

## Supporting beginner teacher identity development: external mentors and the third space

Joanna McIntyre (a) and Andrew J. Hobson (b)

(a) School of Education, University of Nottingham, Nottingham NG8 1BB, UK

(b) School of Education, University of Brighton, Brighton BN1 9PH, UK

### Abstract

This paper reports findings from a study of support provided by non-school based mentors of secondary science teachers in England. It focuses on the identity development of beginning teachers of physics, some of the recipients of the mentoring. Drawing on the analysis of interview and case study data, and utilizing third space theory, the authors show how external mentors (experienced, subject specialist teachers who were not based in the same schools as the teachers they were supporting) facilitated opportunities for mentees to negotiate and shape their professional identities, and made valuable contributions to three distinct and important aspects of beginning teachers' identity development. The paper argues that non-judgemental support from external mentors enhances beginner teachers' professional learning and identity development through the creation of a discursive 'third' space in which mentees are able to openly discuss professional learning and development needs, discuss alternatives to performative norms and take risks in classrooms. Opportunities for beginner teachers to engage in such activities are often restricted in and by the current climate of schooling and teacher education within England.

Key words: beginning teachers, external mentoring, teacher identity, teaching physics, third space.

### Introduction

This paper is based upon an analysis and theorisation of a sub-set of data generated for an original study of external mentor support for teachers in England (Hobson et al., 2012). We use the term 'external mentor' to refer to an experienced teacher who has the same subject specialism but is not employed in the same school as the teacher they are supporting. The interaction between external mentor and mentee may take place within and/or outside of the mentee's school, and may be face-to-face and/or remote. The data analysed relate to mentoring support on two programmes. First, a pilot programme of regional mentoring for participants undertaking the Physics Enhancement Programme, a subject knowledge enhancement programme for non-specialist beginning teachers of secondary physics (Shepherd, 2008). Second, the work of 'Teaching and Learning Coaches' associated with the Stimulating Physics Network, a support programme for (pupils and) teachers of physics in schools with a low take up of A level Physics and/or a lack of physics subject expertise, established by a partnership of the Institute of Physics and the Science Learning Centres (Jenkinson et al., 2011).

The paper casts new light on some of the processes involved in beginner teachers'<sup>1</sup> professional identity development, where professional identity is taken to mean 'how teachers define themselves to themselves and to others' (Lasky, 2005, p.901). In particular, we show how working with a subject specialist educator operating in a purely supportive role can enable beginning teachers

---

<sup>1</sup> We use 'beginner-' or 'beginning teachers' in this paper to refer to those undertaking initial teacher preparation (ITP) or in their first or second year in teaching post-ITP. We use the term ITP, in preference to alternatives such as initial teacher training (ITT), initial teacher education (ITE), pre-service training, and initial teacher education and training (ITET), to signal our belief that effective teacher preparation requires both 'training' and 'education' as these are often understood, and/but that the distinction between the two terms is somewhat blurred and artificial (Tomlinson, 1995; Hobson et al., 2008).

of physics to overcome challenges associated with three important features of identity development. In so doing, we suggest that ‘third space’ (Bhabha, 1990) provides a valuable theoretical lens to understand how external mentors facilitated the emergence of new dialogic spaces within which the beginner teachers were enabled to better understand and negotiate their professional identities. Understanding how pre-service and early career teachers shape and can be helped to develop their professional identities is an important consideration to all who work with them, not least because of the interplay between teacher identity and teacher resilience, teacher well-being and teacher effectiveness (Day et al., 2007; Pearce and Morrison, 2011; Bullough, 2012). The study is also timely given international concerns about the recruitment and retention of teachers of shortage subjects such as physics (Smithers and Robinson, 2008; Osborne and Dillon, 2008; DfE, 2011).

We begin by introducing the context for the study and outlining the theoretical framework, drawing on the concepts of identity and third space. We next provide an account of the methods of data generation and analysis employed, before going on to present and discuss our research findings. In conclusion we explore some implications of our findings, notably for policy makers and those working with beginning teachers.

