have a good idea of what effective practice 'looks like' in my subject area
A6.3 I like to understand the rationale for different pedagogical approaches before I incorporate them into my practice

Table 125

6.2 **Efficacy**

E1.1 I find self-study the most useful and convenient way of accessing professional development opportunities
E1.2 I find educational research a valuable source of professional learning
E1.3 I have become a better teacher because of ideas I have read about and then experimented with in my practice

E1.4 Being professional entails keeping up to date with evidence-informed developments in my field
E1.5 It is my professional responsibility to keep developing my practice
E2.1 Developmental feedback that I have received has had a good balance of challenge and encouragement
E2.2 I feel empowered by the support that I have received during my career
E2.3 I welcome observations and feedback as a source of learning
E2.2 I dislike feeling professionally 'stagnated'
E3.1 My practice has been strongly influenced by my training and early career experiences
E3.2 I find it useful to see effective practice modelled by colleagues
E3.3 I find it helpful to use my experiences and observations as a benchmark for my own practice
E3.4 I feel that team-teaching benefits me as a source of professional development
E4.1 I really enjoy at least one aspect of my work (subject, pastoral, conversations with students)

E4.2 I feel confident to try new approaches, even if they don't always work as planned
E4.3 I have job satisfaction
E4.4 I welcome developmental conversations about how I can improve my practice further
E5.1 I feel confident that my teaching and support improves outcomes for my students
E5.2 My practice is built upon my professional experience and knowledge
E5.3 I perform best when I experience a lot of freedom to teach as I see fit
E6.1 It is important to respond to student needs as they emerge in lessons
E6.2 Education is most effective when teachers treat every student as an individual with a unique context and background
E6.3 I believe that education needs to have a holistic, child-centred, and not be narrowly focused on grades
E7.1 I feel consulted when decisions are being made in my organisation
E7.2 I feel supported to develop as a professional
E7.3 I feel valued as an individual in this organisation

E7.4 My personal circumstances (e.g., family, health) are supported in my organisation
E7.5 My values align with those of the school
E7.6 I have a clear career pathway
E8.1 I have the support and resources I need to experiment with new pedagogical approaches in my practice
E8.2 I feel motivated to improve my practice
E8.3 It is my responsibility to keep up to date with pedagogical developments in my field
E8.4 I feel empowered to challenge myself in my practice

Table 126

6.3 **Logistics**

L1.1 Time is scheduled for my professional development activities
L1.2 I have some choice in what professional development activities I engage in

L1.3 I benefit from time dedicated to debriefing and reflection after professional development activities
L1.4 My professional development time is used well, and I find it valuable
L1.5 I experience a flexible approach to professional development in my organisation
L2.1 I agree with the rationale behind most professional development activities we are asked to engage with
L2.2 I am able to attend or access most professional development opportunities offered by my school
L2.3 My life/work balance enables me to engage with professional learning opportunities
L2.4 I am able to access professional development opportunities in a flexible way that suites my circumstances
L3.1 I have opportunities to participate in research activities as part of my role
L3.2 Structured evaluation routines and practices are built into our school culture
L3.3 I find structured approaches to reflection help me to plan my next steps

Table 127

6.4 **Collegiality**

C1.1 I have opportunities to work in groups or departments as part of my professional development

C1.2 Working as part of a team increases my confidence to try new practices

C1.3 I have changed my practice after group discussions and reflections

C1.4 Fresh ideas are a welcome addition to working parties and departments

C1.5 It is useful to consult with experts or specialists when implementing new practices into a team or department

C2.1 I want to see the quality of teacher professional development improve

C2.2 It is important to have a choice of professional development opportunities

C2.3 I can see how whole school professional development plans fit into to school vision and values

C2.4 I feel revitalised after group or paired reflection on professional development opportunities

C2.5 I change my practices with groups or individual students after discussing strategies with colleagues

C3.1 I believe that progress can be made when people with diverse perspectives discuss issues, even if they hold opposing views

C3.2 I value having my professional horizons expanded

C3.3 I want to work with people who share my vision and values about education

C3.4 Promoting student outcomes motivates me to continue to improve my practice

C4.1 I feel confident that my practice is up to the standard of that of my colleagues

C4.2 I feel that the knowledge from training and professional development that I have undertaken are valued by my colleagues

C4.3 I am often asked for my professional opinion

C4.4 I think it is important to share practices through observations

C4.5 Professional conversations about pedagogy are important to me

C5.1 I value opportunities to observe more experienced teachers

C5.2 I find mentoring relationships, where I discuss my practice with an experienced teacher, very useful

C5.3 I value feedback on my observations from school leaders

C5.4 I like to feel reassured that I am doing things properly
C5.5 I compare my results to those of my colleagues
C5.6 I incorporate ideas I have observed into my own practice

Table 128

6.5 **Trust**

T1.1 I have opportunities to develop leadership skills
T1.2 I look forward to continuing to develop my practice and making a positive contribution in my organisation
T1.3 I feel invested in the vision and values of my school
T1.4 I believe that education is about more than just academic results
T2.1 Leaders in my school value my contribution
T2.2 I can adapt my practice to suit my context
T2.3 I like working in this school
T2.4 School leaders resist 'fads' and 'box ticking' exercises for school inspectors

T4.1 Experimenting with new ideas in my practice is a worthwhile use of my time
T4.2 Research informed practices offer me a fresh perspective to revitalise my practice
T4.3 I find it beneficial to hear about what colleagues have implemented successfully in their departments
T4.4 I understand how new teaching and learning practices compliment school priorities
T4.5 I am happy for anyone to pop into my lessons, any time
T4.6 There is always room for improvement in my practice
T5.1 I experience gaining more responsibility as an expression of my competence and leaders' trust in me
T5.2 I am developing an appreciation of the 'soft' skills involved in taking on a leadership role
T5.3 I welcome opportunities to take on roles and projects that stretch and challenge me

Table 129

6.6 Resilience

Res1.1 I value opportunities to have a debrief after something has gone wrong so that I can learn from it and move forward
Res1.2 Sometimes things go wrong, but the challenges are worth it to make a difference to student outcomes
Res1.3 I enjoy looking for creative ways to solve problems
Res1.4 We don't have a blame culture in this school, we take responsibility and move forward
Res2.1 My colleagues and I have each other's backs
Res2.2 I never feel alone at work
Res2.3 I know who I can turn to at work if I have a problem
Res3.1 When I have needed support with specific issues, my school has been supportive
Res3.2 School leaders are understanding of changes in my personal circumstances
Res3.3 I can gain access to specialist assistance and advice if I need it (e.g., legal, medical, psychological financial services)
Res3.4. My professional development opportunities suit my career stage

Res4.1 My leaders are supportive of me as I continue to develop my practice
Res4.1 School leaders are understanding if something goes wrong in one of my lessons
Res4.3 This is a good school to work at if something is going wrong for me
Res4.4 I know what to do and who to speak to if I need support

Table 130

6.7 Reflection and reflexivity

R&R1.1 I have opportunities to reflect on my practice with a professional coach who is a peer (not a line manager)
R&R1.2 I feel able to be open and honest about my practice without judgement during professional conversations
R&R1.3 I am developing an understanding of what I can do differently in my practice in order to achieve my planned outcomes better
R&R2.1 I use skills of systematic reflection that I have developed to 'coach' myself as part of my reflection on my practice

R&R2.2 I believe that reflecting on my practice is an important part of professionalism
R&R2.3 Planning, teaching and reviewing my lessons provides opportunities for my professional development
R&R2.4 It is important to me that I understand why my practice is or is not effective so that I can refine it
R&R3.1 I find it useful to follow a structured/formal approach to reflections on my practice
R&R3.2 I am in the habit of evaluating my practice and making improvements
R&R3.3 I like to understand why something has been effective or not in my practice
R&R3.4 I find it useful to compare my aims in lesson planning with the outcomes that happened
R&R4.1 I learn so much from my students
R&R4.2 I believe that the best learning experiences are facilitated ones
R&R4.3 I try to minimise 'teacher talk' in my practice
R&R4.4 It is important to develop students' metacognitive skills through my practice

Table 131

6.8 **Professional Autonomy**

PA1.1 I plan my lessons so that the students are working harder than I am
PA1.2 I utilise strategies such as peer marking and whole-group feedback
PA1.3 It is important to give students the skills they need to become self-sufficient learners
PA1.4 I have a lot of freedom to teach as I judge best
PA2.1 I agree with the vision and values of my school
PA2.2 I am happy to undertake further training provided by my school to develop my practice
PA2.3 I welcome opportunities to model and share my practice for colleagues' benefit
PA2.4 My practices reflect my school's 'way' of doing things
PA2.5 I welcome opportunities to lead others in promoting the vision and values of my school
PA3.1 I have a choice of professional development opportunities that meet my professional interests
PA3.2 I actively seek career progression opportunities

PA3.3 I enjoy the creative elements of my practice
PA3.4 I would describe myself as having a 'growth mindset'

Table 132

Appendix 7: Updated survey items after instrument reduction

Changed items are marked in green, and those specifically from the CVI process are marked in *green italics*. All removed items are marked in red. Following the procedure described in section 3.6.2 the following sections were entirely removed: A3, C1, T1, T5, Res1 and Res4. The numbering was adjusted to reflect the gaps left by removed items.

7.1 **Agency**

CHANGED A1.1 I make ambitious plans to develop my practice
A1.2 I like to work dynamically and respond proactively to challenges I encounter in my context
A1.3 Developing my practice is my way of contributing to change
A1.4 I want to make an active contribution to pedagogical reform
A1.5 Reflecting on and improving my practices in the classroom is important to me
A1.6 I enjoy seeing my plans through in my practice *ADDED ITEM A1.7 I reflect on how changing my practice also changes my professional outlook*

CHANGED TEXT A2.1 I feel driven and committed to develop my practice to make a difference to students

CHANGED TEXT A2.2 I believe that I should be proactive in developing my practice

A2.3 I believe that creating change begins with the positive actions of individuals

CHANGED NUMBERING A2.4 to A2.3 Pursuing my professional interests is means of developing my practice

REMOVE SECTION

A3.1 I value professional development opportunities as a way to enable me to refine and improve my craft

A3.2 I find professional development activities most useful when I can adapt and apply them in my context

A3.3 I learn as I experiment with new ideas in my practice

A3.4 I value being able to try new ideas out as way of addressing challenges I have noticed in my context

Was A4, now A3

Was A4.1, now A3.1 I value feeling that I belong to a wider movement for change in my organisation

Was A4.2, now A3.2 I feel empowered when I am part of a whole school initiative

Was A4.3, now A3.3 The support of my colleagues enables me to feel confident in developing my practice

Was A4.4, now A3.4 I feel secure in my practice when colleagues share my views about new initiatives

Was A4.5, now A3.5 I believe that initiatives succeed or fail through teacher buy-in

Was section A5, now A4

Was A5.1, now A4.1 I enjoy learning together with colleagues

Was A5.2, now A4.2 Coaching and professional conversations with my peers builds my confidence

CHANGED TEXT Was A5.3, now A4.3 I have opportunities to talk through pedagogical approaches and reflect on them

CHANGED TEXT Was A5.4, now A4.4 I am aware of areas of my practice I would like to develop further

A5.5 I feel able to choose which approaches to utilise in my practice, depending on the situation

CHANGED TEXT Was A5.5, now A4.5 I feel confident to be flexible and adaptive in my practice

Was A6, now A5

Was A6.1, now A5.1 I feel most confident in my practice when it is evidence informed
Was A6.2, now A5.2 I have a good idea of what effective practice 'looks like' in my subject area
Was A6.3, now A5.3 I like to understand the rationale for different pedagogical approaches before I incorporate them into my practice ADDED ITEM A5.4 My previous experiences inform how I think about my practice now

Table 133

7.2 Efficacy

CHNAGED TEXT E1.1 Seeking out my own CPD the most useful and convenient way of developing my practice
E1.2 I find educational research a valuable source of professional learning
E1.3 I have become a better teacher because of ideas I have read about and then experimented with in my practice
E1.4 Being professional entails keeping up to date with evidence-informed developments in my field
E1.5 It is my professional responsibility to keep developing my practice

E2.1 Developmental feedback that I have received has had a good balance of challenge and encouragement

E2.2 I feel empowered by the support that I have received during my career

E2.3 I welcome observations and feedback as a source of learning

E2.2 I dislike feeling professionally 'stagnated'

E3.1 My practice has been strongly influenced by my training and early career experiences

E3.2 I find it useful to see effective practice modelled by colleagues

E3.3 I find it helpful to use my experiences and observations as a benchmark for my own practice

E3.4 I feel that team-teaching benefits me as a source of professional development

E4.1 I really enjoy at least one aspect of my work (subject, pastoral, conversations with students)

E4.2 I feel confident to try new approaches, even if they don't always work as planned

E4.3 I have job satisfaction

E4.4 I welcome developmental conversations about how I can improve my practice further

ADDED ITEM E4.5 I find my line management meetings useful for organising my work

Added word E5.1 I feel confident that my teaching and support improves *academic* outcomes for my students

E5.2 My practice is built upon my professional experience and knowledge

E5.3 I perform best when I experience a lot of freedom to teach as I see fit

ADDED ITEM E5.4 I think about how to support students' holistic development through my practice

ADDED ITEM E5.5 Trying to prepare students for the 'real world' strongly influences my practice

E6.1 It is important to respond to student needs as they emerge in lessons

E6.2 Education is most effective when teachers treat every student as an individual with a unique context and background

CHANGED TEXT E6.3 I believe that education needs to be holistic and child-centred

E7.1 I feel consulted when decisions are being made in my organisation

CHANGED TEXT E7.2 My professional development needs are well met

(appropriate to my experience)

E7.3 I feel valued as an individual in this organisation

E7.4 My personal circumstances (e.g., family, health) are supported in my

organisation

E7.5 My values align with those of the school

E7.6 I have a clear career pathway

E8.1 I have the support and resources I need to experiment with new pedagogical

approaches in my practice

CHANGED TEXT E8.2 Gaining external qualifications (e.g., NPQ, MA etc.)

motivates to improve my practice

E8.3 It is my responsibility to keep up to date with pedagogical developments in my

field

E8.4 I feel empowered to challenge myself in my practice

Table 134

7.3 **Logistics**

L1.1 Time is scheduled for my professional development activities
L1.2 I have some choice in what professional development activities I engage in
L1.3 I benefit from time dedicated to debriefing and reflection after professional development activities
L1.4 My professional development time is used well, and I find it valuable
L1.5 I experience a flexible approach to professional development in my organisation
L2.1 I agree with the rationale behind most professional development activities we are asked to engage with
L2.2 I am able to attend or access most professional development opportunities offered by my school
L2.3 My life/work balance enables me to engage with professional learning opportunities
L2.4 I am able to access professional development opportunities in a flexible way that suites my circumstances
L3.1 I have opportunities to participate in research activities as part of my role

L3.2 Structured evaluation routines and practices are built into our school culture
L3.3 I find structured approaches to reflection help me to plan my next steps

Table 135

7.4 **Collegiality**

REMOVE SECTION
C1.1 I have opportunities to work in groups or departments as part of my professional development
C1.2 Working as part of a team increases my confidence to try new practices
C1.3 I have changed my practice after group discussions and reflections
C1.4 Fresh ideas are a welcome addition to working parties and departments
C1.5 It is useful to consult with experts or specialists when implementing new practices into a team or department
Was C2, now C1
Was C2.1 now C1.1 I want to see the quality of teacher professional development improve

Was C2.2 now C1.2 It is important to have a choice of professional development opportunities

Was C2.3, now, C1.3 I can see how whole school professional development plans fit into to school vision and values

Was C2.4 now C1.4 I feel revitalised after group or paired reflection on professional development opportunities

Was C2.5 now C1.5 I change my practices with groups or individual students after discussing strategies with colleagues

Was C3, now C2

Was C3.1 now, C2.1 I believe that progress can be made when people with diverse perspectives discuss issues, even if they hold opposing views

C3.2 I value having my professional horizons expanded

C3.3 I want to work with people who share my vision and values about education

Was C3.4 now, C2.2 Promoting student outcomes motivates me to continue to improve my practice

ADDED C2.3 I have opportunities to develop leadership skills

ADDED C2.4 I look forward to continuing to develop my practice and making a positive contribution in my organisation

Was C4, now C3

Was C4.1 now, C3.1 I feel confident that my practice is up to the standard of that of my colleagues

Was C4.2 now, C3.2 I feel that the knowledge from training and professional development that I have undertaken are valued by my colleagues

Was C4.3 now, C3.3 I am often asked for my professional opinion

Was C4.4 now, C3.4 I think it is important to share practices through observations

Was C4.5 now, C3.5 Professional conversations about pedagogy are important to me

Was C5, now C4

Was C5.1 now, C4.1 I value opportunities to observe more experienced teachers

Was C5.2 now, C4.2 I find mentoring relationships, where I discuss my practice with an experienced teacher, very useful

C5.3 I value feedback on my observations from school leaders

Was C5.4 now, C4.3 I like to feel reassured that I am doing things properly

Was C5.5 now, C4.4 I compare my results to those of my colleagues

C5.6 I incorporate ideas I have observed into my own practice

ADDED C4.5 I enjoy looking for creative ways to solve problems

ADDED C4.6 If something goes wrong in my practice, I take responsibility and move forward

Table 136

7.5 **Trust**

REMOVE SECTION

T1.1 I have opportunities to develop leadership skills

T1.2 I look forward to continuing to develop my practice and making a positive contribution in my organisation

T1.3 I feel invested in the vision and values of my school

T1.4 I believe that education is about more than just academic results

Was T2, now T1

Was T2.1 now, T1.1 Leaders in my school value my contribution

Was T2.2 now, T1.2 I can adapt my practice to suit my context

T2.3 I like working in this school

Was T2.4 now, T1.3 School leaders resist 'fads' and 'box ticking' exercises for school inspectors

Was T3, now T2

T3.1 I feel confident to experiment with new pedagogical approaches in my practice

Was T3.2 now, T2.1 I find coaching conversations helpful in working through my reflections on new approaches I have tried in my practice

Was T3.3 now, T2.2 I feel confident that I will not face criticism if I try a new idea out in my practice and it doesn't work as expected

Was T3.4 now, T2.3 I feel confident that I could change my approach during a lesson if a new strategy wasn't working out

Was T4, now T3

T4.1, now 3.1 Experimenting with new ideas in my practice is a worthwhile use of my time

Changed word T4.2, now 3.2 Research informed pedagogies offer me a fresh perspective to revitalise my practice

T4.3 I find it beneficial to hear about what colleagues have implemented successfully in their departments

T4.4 I understand how new teaching and learning practices compliment school priorities

T4.5, now T3.3 I am happy for anyone to pop into my lessons, any time

T4.6, now T3.4 There is always room for improvement in my practice

REMOVE SECTION

T5.1 I experience gaining more responsibility as an expression of my competence and leaders' trust in me
T5.2 I am developing an appreciation of the 'soft' skills involved in taking on a leadership role
T5.3 I welcome opportunities to take on roles and projects that stretch and challenge me

Table 137

7.6 Resilience

REMOVE SECTION
Res1.1 I value opportunities to have a debrief after something has gone wrong so that I can learn from it and move forward
Res1.2 Sometimes things go wrong, but the challenges are worth it to make a difference to student outcomes
Res1.3 I enjoy looking for creative ways to solve problems
Res1.4 We don't have a blame culture in this school, we take responsibility and move forward

Was Res2, now Res1

Res2.1 My colleagues and I have each other's backs

Res2.2, now Res1.1 I never feel alone at work

Res2.3, now Res1.2 I know who I can turn to at work if I have a problem

ADDED ITEM Res1.3 I feel supported to try new ideas out as way of addressing challenges I have noticed in my context