## Context

Difficulties in recruiting high quality specialist teachers to some subject areas are compounded by the problem of subsequently retaining them (Ingersoll, 2003). Within England, this has been particularly marked in physics, within a context in which science teachers in secondary education may be required to teach three subjects – Chemistry, Biology and Physics – regardless of their knowledge of and educational background in these areas. Various national government initiatives have been introduced with the intention of overcoming teacher shortages in specific subjects. These include subject knowledge enhancement (SKE) courses in subjects which prospective teachers have not studied as a major component of their degree programmes. Such SKE courses are designed to develop participants’ knowledge of the subject to a standard deemed appropriate for the teaching of Advanced level, prior to them beginning an ITP programme, the Postgraduate Certificate in Education (DfE/TA, 2012). The six month Physics Enhancement Programme (PEP), first introduced in its pilot phase in 2004, was one example of a subject knowledge enhancement course and the forerunner of the wider range of SKEs which exist today.

One feature of the pilot phase of PEP, was that the Institute of Physics (IOP) – with financial support from the Gatsby Charitable Foundation- appointed seven experienced teachers of physics to act as part-time, ‘Regional Mentors’ to PEP participants in each of the three regions of England in which the programme was piloted.<sup>2</sup> The mentoring component was introduced because of concerns (notably amongst colleagues at the IOP and Gatsby) that the enhancement courses alone would provide insufficient opportunity to ‘achieve and sustain gains in subject knowledge’ (Shepherd, 2008, p.4). The role of the mentors was to support the early professional learning and development (PLD) of beginning teachers (mentees), with particular emphasis on supporting mentees’ subject knowledge and subject pedagogy, for the period from the commencement of their PEP course, through their PGCE and to the end of their second year in post. Despite lobbying from the IOP, Gatsby and others, the additional mentoring component was not included as part of the post-pilot, national roll-out of PEP, funded by the (then) Training and Development Agency for Schools. Nor was the work and potential added value of Regional Mentors given much attention in a commissioned evaluation of the PEP programme (Scott and Ryder, 2007).

The Stimulating Physics Network (SPN) also involved the deployment of expert subject specialist teachers of physics to work as Teaching and Learning Coaches (TLCs) throughout England. Each TLC was employed on a part-time basis to provide bespoke programmes of support for the

---

<sup>2</sup> The Institute of Physics (IOP) is a scientific charity, based in London but with an international membership, devoted to improving the practice, understanding and application of physics. The Gatsby Charitable Foundation, also based in London, is an endowed grant-making trust which has a particular interest in science education amongst other concerns.

teaching and learning of physics in schools within regional clusters. One indicator of the need for a TLC was the absence of specialist physics teachers in a school's science department. Whilst TLCs provided support to whole departments, including teachers at different career stages, for the purposes of this paper we were interested in the support provided to teachers in their first and second years in post. For both PEP and SPN, this provision of subject specialist mentoring or 'coaching' was independent of the support provided to the beginning teacher by their schools, notably the provision of school-based mentors during ITP and the subsequent induction period (normally one year post-ITP). For this reason, and because we see coaching as one element of the broader concept of mentoring (Hobson and Malderez, 2013), we refer collectively to PEP Regional Mentors and SPN TLCs as *external mentors* (EMs).

The provision of *school-based* mentoring is a common characteristic of ITP and new teacher induction programmes in England (DfE, 2010; DfE, 2012a), as it is in many other education systems (Asada, 2012; Bullough, 2012; Crasborn et al., 2008; Lindgren, 2005; Long, 1997; Lopez-Real and Kwan, 2005; Rajuan et al., 2010). And such mentoring has been found to bring about a number of benefits for beginning teachers, including improvements in classroom-, behaviour-, time- and workload management, increased job satisfaction, and enhanced problem-solving capacities, self-reflection and self-esteem (Johnson et al., 2005; Lindgren, 2005; Bullough, 2012). However, where the optimum conditions for school-based mentoring are not met, not only are such positive outcomes less likely to occur but in some cases mentoring may even do more harm than good (Hobson et al., p. 2009) and contribute (for example) to mentees' anxiety and stress (Beck and Kosnick, 2000). One of the reasons for this relates to tensions brought about by the conflicting roles that the mentors in some systems have to perform in working with beginning teachers, especially when the mentor's role is commonly associated with that of assessor and gatekeeper to the profession (Hobson and Malderez, 2013). Another difficulty is that while research (e.g. Smith and Ingersoll, 2004; Bradbury, 2010) suggests that beginning teachers gain most from being mentored by subject specialists, this is not always possible, especially in shortage subjects such as physics, where some secondary schools find it difficult to recruit such specialists (Moor et al., 2006; Hillier et al., 2013).

Despite the plethora of research studies dealing with school-based mentoring (Wang and Odell, 2002; Hobson et al., 2009; Rajuan et al., 2010; Postlethwaite and Haggarty, 2012), little has been written about the less common support for teachers provided by *external* mentors. In this paper we explore specific outcomes associated with beginning teachers' experience of being mentored by expert subject-specialist educators who are external to and independent of their school and who (unlike school-based mentors) play no role in assessing them against a set of prescribed professional 'Standards' as they work to become members of the teaching profession and of a community of specialist science educators.

### ***Theoretical Framework***

While the concept of identity is understood and employed in different ways by different writers (Beijaard et al., 2004) and is problematic (Roth, 2008), our own conceptualisation is informed by poststructuralist accounts of identities as multi-layered, multifaceted, dynamic and constantly evolving or in continual flow (Hall, 2000; Gee, 2000; Hamilton, 2010). We also recognise that identity transmutations are linked to socio-contextual factors and to power (Lumby, 2009; Beauchamp and Thomas, 2009), a point which is especially apposite for understanding *teacher* identities, with some writers seeing these as particularly vulnerable, unstable and susceptible to school and national policy pressures and contexts (Lasky, 2005; Leaton Gray, 2006).

Some writers suggest that teacher identities are 'neither intrinsically positively or negatively stable nor intrinsically fragmented' but dependent upon the ways in which individual teachers can at different times 'manage' different 'personal, professional and situational factors' (Day et al., 2007, p. 122). In a similar vein, and perhaps emphasising individual teacher agency to a greater degree, Sachs (2005) contends that 'teacher identity ... is negotiated through experience and the sense that is made of that experience' (p.15), and provides 'a framework for teachers to construct their own ideas of 'how

to be', 'how to act' and 'how to understand' their work' (ibid.). That said, it may be argued that in educational systems which have embraced what Sahlberg (2010) refers to as the 'global educational reform movement' (GERM) and which are thus characterised by discourses and practices of accountability, performativity and surveillance (Ball, 2003), teachers are nonetheless susceptible to developing those 'vulnerable' teacher identities referred to above. Moreover, for a variety of reasons *beginning* teachers are especially vulnerable and, as Lumby (2009) puts it, 'less able to resist their identity being defined by others' (p.355). Two related part-explanations for this are the relatively intense scrutiny under which beginner teachers find themselves, and the need to demonstrate their 'competence' against prescribed 'standards' in order to gain entry to the profession, which for many constitutes a primary survival concern (Edwards, 1998). In such a context, where beginner teachers' representations of their professional selves are at variance with the views of significant others (Sullivan, 1953) such as school-based mentors, they may feel that they have to construct an identity which conforms to others' expectations (Lasky, 2005). The complex process of teacher identity formation is more challenging still for those beginner teachers following SKE programmes and learning to teach subjects in which they are not (yet) specialists, especially since a key aspect of teacher identity development relates to the extent to which beginner teachers feel confident and passionate about the subject they are learning to teach (Helms, 1998; Hobbs, 2012).