Was Res3, now Res2

Was Res3.1, now Res2.1 When I have needed support with specific issues, my school has been supportive

Was Res3.2, now Res2.2 School leaders are understanding of changes in my personal circumstances

Was Res3.3, now Res2.3 I can gain access to specialist assistance and advice if I need it (e.g., legal, medical, psychological financial services)

Was Res3.4, now Res2.4 My professional development opportunities suit my career stage

REMOVE SECTION

Res4.1 My leaders are supportive of me as I continue to develop my practice
Res4.1 School leaders are understanding if something goes wrong in one of my lessons
Res4.3 This is a good school to work at if something is going wrong for me
Res4.4 I know what to do and who to speak to if I need support

Table 138

7.7 **Reflection and reflexivity**

R&R1.1 I have opportunities to reflect on my practice with a professional coach who is a peer (not a line manager)
R&R1.2 I feel able to be open and honest about my practice without judgement during professional conversations
R&R1.3 I am developing an understanding of what I can do differently in my practice in order to achieve my planned outcomes better
R&R2.1 I use skills of systematic reflection that I have developed to 'coach' myself as part of my reflection on my practice
R&R2.2 I believe that reflecting on my practice is an important part of professionalism

R&R2.3 Planning, teaching, and reviewing my lessons provides opportunities for my professional development

R&R2.4 It is important to me that I understand why my practice is or is not effective so that I can refine it

ADDED ITEM R&R2.2 I have changed my practice after discussions and reflections with colleagues

ADDED ITEM R&R2.3 It is useful to have expert or specialist input when implementing new practices into a team or department

R&R3.1 I find it useful to follow a structured/formal approach to reflections on my practice

R&R3.2 I am in the habit of evaluating my practice and making improvements

R&R3.3 I like to understand why something has been effective or not in my practice

R&R3.4 I find it useful to compare my aims in lesson planning with the outcomes that happened

R&R4.1 I learn so much from my students

R&R4.2 I believe that the best learning experiences are facilitated ones

R&R4.3 I try to minimise 'teacher talk' in my practice

R&R4.4 It is important to develop students' metacognitive skills through my practice

Table 139

7.8 **Professional Autonomy**

PA1.1 I plan my lessons so that the students are working harder than I am

PA1.2 I utilise strategies such as peer marking and whole-group feedback

PA1.3 It is important to give students the skills they need to become self-sufficient learners

PA1.4 I have a lot of freedom to teach as I judge best

PA2.1 I agree with the vision and values of my school

PA2.2 I am happy to undertake further training provided by my school to develop my practice

PA2.3 I welcome opportunities to model and share my practice for colleagues' benefit

PA2.4 My practices reflect my school's 'way' of doing things

PA2.5 I welcome opportunities to lead others in promoting the vision and values of

my school

PA3.1 I have a choice of professional development opportunities that meet my

professional interests

PA3.2 I actively seek career progression opportunities

PA3.3 I enjoy the creative elements of my practice

PA3.4 I would describe myself as having a 'growth mindset'

ADDED ITEM PA3. 5 I experience gaining more responsibility as an expression of

my competence and leaders' trust in me

Table 140

Appendix 8: Cross-case analysis data

8.1 RQ1

What perspectives do teachers and school leaders have about their PD experiences?

Qualitative data
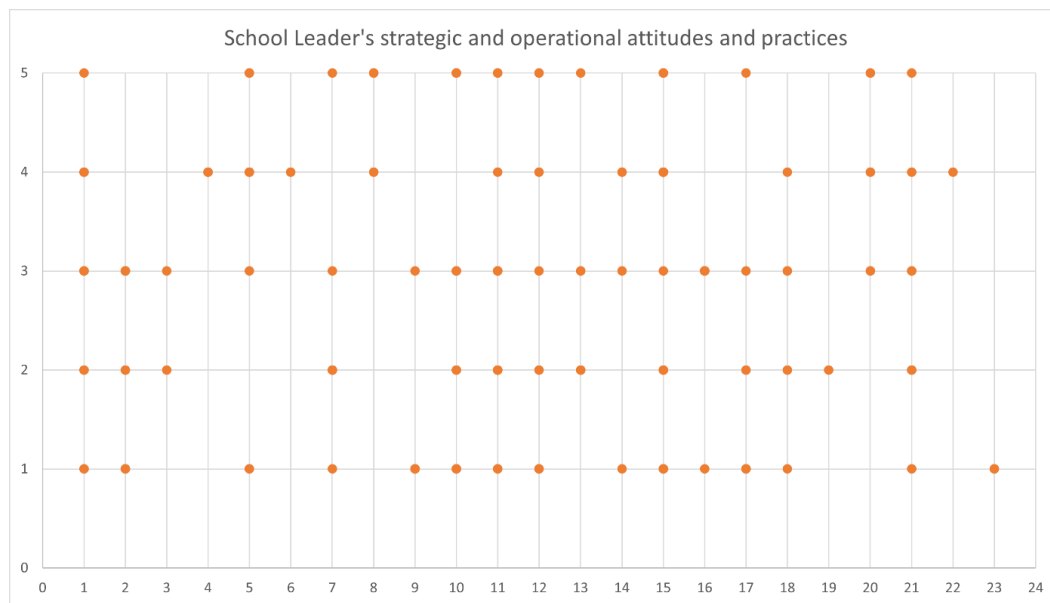
Figure 15

Scatter plot of leadership behaviours visualised from table 10 organised by school (1-5) on the y axis, and themes on the x axis. See table 141 for key

ID	Description of PD implementation related comments	Noted by SL	Noted by teachers
1	Logistical arrangements considered by leaders	1, 2, 4, 5	
2	Operational Challenges	1, 2, 3	

3	Logistics not prioritised beyond directed hours	3	
4	Policy	4	
5	Target groups and differentiation	1, 3, 4, 5	
6	School wide Procedure	4	
7	Research pushed	1, 2, 3, 5	
8	Clarity of vision	4, 5	
9	Loose	1, 3	
10	Complex problem	1, 2, 3, 5	
11	Capacity building	All	
12	Teacher interests	All	
13	Teachers who don't engage	2, 3, 5	
14	Workload concerns	All	All
15	Reflexive strategic planning and whole school focus	All	
16	Feeling unsupported	1, 3	1, 4, 5
17	Devolved leadership	1, 2 ,3, 5	5
18	Lead by example	1, 2 ,3, 4	
19	Psychological safety	2	
20	Contextualised	3, 4, 5	
21	Practitioner researchers	All	
22	Teacher reflexivity	4	1
23	Help teachers notice	1	

		Aware, see	All
24	Unsatisfied teachers	2 and 10	

Table 141: Cross-case coding from slicing process focused on leadership behaviours

School	Leaders	Teachers
Hilltop	Recognition of complexity and tension between whole-school priorities and teacher preferences. Frustration with low take up of voluntary PD.	Interventions feel rushed, impacting work-life balance and satisfaction. Some PD feels repetitive and contrived; 'for 'Ofsted'. Some PD is experienced as indicative of leaders' lack of trust in teacher professionalism.
Baron	Frustrated with low teacher engagement with strategies	Feel bombarded by interventions, which are seen as 'fads.'
Cromarty	The macro education system inhibits effective PD. Systemic change is needed to tighten structures, build capacity and embed supportive structures (such as coaching for all).	Feel time poor and voiceless. 'Passive aggressive' push-back.
Towerville	Further codification of core and non-core PD was made following this research process.	Enthusiasm and concern reported; some felt empowered, others concerned about standardisation.
Parkway	Survey feedback process was valuable.	Frustration that experience/qualifications overlooked. Some interventions experienced as micromanagement. Bespoke, constructive feedback, delivered efficiently in professional conversations appreciated.

Table 142: RQ1 Qualitative themes concerning perspectives about PD

School	Leaders	Teachers
Hilltop	Leaders seek improvement within the professional standards framework within a loosely coupled environment (managerial leanings with traditional assumptions). Corporate identity filters extent and nature of interventions; whole school PD curated to school development plan. Teacher agency and choice promoted of other PD.	Teachers report feeling burnt out. Strongly defend professional autonomy, feeling expertise and experience overlooked.
Baron	Leaders describe features of democratic professionalism such as in-house action research. Democratic professionalism assumed (perhaps wishfully), influenced by leader's MA programme. Open discussion encouraged without leader presence.	Feel expertise and experience overlooked. Techniques are shown using videos, little time for discussion.
Cromarty	Middle leader believes a lack of a common understanding of the purpose of PD inhibits PL. Loose macro and meso-context foster traditional professionalism. Desperately encourages small steps towards democratic professionalism.	Traditional, time poor. Defensive.
Towerville	Established curated democratic – research engaged within	PD has instrumental value (e.g., as means to promotion)

	and beyond school.	Teachers defend autonomy
		Mixed democratic and traditional.
Parkway	Emerging curated democratic – explicitly research engaged within and beyond on a voluntary basis.	Feel expertise and experience overlooked. Mixed democratic and traditional.

Table 143: Qualitative themes concerning professional identity

School	Leaders	Teachers
Hilltop	Working parties, coaching and mentoring available (voluntary except for ECTs). Some action research carried out - voluntary	Small conversations are useful as informal PD.
Baron	Working parties used – voluntary but expected unless private study requested. Some action research.	Feedback from working parties and action research drifted and feedback session not held.
Cromarty	Collaborative small group action research.	
Towerville	Deliberate time set aside for contextualisation of new initiatives before trial, evaluation and codification for context. Compulsory coaching with clear development focus.	
Parkway	Working parties, coaching and mentoring available (voluntary except for ECTs). Research group and in-house publication.	

Table 144: Qualitative themes describing perspectives about the presence of PD2

The graphs are organised by school (1-5) on the y axis, and themes on the x axis (see

table 145 for key).