In her discussion of the identity development of 'reform-minded science teachers' in the USA, Luehmann (2007) argues that when teachers are required to 'assume a new identity that goes against the norm' there is a need for them to be offered 'motivating and 'safe' places where one can try out the new identity' (2007, p.835). We would go further and argue, given various considerations such as those relating to beginner teacher vulnerability, that *all* beginning teachers should have opportunities to develop their teacher identities (and more generally to learn and develop as teachers) within such 'motivating and safe' spaces. In relation to this we suggest that the concept of 'third space' (Bhabha, 1990) provides a helpful lens through which the identity development of beginning teachers – and the potentially valuable role of external mentors in supporting this – may be viewed and understood. A third space is a metaphorical or material space within which individuals can make sense of the (sometimes competing) discourses and systems which are prevalent in the other spaces they inhabit. Bhabha originally used this conceptualization to illustrate how contrasting cultural experiences can combine to create a hybrid transformative space from which new understandings emerge which are not bound by any one cultural discourse. He also usefully refers to third spaces as 'in-between' spaces which 'provide the terrain for elaborating strategies of selfhood that initiate new signs of identity, and innovative sites of collaboration and contestation...' (Bhabha, 1994, p. 1-2).

It is important to acknowledge that Bhabha's construct of third space has been critiqued by a number of writers (for example, see Parry, 1994; 2002; Su, 2011; Law, 2013), and that the concept of third space has been used in a variety of ways by different scholars (e.g. Lefebvre, 1991; Soja, 1996; Moje et al., 2004; Gutierrez, 1995, 2008). In the field of teacher preparation, spatialized theorisation has been mobilised to understand the intersections and interstices of the work of the university and the school: hybrid or third spaces are said to exist, for example, when practices cross the so-called academic and practitioner boundaries (Zeichner, 2010; Martin et al., 2011; Taylor et al., 2014; Williams, 2014). In this paper, we draw on Bhabha's (1994) notion of 'in-between' spaces, and on Gutierrez's (2008) notion of authentic interactions in a discursive space, and conceptualise third space as that which is created through an integration 'of knowledges and Discourses drawn from different spaces' (Moje et al, 2004, p. 41). Here, third spaces are created when knowledges, practices and discourses within an individual's first (usually informal) space, such as the home or community, are merged with (usually dominant) knowledges, practices and discourses of more formal second spaces, for example the school or church (Moje et al., 2004).

### Methods

The findings reported in this paper are based on analyses of a subset of data generated for the mixed method 'Modes of Mentoring and Coaching' (MoMaC) study (Hobson et al., 2012). This broader study set out to examine the nature and impact of mentoring and coaching associated with three different support programmes for teachers of science in England, employing part-structured

interviews (Hobson and Townsend, 2010) and case studies. It also sought to explore the potential demand for external mentors amongst primary and secondary teachers of all subjects, through a national teacher survey. (Further details of the methodology and findings of the broader study can be found in Hobson et al., 2012 and Hobson and McIntyre, 2013).

The subset of data analysed for the present paper relates to external mentors associated with two of these programmes, the PEP and SPN, and comprises data generated via:

- (1) part-structured interviews, conducted in different regions of England, with 28 beginner teachers (19 PEP, 9 SPN) who had accessed the support of an external mentor, and with 13 external mentors themselves (5 PEP, 8 SPN), to elicit participants' experiences of the mentoring and their perceptions of its impact;
- (2) case studies of the work of four external mentors (two PEP, two SPN), which in total included direct observation of five face-to-face meetings between mentors and mentees, documentary analysis of email exchanges between mentors and five mentees, and follow-up interviews with the four mentors and six beginner teacher mentees whose interactions with the EMs were observed and/or analysed to elicit their retrospective reflections on the mentoring interactions;
- (3) part-structured interviews with six ('post-pilot') PEP participants, across two providers, to explore their views about the potential value of external mentor support, which had not been available to them personally.

The number of interviews conducted with different categories of participant is summarised in Table 1.

Table 1 Interviews conducted

	PEP (including case study interviews )	SPN (including case study interviews)	Total (including case study interviews)
Mentors / TLCs	5 (7)	8 (10)	13 (17)
Mentees	19 (22)	9 (12)	28 (34)
'Unmentored' participants	6	N/A	6
			47 (57)

We refer to our main method of data generation for this study as 'part-structured' interviews (Hobson and Townsend, 2010) to describe a relatively flexible form of 'semi-structured' interviews which draw upon Tomlinson's (1989) notion of *hierarchical focusing*. The aim of the hierarchically focused interview is to ensure coverage of the researcher's agenda whilst minimising the interviewer's influence on interviewees' responses, by seeking to 'elicit as spontaneous a coverage of as much of the interview agenda as possible' (Tomlinson 1989: 169). This is achieved by constructing an interview agenda that starts with a single general question, which theoretically allows the interviewee to speak about all of the things in which the researcher is potentially interested, but that also includes more specific questions and prompts to be used as required. During the interview, interviewees are encouraged in a non-directive manner to elaborate and expand upon the views they are expressing, using both verbal and non-verbal strategies (e.g. deliberate silences, explicit request such as 'do go on'), and are prompted to discuss those aspects of the researcher's agenda which they do not spontaneously address by (as far as possible) using terminology which has already been introduced by the interviewee. Whilst adhering to these principles, we chose not to begin our various interviews for this study with a single broad question because of the relatively wide range of experiences and perceptions we wished to explore with different categories of interviewee (e.g. relating to participants' experiences of school-based mentoring, to actual or potential benefits and costs of working with an external mentor, to other forms of support for participants' PLD, and to participants' perceptions of their PLD needs).

The sampling strategy adopted varied according to the method of data generation employed and across the participant groups. First, given the relatively small total number of PEP mentors nationally (at the time of recruitment to our study there were seven, each working in one of the three regions of England in which the PEP programme was being piloted), all of these were invited to participate in the initial (pre-case study) interviews. Six agreed to do so although in the event it

proved impossible to conduct an interview with one of these. The five PEP mentors interviewed were all white males who were experienced teachers of physics and who had held or were holding head of department or other leadership roles in schools. Secondly, given that as many as 155 PEP pilot participants had given permission to share their email addresses for research purposes, we approached a stratified sample (by region and gender) of just over a quarter (40) of these, to request whether they were willing to be interviewed. From this, 19 interviews were eventually conducted - with ten female and nine male participants from a range of ethnic backgrounds.

Thirdly, we also invited a stratified sample (again by region and gender) of 12 TLCs (out of 23 who held the role across England), of whom eight agreed and were subsequently interviewed – six white males and two white females. Like the PEP mentors, the TLCs were experienced teachers and leaders of physics, some of whom were still teaching, while some were semi-retired and/or undertaking mentoring and coaching alongside other consultancy roles. Fourthly, since we had no direct means of identifying teachers who had accessed TLC support, those TLCs who agreed to participate in our research were also asked to invite teachers they were supporting to participate in the study, which led to interviews with nine beginning teachers.<sup>3</sup> Like PEP participants, most of the SPN mentees that we interviewed had entered teaching as their first career, though in both cases there were a small number of career-changers. While all PEP and most SPN mentees entered teaching through one-year university-administered Postgraduate Certificate in Education (PGCE) programmes, a minority of SPN mentees had entered teaching through other routes, notably the undergraduate Bachelor of Arts with Qualified Teacher Status course and the postgraduate employment-based Graduate Teacher Programme (GTP).

Case study participants were selected, from existing participants who indicated a willingness to be included, using purposive sampling to facilitate the examination of a variety of approaches to mentoring we had identified as being in use. These selection decisions were informed by an initial analysis of data generated from the earlier interviews with mentors and mentees. Finally, four providers of ‘post-pilot’ PEP were approached – based for reasons of convenience and cost on their geographical proximity to existing fieldwork sites – and asked to facilitate the research team’s access to ‘unmentored’ participants on their programmes. Two of these agreed, from which a total of six participants (four females and two males from a range of ethnic backgrounds) volunteered and were subsequently interviewed.

At the time of data generation, mentees were in their first or second year of teaching following completion of their ITP, while the ‘unmentored’ PEP participants were following their PEP courses prior to embarking upon PGCE programmes. Where possible, and in the majority of cases (49 out of 57), interviews were conducted on a face-to-face basis. Where this did not prove possible, participants were interviewed via telephone (in 6 cases) or else the discussion took place via email (2 participants). The face-to-face and telephone interviews varied in duration between 25 minutes and one hour 15 minutes, with an average duration of 52 minutes. With the consent of participants, all interviews were recorded and subsequently transcribed, while field notes taken during observations were typed up as soon as possible after the event. Following the initial analyses of all data generated for the wider study, for the purposes of producing a full report on the research (Hobson et al., 2012), each of the present authors subsequently undertook an independent re-analysis of separate ‘qualitative’<sup>4</sup> datasets (together amounting to around a half of all relevant transcripts and field notes), employing constant comparative methods (Miles and Huberman, 1994). The role of external mentors in helping to enhance beginner teachers’ identity development (the focus of this paper) was