Comparison between SL and teacher perceptions of barriers to PD	
SL impression of teacher disengagement with PD	Teacher perceptions of PD in their schools
Figure 16	Figure 17

ID	Description of PD implementation related comments	Teacher attitudes to PD, as noted by SL	Noted by teachers
1	Pointless, generic, irrelevant	1	1, 2, 4, 5
2	Burnout	3	1
3	Behaviour barriers	3	
4	Cross purpose (SLs aware that teachers do not share a coherent vision for PD with them)	3, 5	
5	Pragmatism, aware of barriers, not naïve of challenges	1, 2, 3, 5	

6	Puzzled frustration – strategies aren't working and it's hard to see why	1, 2, 3	
7	Quality of PD	1, 3	1, 2
8	Teacher resentment and resistance	3, 5	1, 2, 3, 5
9	Slow burn – takes time to embed changes	1, 3, 5	
10	Teachers happy to be a mentor but not be coached	2, 5	
11	Macro structures inhibit PD plans/desired outcomes	3	1, 4
12	Trust undermined		1, 2
13	Workload/capacity issues (e.g., time, teacher inexperience, competing priorities)	1, 2, 3, 4	1, 3, 4, 5
14	Feeling Valued (for work now and for prior experience/expertise)		1, 2, 3, 5

Table 145

The graphs are organised by school (1-5) on the y axis, and themes on the x axis (see table 146 for key).
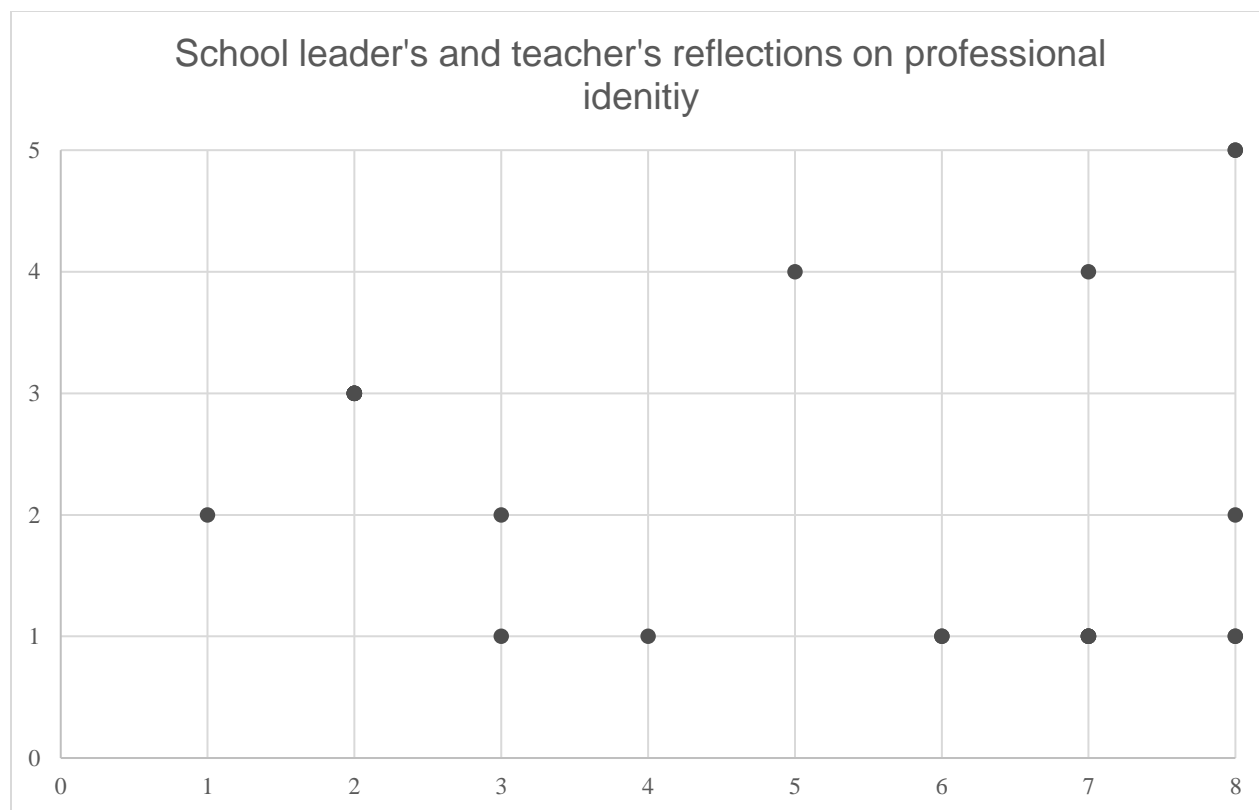
Figure 18

ID	Description of PD implementation related comments	Teacher attitudes to PD, as noted by SL	Noted by teachers
1	Democratic professionalism	2	
2	Foundational understanding necessary	3	
3	Standards and improvement	1 and 2	

4	'Our way' corporate identity	1	
5	Instrumental value (PD as means to ends promotion)		4
6	Burned out		1
7	Defends autonomy		1 and 4
8	Feels experience and expertise under valued		1, 2 and 5

Table 146

School	Leaders	Teachers
Hilltop	Promotes teacher agency by minimising whole school training. Reduced workload always considered – time is given for some administrative tasks. Teacher disengagement tolerated as long as polite teacher performance good (no complaints of drop in results). Reasonable PD requests granted, promoting teachers' professional interests. A small core of teachers takes up voluntary PD.	Whole school PD generic. Set in their ways. Existing skills/ qualifications under-valued. Resist to standardisation.
Baron	Evidence informed pedagogies regularly signposted and resourced. Leaders impatient with slow uptake of initiatives but reluctant to direct staff to engage. Recognition that some ECTs had been unsupported, and many middle leaders were new in post.	Feel bombarded with multiple initiatives which were never embedded. Generic (videos etc.). Frustration if prior experience was not valued. Personal circumstances (bereavement).
Cromarty	Some teachers overtly and passive aggressively resisted PD, disempowering the middle leader. Strategies difficult to implement due to student behaviour.	Several felt unheard and overwhelmed with workload. PD had the wrong focus Generic PD seen as inauthentic.

	Formal professional qualifications not valued by higher up school leaders. Implementation challenging in the loose macro and meso-context. Coaching for all desirable, but not feasible.	
Towerville	Teachers' work-life balance highlighted through core and non-core provision. PD is highly strategic and structured.	Interventions over-complicated by specialist vocabulary. PD is instrumental (e.g. for a promotion) and exhausting (scheduled at the end of a busy day). Resistant to standardisation performativity.
Parkway	Signposting evidence-informed PD increases engagement. Recognition that PD may have direct and indirect relevance. Teachers are censured if attitudes or comments undermine others' learning.	Teachers wanted more contextualised, subject specific PD, and raised workload concerns. Interventions over-complicated by specialist vocabulary. Some PD obvious and infantilising. Demotivated by a lack of constructive feedback.

Table 147: Qualitative themes relating to teacher engagement with PD

8.2 RQ2

What are teachers' and school leaders' experiences of the conditions needed to promote PL?

Qualitative data

The graphs are organised by school (1-5) on the y axis, and themes on the x axis (see table 148 for key).
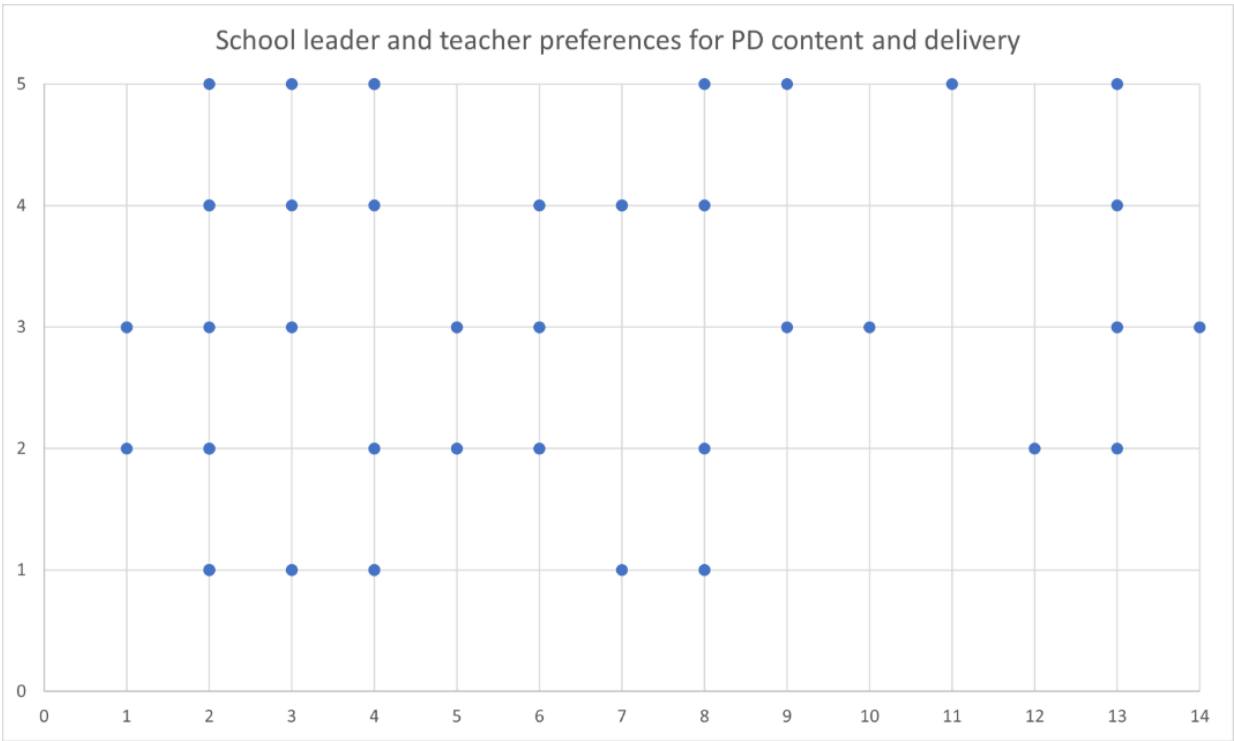
Figure 19

ID	Description of teacher preferences of PD	Noted by SL	Noted by teachers
1	Interaction preferences	2, 3	
2	Different professional interests	All	

3	Voluntary option	1, 3, 4, 5	
4	Structured collegial (including national frameworks)	1, 2, 4, 5	
5	Directed time self-study	2, 3	
6	Varied starting points	2, 3, 4	
7	Identified personal target	1, 4	
8	Capacity, role, or career development	1, 2, 4, 5	
9	Distributed leadership opportunities	3, 5	
10	Macro inhibitors (from policy etc.)	3	
11	Signposting		5
12	Low confidence		2
13	Generic or irrelevant		2, 3, 4, 5
14	Time poor		3

Table 148

School	Leaders	Teachers
Hilltop	Teacher PD choice, approve all staff PD requests. Clearly articulated school priorities. Recognise the complex balance between whole school and individual aims. Mindful not to increase workload. Devolve leadership and utilising the appraisal system to review PD.	Time dedicated to PD; the job is too big! Teachers valued autonomy and area concerned about standardisation. Some are suspicious of leaders' motivations and believe some initiatives indicate that leaders do not trust them.
Baron	Business change management processes influence planned implementation. Planned leadership capacity building. Resources and modelling provided.	Some teachers feel bombarded with constant new interventions, which have come to be viewed as 'fads'.
Cromarty	PD leadership focused on a project supporting teacher reflexive practice driven by a middle leader completing their MA. Teachers are not on site during non-contact time, making collaborative PD difficult.	Teachers report feeling time poor and not really heard. Some passive aggressive behaviour was noted by the ML of teachers who had taken much longer to complete the survey than she recommended, and then complained about it.
Towerville	Leaders curate a tight yet reflexive PD curriculum that advances their strategic aims for student and teacher learning.	Some teachers experience PD as standardisation, eroding professional autonomy, and de-skilling them.

	Evidence-informed interventions are selected, trialled, evaluated, codified and incorporated into policy. Less impactful strategies are de-implemented. Implementation is systematic and not rushed.	Coaching was viewed as useful but was challenging when tired after a full day of teaching.
Parkway	Leaders are committed to offering teacher choice over PD content, within a school wide expectation of teacher engagement. Highly reflexive and open to adaption after new information.	Workload concerns were reported Open to PD that had direct application Resented generic or 'time wasting' PD

Table 149: Qualitative themes describing perspectives about the conditions conducive for PD

Appendix 9: Updated factor names and short descriptors

Factor ID	Name	Short description
A1	Proactive Agency	Seeks out problems to solve rather than accepting the status quo
A2	Authentic Agency	Acts in a way that is true to their own values (whatever they may be)
A3	Empowered agency (and resisters)	Takes decisive action. May be an early adopter or a resister, depending on how included or excluded they feel
A4	Collaborative agency	Understands where they fit into the group dynamic and feels supported
A5	Reflexive agency	Practitioner inquiry and reflection led: deliberate, iterative learning
E1	Individual extended efficacy	Interested in and makes time for personal professional development (reading, webinars etc.)
E2	Open-minded efficacy	Open to new ideas and initiatives
E3	Identity-driven efficacy	Beliefs about what can be achieved by them, because of who they are

E4	Motivated optimism	Loves their subject/role, hungry to improve in it. Resists systemic barriers
E5	Inspirational efficacy	Belief in their ability to inspire others (especially students)
E6	Skilled adaptor	Takes a holistic view and is flexible, responsive, nurturing
E7	Invested belonging	Finds their organisation supportive of their changing needs over their career and personal circumstances
E8	Extrinsic efficacy	Strongly 'pulled' by student needs to do what they can and what they think best. Resists policies or reforms they see as inhibitive
L1	Collaboration time	Dedicated and protected time to meet/reflect/learn
L2	Collaboration space	Available rooms to book for meetings and learning conversations/coaching/mentoring
L3	Collaborative research	Agile projects, action research/lesson study cycles or working parties form part of teacher's typical work
C1	Activist Collegiality	Education is broken and radical reform is needed. Is prepared to make waves and recruit others to the cause
C2	Edumenism	Deliberate efforts to review evidence-informed practices systematically and open-mindedly, identify

		active ingredients and surface the 'best bets' (even if contrary to own preferences). De-implementation features as well as implementation
C3	Democratic professionalism	The creation of self-narratives of community membership in which professionalism is reformist and transformational. Practice is made explicit and accompanied by explanatory meta-commentaries
C4	Collegial hierarchy	Feels secure when they understand their place in the hierarchy of the group
T1	Contextual sensitivity	Trust that leaders will only implement reforms that are filtered for 'fit' in one's context. Teachers feel listened to
T2	Bold innovation	Teachers feel confident to take risks, and try (and fail) with new strategies (even their own) without fear of sanctions
T3	Open optimism	Resilient, not cynical or burnt out
Res1	Relational resilience	Strong sense of team support and belonging which supports skilful coping in challenging times, and thriving when the going is good
Res2	Bespoke resilience	Teachers get the support they need when they need it as their circumstances impact their capacities

RR1	Pragmatic co-learning	Learning through collective sense making/problem solving
RR2	Professional praxis	Learning by habituation
RR3	Systematic reflexivity	Learning by discussing in a structured format
RR4	Reciprocal reflexivity	Learning through building student relationships
PA1	Efficient autonomy	Teachers feel able to work in ways that work smarter, not harder, and really resent having their time wasted
PA2	Congruent autonomy	Teachers freely choose working practices that align with what school leaders want to see
PA3	Empowered autonomy	Teachers develop leadership skills which are inhibited by micro-management

Table 150: Table of factors

Appendix 10: Original phenomenographic analysis bibliography

Total number	Cultural dimension	Number per dimension	Author	Publication Year
1	Agency	1	Aas, Marit; Andersen, Fred Carlo; Vennebo, Kirsten Foshaug	2020
2	Agency	2	Aderet-German, Tali; Segal, Aliza; Vedder-Weiss, Dana	2019
3	Agency	3	Aspbury-Miyanishi, Edmund	2022
4	Agency	4	Avalos, Beatrice	2011
5	Agency	5	Bell, Dawne; Morrison-Love, David; Wooff, David; McLain, Matt	2018
6	Agency	6	Biesta, Gert; Priestley, Mark; Robinson, Sarah	2015
7	Agency	7	Bodman, Sue; Taylor, Susan; Morris, Helen	2012
8	Agency	8	Boylan, Mark; Coldwell, Mike; Maxwell, Bronwen; Jordan, Julie	2018

9	Agency	9	Boylan, Mark; Demack, Sean	2018
10	Agency	10	Bridwell-Mitchell, E.N.	2015
11	Agency	11	Brunetti, Gerald J.; Marston, Susan H.	2018
12	Agency	12	Buchanan, Rebecca	2015
13	Agency	13	Bungum, Berit; Sanne, Anders	2021
14	Agency	14	Burr, Vivien	2003
15	Agency	15	Campbell, Todd; Wenner, Julianne A.; Brandon, Latanya; Waszkelewicz, Molly	2019
16	Agency	16	Canaran, Özlem; Mirici, İsmail Hakkı	2020
17	Agency	17	Carrier, Sarah J.; Whitehead, Ashley N.; Walkowiak, Temple A.; Luginbuhl, Sarah C.; Thomson, Margareta M.	2017
18	Agency	18	Carrillo, Carmen; Flores, Maria Assunção	2018

19	Agency	19	Cheng, Eric C. K.; Ko, Po Yuk	2012
20	Agency	20	Cheng, Eric CK	2017
21	Agency	21	Clarke, Matthew; Moore, Alex	2013
22	Agency	22	Datnow, Amanda	2012
23	Agency	23	Day, Christopher; Stobart, Gordon; Sammons, Pam; Kington, Alison; Gu, Qing; Smees, Rebecca; Mujtaba, Tamjid	2006
24	Agency	24	Denicolo, Pam; Kompf, Michael	2005
25	Agency	25	Du, Xiangyun; Naji, Khalid Kamal; Ebead, Usama; Ma, Jianping	2021
26	Agency	26	Engeness, Irina	2021
27	Agency	27	Engeström, Yrjö	2011
28	Agency	28	Eteläpelto, Anneli; Vähäsantanen, Katja; Hökkä, Päivi; Paloniemi, Susanna	2013

29	Agency	29	Everitt, William	2020
30	Agency	30	Fielding, Michael; Bragg, Sara; Criag, John; Cunningham, Ian; Eraut, Michael; Gillinson, Sarah; Horne, Matthew; Robinson, Carol; Thorp, Jo	2005
31	Agency	31	Fitchett, Paul Graven; McCarthy, Christopher J.; Lambert, Richard G.; Eyal, Maytal; Playfair, Emily C.; Dillard, Jendayi B.	2019
32	Agency	32	Frelin, Anneli; Fransson, Göran	2017
33	Agency	33	Fullan, Michael	2021
34	Agency	34	Gao, Yunli	2010
35	Agency	35	Göçen, Ahmet	2021
36	Agency	36	Goos, Merrilyn	2013
37	Agency	37	Gray, Julie A; Summers, Robert	2015
38	Agency	38	Gu, Qing	2014

39	Agency	39	Halvorsen, Øyvind Wiik; Eide, Liv; Ulvik, Marit	2019
40	Agency	40	Hargreaves, Andy	2000
41	Agency	41	Hendrikx, Wiljan	2019
42	Agency	42	Hökkä, Päivi; Vähäsantanen, Katja	2014
43	Agency	43	Huang, Yi-Ping	2019
44	Agency	44	Huber, Janice; Whelan, Karen	1999
45	Agency	45	Imants, Jeroen; Van der Wal, Merel M.	2020
46	Agency	46	Jaggernauth, Sharon Jacqueline	2021
47	Agency	47	Jimmerson, Linda D	2013
48	Agency	48	Kalkan, Fatma	2016
49	Agency	49	Keay, Jeanne K.; Carse, Nicola; Jess, Mike	2019
50	Agency	50	Kelchtermans, Geert	1996
51	Agency	51	Kelchtermans, Geert	2005
52	Agency	52	Kim, Lisa E.; Asbury, Kathryn	2020
53	Agency	53	Lasky, Sue	2005