---

<sup>3</sup> As part of the wider study, 19 interviews were conducted with teachers supported by TLCs. We have drawn upon the data from 9 of these. The remaining 10 were more experienced teachers so the data were less relevant to the focus of this paper.

<sup>4</sup> We use inverted commas here to acknowledge that the distinctions between qualitative and quantitative research, methods and data are somewhat simplistic and exaggerated, as Hammersley (1996) and others have shown.

independently identified by each of us as a prominent theme in the data. The outcomes of these analyses informed the subsequent development of a coding frame to undertake a data-driven thematic analysis (Braun and Clarke, 2006), using MAXQDA qualitative data analysis software.

We should state that the study as a whole was conducted in accordance with the ethical guidelines of the British Educational Research Association (BERA, 2011). For example, all prospective participants were granted the opportunity to grant or decline their informed consent to take part in the research, as well as the right to subsequently withdraw consent, while in presenting findings of the research here and elsewhere we have sought to protect the anonymity and non-traceability of participants. While the perspectives of teachers in general are marginalized in much education discourse (Lingard, 1995), and this is especially the case for beginning teachers (Hobson, 2010), in the presentation of findings which follows we draw on feminist traditions to accord a prominent place to our beginner teacher participants' 'voices' (Bell and Klein, 1996; Mahony et al., 2004). Due to limitations of space, specific findings are normally illustrated by one or two illustrative quotations, and, unless otherwise stated, the quotations provided are fairly typical of the (reported and sometimes observed) experiences and perceptions of a larger number – and usually at least a significant minority – of participants.

## Findings

In this section we draw attention to three important features of identity development that the beginning teachers in this study sought to negotiate, each of which posed challenges to them, challenges which they were helped to overcome with the support of their external mentor. We then go on to offer an interpretation of these findings which draws on 'third space' theory. First, however, we provide a context for this in the form of a summary overview of the support provided by EMs.<sup>5</sup>

### *External mentor support: an overview*

As noted earlier, EMs' main brief was to provide support for mentees' subject knowledge and subject pedagogy. Our analysis suggests that EMs' work, which to a large degree was personalised to meet individual mentees' PLD needs, was indeed predominantly concerned with these areas of beginner teacher development, yet had a broader focus which also incorporated support for mentees' general pedagogy (such as classroom management), for their emotional well-being, for building their confidence as teachers of physics, for developing their resilience, and for their career progression. Support was provided predominantly via face-to-face contact and email, with the former including both one to one meetings (normally in mentees' schools) and group meetings (for PEP participants these were often informal social events such as group meals or get-togethers at science events or regional or national conferences; for SPN participants they more often took the form of school-based workshops for science departments). For both PEP and SPN, some support was also facilitated through telephone conversations, whilst a minority of participants utilized text messaging or social networking sites (most commonly, Facebook).

It is important to note that not all PEP and SPN participants who were offered the provision of an external mentor took advantage of the support to any meaningful degree: on the basis of our research evidence we estimate that approximately half of eligible participants did so.<sup>6</sup> Of those beginner teachers who did meaningfully engage with a PEP or SPN external mentor, the frequency of contact normally ranged from once a week to once a term, and all such participants reported that the

---

<sup>5</sup> A more comprehensive account of the nature and impact of this support, and detailed evidence relating to the summary account which follows, can be found in Hobson et al. (2012).

<sup>6</sup> The reasons that some participants did not take up the offer of EM support included time constraints on the part of the beginner teachers, and satisfaction on some mentees' parts with existing (notably school-based) support for their PLD. For some PEP participants, geographical distance between themselves and their mentors was also an issue, reducing opportunities for face-to-face meetings; while for SPN, school gatekeepers such as heads of department sometimes failed to facilitate external mentors' access to potential beneficiaries of their support.

mentoring had a positive impact. The perceived benefits were categorized as: impact on professional subject knowledge and skills base; impact on teaching and learning (e.g. increased use of practical work); impact on emotional well-being (e.g. relating to mentees' increased confidence in their physics knowledge and corresponding reduced anxiety relating to teaching physics); enhanced recognition and career advancement for mentees; and associated benefits for mentees' departments, schools and the wider professional community (e.g. enhanced teacher retention). Some of these benefits came about, at least in part, through the processes involved in mentees' development of their identities as teachers and as subject specialists, the main focus of this paper to which we now turn.

### ***Three features of identity development and external mentor support***

The findings of our analyses suggest that working with external mentors in the ways described above helped three distinct aspects of identity development for our beginner teachers, namely those relating to performative school cultures, to becoming subject specialists, and to engaging with relevant communities of practice. We discuss each of these, in turn, before examining such identity development through the lens of third space.

#### *Identity formation and presentation in normative and performative contexts*

In general, our analyses support the conclusions of Lasky (2005) that teachers' professional identities evolve over time and are part-shaped and constrained by 'school, reform and political contexts' (p.901). Our data suggest that two particular contextual factors were rarely far from beginner teachers' thoughts about their teaching and their identities as teachers. The first was that, particularly as student teachers and NQTs, they felt that they were under almost constant scrutiny and vulnerable to others' judgements and criticism. As one participant put it '*whatever you ask your [school-based] mentor they would judge you on and [think] "why doesn't she know that?"*' (PEP mentee 3, female). A second, related consideration concerns the specific means by which and criteria against which teachers are assessed, appraised and 'performance managed', namely the prescribed Teacher Standards which have come to dominate both policy discourse and local practice. Some participants suggested that their experiences of school-based mentoring were focused almost entirely upon the Standards – '*based around the criteria for teaching...to get you past all the objectives*' (PEP mentee 17, male). One of the ways in which some if not all participants negotiated their identity development (consciously or otherwise) in the face of these considerations was by developing or presenting 'strategic and positional' identities (Hall, 2000) as coping mechanisms, effectively defining themselves in different ways to different people. Most notably, and probably motivated by an understandable desire in the circumstances to present an appearance of competence to others (Edwards, 1998), our data suggest that it was commonplace for beginner teachers to mask from school-based mentors, line managers, university tutors and others those elements of their self-identities that portrayed (or betrayed) them as new entrants in need of support and guidance. For example, one mentee stated '*I wouldn't be speaking to my [school based] mentor about flaws that I have*' (PEP mentee 3, female), while another admitted that:

*'there is a part of you that feels if I go to this person to say I don't know this, what would it look like in terms of them thinking why does this person not know this basic thing?'* (SPN mentee 1, female).

While masking aspects of their teacher identities may seem preferable to having their identities 'defined by others' (Lumby, 2009), one of the consequences for beginner teachers of being unwilling or unable to openly acknowledge their professional development needs to school-based colleagues or university tutors is that those professionals are thereby less able to help them address such needs, which may restrict their development as teachers (Hobson and McIntyre, 2013). One participant got to the very heart of the issue in exclaiming:

*'You don't want to look like you don't know what you're talking about but you also want help'* (PEP mentee 15, female).

Fortunately for most of the beginner teacher participants in this study, they were able to enlist the support of an external mentor to help them to negotiate their own learning and growth as teachers and their developing professional identities in the face of the challenges outlined above, and to provide support for professional development needs that they were not able to address via standard support mechanisms. The unique role of EMs, positioned outside of the school context, enabled them to present an alternative perspective to those typically encountered in normative and performative spaces. One participant, for example, described EM support as:

*'less focused on jumping through hoops and more about being a better teacher'* (PEP mentee 18, male).

Interactions with external mentors provided dialogic spaces within which mentees felt able to present aspects of their self-identities which revealed their insecurities and professional development needs:

*'I've used [EM] loads and can ask stuff that I would feel a bit too stupid to ask colleagues. [EMs] don't seem to judge.'* (SPN mentee 8, female)

*'you could be quite open and honest and really discuss the issues; there's no one [EMs] are going to tell'* (PEP mentee 17, male).