54	Agency	54	Leitch, Ruth	2010
55	Agency	55	Li, Lingyu; Ruppar, Andrea	2021
56	Agency	56	Lofthouse, Rachel	2019
57	Agency	57	Louws, Monika; Zwart, Rosanne; Zuiker, Itzél; Meijer, Paulien; Oolbekkink-Marchand, Helma; Schaap, Harmen; Want, Anna van der	2020
58	Agency	58	Lowe, Geoffrey; Gray, Christina; Prout, Peter; Jefferson, Sarah; Shaw, Therese	2019
59	Agency	59	Luehmann, April Lynn	2008
60	Agency	60	Mackay, Margaret	2017a
61	Agency	61	Mackay, Margaret	2017b
62	Agency	62	Malthouse, Richard; Roffey-Barentsen, Jodi; Watts, Mike	2014
63	Agency	63	McChesney, Katrina Ruth	2017
64	Agency	64	McChesney, Katrina; Aldridge, Jill M. (What gets)	2019

65	Agency	65	McKillop, Ewa; Moorosi, Pontso	2017
66	Agency	66	Namgung, W.; Moate, J.; Ruohotie-Lyhty, M.	2020
67	Agency	67	Niesz, Tricia	2010
68	Agency	68	Oddone, Kay; Hughes, Hilary; Lupton, Mandy	2019
69	Agency	69	Olukoga, Titilola	2018
70	Agency	70	Pantić, N.; Galey, S.; Florian, L.; Joksimović, S.; Viry, G.; Gašević, D.; Knutes Nyqvist, H.; Kyritsi, K.	2021
71	Agency	71	Pantić, Nataša	2021
72	Agency	72	Pillen, Marieke; Beijaard, Douwe; Brok, Perry den	2013
73	Agency	73	Postholm, May Britt	2019
74	Agency	74	Pyhältö, Kirsi; Pietarinen, Janne; Soini, Tiina	2015
75	Agency	75	Quan, Tracy; Bracho, Christian A.; Wilkerson, Michelle; Clark, Monica	2019

76	Agency	76	Riveros, Augusto; Newton, Paul; Burgess, David	2012
77	Agency	77	Rushton, Elizabeth A. C.; Reiss, Michael J.	2019
78	Agency	78	Smith, Kari; Ulvik, Marit	2017
79	Agency	79	Stone-Johnson, Corrie	2014a
80	Agency	80	Stone-Johnson, Corrie	2014b
81	Agency	81	Unwin, Adam Richard	2012
82	Agency	82	Vähäsantanen, Katja; Paloniemi, Susanna; Hökkä, Päivi; Eteläpelto, Anneli	2017
83	Agency	83	Wilkins, Chris	2011
84	Agency	84	Worth, Jack; National Foundation for Educational Research in England and Wales; Nuffield Foundation	2018
85	Efficacy	1	Aas, Marit; Andersen, Fred Carlo; Vennebo, Kirsten Foshaug	2020
86	Efficacy	2	Avalos, Beatrice	2011
87	Efficacy	3	Bates, Celeste C.; Morgan, Denise N.	2018

88	Efficacy	4	Bell, Dawne; Morrison-Love, David; Wooff, David; McLain, Matt	2018
89	Efficacy	5	Bodman, Sue; Taylor, Susan; Morris, Helen	2012
90	Efficacy	6	Bosso, David	2017
91	Efficacy	7	Boyer, Darcel	2013
92	Efficacy	8	Boylan, Mark; Coldwell, Mike; Maxwell, Bronwen; Jordan, Julie	2018
93	Efficacy	9	Brady, Jude; Wilson, Elaine	2021
94	Efficacy	10	Brubaker, Wanda Margarette	2016
95	Efficacy	11	Brücknerová, Karla; Novotný, Petr	2017
96	Efficacy	12	Brunetti, Gerald J.; Marston, Susan H.	2018
97	Efficacy	13	Buchanan, Rebecca	2015
98	Efficacy	14	Bungum, Berit; Sanne, Anders	2021
99	Efficacy	15	Carlotto, Mary Sandra; Cámara, Sheila Gonçalves	2017

			Carrier, Sarah J.; Whitehead, Ashley N.; Walkowiak, Temple A.; Luginbuhl, Sarah C.;	
100	Efficacy	16	Thomson, Margareta M.	2017
101	Efficacy	17	Carrillo, Carmen; Flores, Maria Assunção	2018
102	Efficacy	18	Cheng, Eric C. K.; Ko, Po Yuk	2012
103	Efficacy	19	Cheng, Eric CK	2017
104	Efficacy	20	Creaby, Caroline	2012
105	Efficacy	21	Datnow, Amanda	2012
106	Efficacy	22	Day, Christopher; Gu, Qing	2007
107	Efficacy	23	Day, Christopher; Gu, Qing	2014
108	Efficacy	24	Day, Christopher; Gu, Qing	2010
109	Efficacy	25	Day, Christopher; Stobart, Gordon; Sammons, Pam; Kington, Alison; Gu, Qing; Smees, Rebecca; Mujtaba, Tamjid	2006
110	Efficacy	26	Little, Judith Warren	2005

111	Efficacy	27	Eslamdoost, Samaneh; King, Kendall A.; Tajeddin, Zia	2020
112	Efficacy	28	Ferris, Deborah Melchers	2016
113	Efficacy	29	Fielding, Michael; Bragg, Sara; Criag, John; Cunningham, Ian; Eraut, Michael; Gillinson, Sarah; Horne, Matthew; Robinson, Carol; Thorp, Jo	2005
114	Efficacy	30	Frelin, Anneli; Fransson, Göran	2017
115	Efficacy	31	Glackin, Melissa; Hohenstein, Jill	2018
116	Efficacy	32	Glazer, Jeremy	2018
117	Efficacy	33	Göçen, Ahmet	2021
118	Efficacy	34	Gray, Julie A; Summers, Robert	2015
119	Efficacy	35	Gu, Qing	2014
120	Efficacy	36	Halvorsen, Øyvind Wiik; Eide, Liv; Ulvik, Marit	2019

121	Efficacy	37	Ingvarson, Lawrence; Meiers, Marion; Beavis, Adrian	2005
122	Efficacy	38	Jaggernauth, Sharon Jacqueline	2021
123	Efficacy	39	Kalkan, Fatma	2016
124	Efficacy	40	Kelchtermans, Geert	1996
125	Efficacy	41	Korthagen, Fred	2017
126	Efficacy	42	Leitch, Ruth	2010
127	Efficacy	43	Leithwood, Kenneth; Day, Christopher	2008
128	Efficacy	44	Mahler, Daniela; Großschedl, Jörg; Harms, Ute	2017
129	Efficacy	45	McAdams, Dan P.	2001
130	Efficacy	46	Oddone, Kay; Hughes, Hilary; Lupton, Mandy	2019
131	Efficacy	47	Putwain, David W.; von der Embse, Nathaniel P.	2018
132	Efficacy	48	Roberts, T. Grady; Harlin, Julie F.; Briers, Gary E.	2008
133	Efficacy	49	Smith, Kari; Ulvik, Marit	2017

134	Efficacy	50	Spencer, Amy Jo Marie	2019
135	Efficacy	51	Sturm, Eric Karl	2017
136	Efficacy	52	Tarnanen, Mirja; Kostiainen, Emma; Kaukonen, Vili; Martin, Anne; Toikka, Teppo	2021
137	Efficacy	53	Unwin, Adam Richard	2012
138	Efficacy	54	Urrea, Lisa M.	2010
139	Efficacy	55	Wilkins, Chris	2017
140	Efficacy	56	Wolthuis, Fenna; Hubers, Mireille D.; Vries, Siebrich de; Veen, Klaas van	2020
141	Efficacy	57	Worth, Jack; National Foundation for Educational Research in England and Wales; Nuffield Foundation	2018
142	Efficacy	58	Zilka, Avishay; Grinshtain, Yael; Bogler, Ronit	2019
143	Logistics	1	Aslan, Berna; Öcal, Seçil Dayioglu	2012
144	Logistics	2	Bates, Celeste C.; Morgan, Denise N.	2018

145	Logistics	3	Biesta, Gert; Priestley, Mark; Robinson, Sarah	2015
146	Logistics	4	Blose, Sibonelo	2019
147	Logistics	5	Brady, Jude; Wilson, Elaine	2021
148	Logistics	6	Bridwell-Mitchell, E.N.	2015
149	Logistics	7	Buchanan, Rebecca	2015
150	Logistics	8	Bungum, Berit; Sanne, Anders	2021
151	Logistics	9	Cheng, Eric C. K.; Ko, Po Yuk	2012
152	Logistics	10	Cheng, Eric CK	2017
153	Logistics	11	Day, Christopher; Stobart, Gordon; Sammons, Pam; Kington, Alison; Gu, Qing; Smees, Rebecca; Mujtaba, Tamjid	2006
154	Logistics	12	Little, Judith Warren	2005
155	Logistics	13	Du, Xiangyun; Naji, Khalid Kamal; Ebead, Usama; Ma, Jianping	2021
156	Logistics	14	Gilbert, Francis	2018

157	Logistics	15	Gray, Julie A; Summers, Robert	2015
158	Logistics	16	Jimerson, Linda D.	2013
159	Logistics	17	Lofthouse, Rachel; Thomas, Ulrike	2017
160	Logistics	18	McAdams, Dan P.	2001
161	Logistics	19	Pantić, N.; Galey, S.; Florian, L.; Joksimović, S.; Viry, G.; Gašević, D.; Knutes Nyqvist, H.; Kyritsi, K.	2021
162	Logistics	20	Postholm, May Britt	2019
163	Logistics	21	Sims, Sam; Fletcher-Wood, Harry; O'Mara, Alison; Cottingham, Sarah; Stansfield, Claire; Herwegen, Jo Van; Anders, Jake	2021
164	Logistics	22	Stoll, Louise; Bolam, Ray; McMahon, Agnes; Wallace, Mike; Thomas, Sally	2006
165	Logistics	23	Sturm, Eric Karl	2017
166	Logistics	24	Unwin, Adam Richard	2012

167	Logistics	25	Wolthuis, Fenna; Hubers, Mireille D.; Vries, Siebrich de; Veen, Klaas van	2020
168	Logistics	26	Worth, Jack; National Foundation for Educational Research in England and Wales; Nuffield Foundation	2018
169	Collegiality	1	Aas, Marit; Andersen, Fred Carlo; Vennebo, Kirsten Foshaug	2020
170	Collegiality	2	Anderson-Levitt, Kathryn; Draanen, Jenna van; Davis, Helen M.	2017
171	Collegiality	3	Anthony, Glenda; Hunter, Roberta; Hunter, Jodie	2018
172	Collegiality	4	Aslan, Berna; Öcal, Seçil Dayioglu	2012
173	Collegiality	5	Avalos, Beatrice	2011
174	Collegiality	6	Bates, Celeste C.; Morgan, Denise N.	2018

175	Collegiality	7	Becker, Eva Susann; Goetz, Thomas; Morger, Vinzenz; Ranellucci, John	2014
176	Collegiality	8	Bell, Dawne; Morrison-Love, David; Wooff, David; McLain, Matt	2018
177	Collegiality	9	Bodman, Sue; Taylor, Susan; Morris, Helen	2012
178	Collegiality	10	Booth, Josephine; Coldwell, Mike; Müller, Lisa-Maria; Perry, Emily; Zuccollo, James	2021
179	Collegiality	11	Bosso, David	2017
180	Collegiality	12	Boyer, Darcel	2013
181	Collegiality	13	Boylan, Mark; Coldwell, Mike; Maxwell, Bronwen; Jordan, Julie	2018
182	Collegiality	14	Boylan, Mark; Demack, Sean	2018
183	Collegiality	15	Brady, Alison M.	2016
184	Collegiality	16	Brady, Jude; Wilson, Elaine	2021
185	Collegiality	17	Bridwell-Mitchell, E.N.	2015

186	Collegiality	18	Brubaker, Wanda Margarette	2016
187	Collegiality	19	Brücknerová, Karla; Novotný, Petr	2017
188	Collegiality	20	Brunetti, Gerald J.; Marston, Susan H.	2018
189	Collegiality	21	Buchanan, Rebecca	2015
190	Collegiality	22	Bungum, Berit; Sanne, Anders	2021
191	Collegiality	23	Bunnell, Tristan; Fertig, Michael; James, Chris	2020
192	Collegiality	24	Caldwell, Helen; Heaton, Rebecca	2016
193	Collegiality	25	Campbell, Todd; Wenner, Julianne A.; Brandon, Latanya; Waszkelewicz, Molly	2019
194	Collegiality	26	Canaran, Özlem; Mirici, İsmail Hakkı	2020
195	Collegiality	27	Carrier, Sarah J.; Whitehead, Ashley N.; Walkowiak, Temple A.;	2017

			Luginbuhl, Sarah C.; Thomson, Margareta M.	
196	Collegiality	28	Carrillo, Carmen; Flores, Maria Assunção	2018
197	Collegiality	29	Cheng, Eric C. K.; Ko, Po Yuk	2012
198	Collegiality	30	Cheng, Eric CK	2017
199	Collegiality	31	Claesson, Silwa	2005
200	Collegiality	32	Datnow, Amanda	2012
201	Collegiality	33	Day, Christopher; Gu, Qing	2014
202	Collegiality	34	Fielding, Michael; Bragg, Sara; Criag, John; Cunningham, Ian; Eraut, Michael; Gillinson, Sarah; Horne, Matthew; Robinson, Carol; Thorp, Jo	2005
203	Collegiality	35	Fitzgerald, Jessica M.	2014
204	Collegiality	36	Garza, Ruben; Ramirez, Alfredo; Ovando, Martha	2009
205	Collegiality	37	Gray, Julie A; Summers, Robert	2015
206	Collegiality	38	Gu, Qing	2014

207	Collegiality	39	Gu, Qing; Rea, Simon; Seymour, Kathy; Smethem, Lindsey; Bryant, Ben; Armstrong, Paul; Ahn, Miyoung; Knight, Rupert	2020
208	Collegiality	40	Hargreaves, Eleanore	2013
209	Collegiality	41	Hu, Yanjuan; Veen, Klaas van	2020
210	Collegiality	42	Jaggernauth, Sharon Jacqueline	2021
211	Collegiality	43	Jimerson, Linda D.	2013
212	Collegiality	44	Kalkan, Fatma	2016
213	Collegiality	45	Keay, Jeanne K.; Carse, Nicola; Jess, Mike	2019
214	Collegiality	46	Leithwood, Kenneth; Day, Christopher	2008
215	Collegiality	47	Little, Judith Warren	2005
216	Collegiality	48	Lofthouse, Rachel	2019
217	Collegiality	49	Lofthouse, Rachel; Thomas, Ulrike	2017
218	Collegiality	50	Lorentzen, Marte	2020

219	Collegiality	51	Muijs, Daniel; Rumyantseva, Nataliya	2014
220	Collegiality	52	Ndhlovu, Finex J.; Kelly, Stephen John	2020
221	Collegiality	53	O'Connell Rust, Frances	2005
222	Collegiality	54	Oddone, Kay; Hughes, Hilary; Lupton, Mandy	2019
223	Collegiality	55	Pantić, N.; Galey, S.; Florian, L.; Joksimović, S.; Viry, G.; Gašević, D.; Knutes Nyqvist, H.; Kyritsi, K.	2021
224	Collegiality	56	Sachs, Judyth	2005
225	Collegiality	57	Stoll, Louise; Bolam, Ray; McMahon, Agnes; Wallace, Mike; Thomas, Sally	2006
226	Collegiality	58	Unwin, Adam Richard	2012
227	Collegiality	59	Vähäsantanen, Katja; Paloniemi, Susanna; Hökkä, Päivi; Eteläpelto, Anneli	2017
228	Trust	1	Aas, Marit; Andersen, Fred Carlo; Vennebo, Kirsten Foshaug	2020

229	Trust	2	Avalos, Beatrice	2011
230	Trust	3	Bodman, Sue; Taylor, Susan; Morris, Helen	2012
231	Trust	4	Brady, Jude; Wilson, Elaine	2021
232	Trust	5	Bungum, Berit; Sanne, Anders	2021
233	Trust	6	Cheng, Eric C. K.; Ko, Po Yuk	2012
234	Trust	7	Clarke, Matthew	2017
235	Trust	8	Craig, Cheryl J.	2012
236	Trust	9	Datnow, Amanda	2012
237	Trust	10	Derrick, J.	2013
238	Trust	11	Dreyfus, Hubert, L.	1993
239	Trust	12	Eraut, Michael	2004
240	Trust	13	Fielding, Michael; Bragg, Sara; Criag, John; Cunningham, Ian; Eraut, Michael; Gillinson, Sarah; Horne, Matthew; Robinson, Carol; Thorp, Jo	2005
241	Trust	14	Fitzgerald, Jessica M.	2014
242	Trust	15	Frank, Nathan	2013

243	Trust	16	Freeman, John	2019
244	Trust	17	Garza, Ruben; Ramirez, Alfredo; Ovando, Martha	2009
245	Trust	18	Göçen, Ahmet	2021
246	Trust	19	Gray, Julie A; Summers, Robert	2015
247	Trust	20	Gu, Qing	2014
248	Trust	21	Gu, Qing; Rea, Simon; Seymour, Kathy; Smethem, Lindsey; Bryant, Ben; Armstrong, Paul; Ahn, Miyoung; Knight, Rupert	2020
249	Trust	22	Halvorsen, Øyvind Wiik; Eide, Liv; Ulvik, Marit	2019
250	Trust	23	Hardy, Ian	2010
251	Trust	24	Hargreaves, Eleanore	2013
252	Trust	25	Hu, Yanjuan; Veen, Klaas van	2020
253	Trust	26	Jimerson, Linda D.	2013
254	Trust	27	Kalkan, Fatma	2016
255	Trust	28	Kayi-Aydar, Hayriye; Goering, Christian Z.	2019

256	Trust	29	Keay, Jeanne K.; Carse, Nicola; Jess, Mike	2019
257	Trust	30	Kelchtermans, Geert	1996
258	Trust	31	Korthagen, Fred	2017
259	Trust	32	Lasky, Sue	2005
260	Trust	33	Leithwood, Kenneth; Day, Christopher	2008
261	Trust	34	Little, Judith Warren	2005
262	Trust	35	Lofthouse, Rachel	2019
263	Trust	36	Lorentzen, Marte	2020
264	Trust	37	Muijs, Daniel; Rumyantseva, Nataliya	2014
265	Trust	38	Ndhlovu, Finex J.; Kelly, Stephen John	2020
266	Trust	39	Oddone, Kay; Hughes, Hilary; Lupton, Mandy	2019
267	Trust	40	Perryman, Jane; Calvert, Graham	2020
268	Trust	41	Postholm, May Britt	2019
269	Trust	42	Stone-Johnson, Corrie (resp leader)	2014b
270	Trust	43	Sturm, Eric Karl	2017

271	Trust	44	Unwin, Adam Richard	2012
272	Trust	45	Whitty, Geoff	2000
273	Trust	46	Zilka, Avishay; Grinshtain, Yael; Bogler, Ronit	2019
274	Resilience	1	Bridwell-Mitchell, E.N.	2015
275	Resilience	2	Carrillo, Carmen; Flores, Maria Assunção	2018
276	Resilience	3	Day, Christopher; Gu, Qing	2007
277	Resilience	4	Day, Christopher; Gu, Qing	2014
278	Resilience	5	Day, Christopher; Smethem, Lindsey	2009
279	Resilience	6	Day, Christopher; Stobart, Gordon; Sammons, Pam; Kington, Alison; Gu, Qing; Smees, Rebecca; Mujtaba, Tamjid	2006
280	Resilience	7	Du, Xiangyun; Naji, Khalid Kamal; Ebead, Usama; Ma, Jianping	2021
281	Resilience	8	Ebersöhn, Liesel	2014
282	Resilience	9	Fielding, Michael; Bragg, Sara; Criag, John;	2005

			Cunningham, Ian; Eraut, Michael; Gillinson, Sarah; Horne, Matthew; Robinson, Carol; Thorp, Jo	
283	Resilience	10	Gibbs, Simon; Miller, Andy	2014
284	Resilience	11	Gu, Qing	2014
285	Resilience	12	Keay, Jeanne K.; Carse, Nicola; Jess, Mike	2019
286	Resilience	13	Leitch, Ruth	2010
287	Resilience	14	McIntyre, Joanna; Hobson, Andrew J.	2016
288	Resilience	15	Ndhlovu, Finex J.; Kelly, Stephen John	2020
289	Resilience	16	Olukoga, Titilola	2018
290	Resilience	17	Smith, Kari; Ulvik, Marit	2017
291	Resilience	18	Stone-Johnson, Corrie (para prof)	2014a
292	Reflection and reflexivity	1	Aas, Marit; Andersen, Fred Carlo; Vennebo, Kirsten Foshaug	2020

293	Reflection and reflexivity	2	Anthony, Glenda; Hunter, Roberta; Hunter, Jodie	2018
294	Reflection and reflexivity	3	Aslan, Berna; Öcal, Seçil Dayioglu	2012
295	Reflection and reflexivity	4	Bates, Celeste C.; Morgan, Denise N.	2018
296	Reflection and reflexivity	5	Black, Paul; Wiliam, Dylan	2010
297	Reflection and reflexivity	6	Bodman, Sue; Taylor, Susan; Morris, Helen	2012
298	Reflection and reflexivity	7	Bosso, David	2017
299	Reflection and reflexivity	8	Boyer, Darcel	2013

300	Reflection and reflexivity	9	Boylan, Mark; Coldwell, Mike; Maxwell, Bronwen; Jordan, Julie	2018
301	Reflection and reflexivity	10	Caldwell, Helen; Heaton, Rebecca	2016
302	Reflection and reflexivity	11	Cho, Jeasik; Trent, Allen	2006
303	Reflection and reflexivity	12	Little, Judith Warren	2005
304	Reflection and reflexivity	13	Department for Education	2013
305	Reflection and reflexivity	14	Derrick, J.	2013
306	Reflection and reflexivity	15	Fielding, Michael; Bragg, Sara; Criag, John; Cunningham, Ian; Eraut, Michael; Gillinson, Sarah;	2005

			Horne, Matthew; Robinson, Carol; Thorp, Jo	
307	Reflection and reflexivity	16	Fitzgerald, Jessica M.	2014
308	Reflection and reflexivity	17	Frank, Nathan	2013
309	Reflection and reflexivity	18	Fry, Jane; Scammell, Janet; Barker, Sue	2017
310	Reflection and reflexivity	19	Fullan, Michael	2015
311	Reflection and reflexivity	20	Gao, Yunli	2010
312	Reflection and reflexivity	21	Gilbert, Francis	2018

313	Reflection and reflexivity	22	Glackin, Melissa; Hohenstein, Jill	2018
314	Reflection and reflexivity	23	Gray, Julie A; Summers, Robert	2015
315	Reflection and reflexivity	24	Green, Jane	2009
316	Reflection and reflexivity	25	Gu, Qing	2014
317	Reflection and reflexivity	26	Gu, Qing; Rea, Simon; Seymour, Kathy; Smethem, Lindsey; Bryant, Ben; Armstrong, Paul; Ahn, Miyoung; Knight, Rupert	2020
318	Reflection and reflexivity	27	Hardy, Ian	2010

319	Reflection and reflexivity	28	Hu, Yanjuan; Veen, Klaas van	2020
320	Reflection and reflexivity	29	Jaggernauth, Sharon Jacqueline	2021
321	Reflection and reflexivity	30	Jimerson, Linda D.	2013
322	Reflection and reflexivity	31	Kayi-Aydar, Hayriye; Goering, Christian Z.	2019
323	Reflection and reflexivity	32	Keay, Jeanne K.; Carse, Nicola; Jess, Mike	2019
324	Reflection and reflexivity	33	Laverty, Susann M.	2003
325	Reflection and reflexivity	34	Main, Katherine; Pendergast, Donna	2015

326	Reflection and reflexivity	35	McAdams, Dan P.	2001
327	Reflection and reflexivity	36	McChesney, Katrina Ruth	2017
328	Reflection and reflexivity	37	McColskey, Wendy; Egelson, Paula	1993
329	Reflection and reflexivity	38	McKillop, Ewa; Moorosi, Pontso	2017
330	Reflection and reflexivity	39	Mosselson, Jacqueline	2010
331	Reflection and reflexivity	40	Pantić, N.; Galey, S.; Florian, L.; Joksimović, S.; Viry, G.; Gašević, D.; Knutes Nyqvist, H.; Kyritsi, K.	2021
332	Reflection and reflexivity	41	Pascal, Christine; Bertram, Tony; Gasper, Michael;	2001

			Mould, Claire; Ramsden, Fiona; Saunders, Maureen	
333	Reflection and reflexivity	42	Patrick, Fiona; Forde, Christine; Mcphee, Alastair	2003
334	Reflection and reflexivity	43	Perry, Emily; Boylan, Mark	2018
335	Reflection and reflexivity	44	Postholm, May Britt	2019
336	Reflection and reflexivity	45	Rönnström, Niclas	2005
337	Reflection and reflexivity	46	Sachs, Judyth	2001
338	Reflection and reflexivity	47	Sachs, Judyth	2005

339	Reflection and reflexivity	48	Spencer, Amy Jo Marie	2019
340	Reflection and reflexivity	49	Sturm, Eric Karl	2017
341	Reflection and reflexivity	50	Unwin, Adam Richard	2012
342	Professional Autonomy	1	Aas, Marit; Andersen, Fred Carlo; Vennebo, Kirsten Foshaug	2020
343	Professional Autonomy	2	Bodman, Sue; Taylor, Susan; Morris, Helen	2012
344	Professional Autonomy	3	Brady, Alison M.	2016
345	Professional Autonomy	4	Brady, Jude; Wilson, Elaine	2021
346	Professional Autonomy	5	Bridwell-Mitchell, E.N.	2015
347	Professional Autonomy	6	Brunetti, Gerald J.; Marston, Susan H.	2018

348	Professional Autonomy	7	Buchanan, Rebecca	2015
349	Professional Autonomy	8	Bungum, Berit; Sanne, Anders	2021
350	Professional Autonomy	9	Datnow, Amanda	2012
351	Professional Autonomy	10	Department for Education	2016
352	Professional Autonomy	11	Derrick, J.	2013
353	Professional Autonomy	12	Engeness, Irina	2021
354	Professional Autonomy	13	Everitt, William	2020
355	Professional Autonomy	14	Fielding, Michael; Bragg, Sara; Criag, John; Cunningham, Ian; Eraut, Michael; Gillinson, Sarah; Horne, Matthew; Robinson, Carol; Thorp, Jo	2005
356	Professional Autonomy	15	Fitchett, Paul Graven; McCarthy, Christopher J.;	2019

			Lambert, Richard G.; Eyal, Maytal; Playfair, Emily C.; Dillard, Jendayi B.	
357	Professional Autonomy	16	Glazer, Jeremy	2018
358	Professional Autonomy	17	Halvorsen, Øyvind Wiik; Eide, Liv; Ulvik, Marit	2019
359	Professional Autonomy	18	Imants, Jeroen; Van der Wal, Merel M.	2020
360	Professional Autonomy	19	Jimerson, Linda D.	2013
361	Professional Autonomy	20	Keay, Jeanne K.; Carse, Nicola; Jess, Mike	2019
362	Professional Autonomy	21	Kennedy, Aileen	2005
363	Professional Autonomy	22	Lavy, Victor	2015
364	Professional Autonomy	23	Little, Judith Warren	1990
365	Professional Autonomy	24	Lorentzen, Marte	2020

366	Professional Autonomy	25	Louws, Monika; Zwart, Rosanne; Zuiker, Itzél; Meijer, Paulien; Oolbekkink-Marchand, Helma; Schaap, Harmen; Want, Anna van der	2020
367	Professional Autonomy	26	Namgung, W.; Moate, J.; Ruohotie-Lyhty, M.	2020
368	Professional Autonomy	27	Pantić, N.; Galey, S.; Florian, L.; Joksimović, S.; Viry, G.; Gašević, D.; Knutes Nyqvist, H.; Kyritsi, K.	2021
369	Professional Autonomy	28	Pantić, Nataša	2021
370	Professional Autonomy	29	Postholm, May Britt	2019
371	Professional Autonomy	30	Pyhältö, Kirsi; Pietarinen, Janne; Soini, Tiina	2015
372	Professional Autonomy	31	Smith, Kari; Ulvik, Marit	2017
373	Professional Autonomy	32	Stone-Johnson, Corrie (PP)	2014a

374	Professional Autonomy	33	Thorpe, Vicki; Kinsella, Victoria	2021
375	Professional Autonomy	34	Whitty, Geoff	2000
376	Professional Autonomy	35	Wilkins, Chris	2011
377	Professional Autonomy	36	Worth, Jack; van den Brande, Jens	2020