Some such mentees made explicit reference in this context to the independent and non-judgemental nature of EM support:

*'I was keen to have [EM] come into my lesson and share his expertise. He wasn't coming in to pick holes in what I was doing but to support.'* (SPN mentee 7, male)

What is clear from the findings is that the EM is positioned as a much needed ally for some (perhaps many) beginning teachers, and such an ally was a desirable prospect for some of the 'post-pilot' PEP participants we spoke to (who did not have access to an EM):

*'It's the university that's assessing us [so] it might be difficult to say "I'm having a really bad nightmare I need to talk to somebody"... So I think ... someone externally could be useful, if you want to ask a question about your subject knowledge and you don't want to look stupid... I can see the value of it.'* ('Unmentored' PEP participant 4, female)

#### *Developing an identity as a subject specialist*

We suggested earlier that an important aspect of a teacher's identity formation involves their identification with the subject they teach (e.g. Helms, 1998). For the beginning teachers in this study this meant they must also negotiate an additional dimension of identity development, that of becoming a subject specialist teacher where the subject matter is a relatively new field to them. Both interview and observation data evidence ways in which interactions with their external mentor helped beginning teachers to deal with specific challenges of teaching physics. Some beginning teachers directly compared the EM's subject specific support with more generalised support they had received in their schools. For example:

*'[EM] is much more physics support as well because the mentors in school support you on how to teach rather than content. So the physics knowledge and how you go about teaching physics.'* (PEP mentee 12, male)

There were three specific approaches to teaching physics that the EMs helped with. The first of these was their understanding of, and the avoidance of reinforcing, common misconceptions within physics.

When considering misconceptions, the EMs helped their mentees with their own as well as their pupils' misunderstandings:

*'[the EM found] out what misconceptions pupils have about forces, and [sought to] to check on any of mine as well.'* (SPN mentee 5, female).

Second, the beginning teachers perceived a particular challenge of teaching physics to be that of understanding how to set up and demonstrate concepts through practical work ('practicals') and experiments:

*'he literally spent the day giving me ideas of how to put things together'* (PEP mentee 13, female).

Until they received this kind of support from their EM, some mentees had sometimes avoided practical work in their teaching. Third, the beginning teachers identified specific topics as being difficult to teach. They talked about the ways in which their interactions with the EMs had helped them both improve their own understanding and their confidence in some of these, namely energy, electricity, radioactivity, reactivity, and resistance. For some there was a perception before they had engaged with the support of their EM that their teaching of these areas had been unsuccessful and 'dry' (SPN mentee 1, female):

*So [EM] comes in with ideas of ways to make it more engaging, things that the kids are actively involved in.'* (SPN mentee 1, female).

Because external mentors helped beginning teachers both with their own understanding of the subject matter and with innovative ways of engaging the pupils with specific topics, the danger of promoting fun activities based on an insecure knowledge base was avoided. The beginning teachers were thus supported to plan and teach in ways that led to what Wilson and Kittleson refer to as 'meaningful science learning' (2009, p. 710).

Our analyses suggest that developing an identity as a subject specialist teacher who is able to plan for meaningful learning is a long-term endeavour, and that this is a continual or iterative process which reflects teachers' grasp of, and confidence relating to, both subject content knowledge and subject pedagogical knowledge. Beginning teachers usually rely on their more experienced colleagues to help with this process as the secondary school subject department can provide 'the locus around which secondary teachers gather, collaborate, develop identities and support each other' (Hobbs 2013, p. 275). Accordingly, the development of a subject specialist identity was a particular issue for those participants in the present study who were or had been based in schools in which there was a scarcity of physicists and/or whose mentors had not been physics specialists, since this restricted opportunities to develop their knowledge and understanding through dialogue and collaborative working with such subject-specialist colleagues:

*'It's a small science department ... I'm the only one who has done anything in physics so they look to me as being the expert. And because of my route into science I've got gaps and I don't always know the answers.'* (SPN mentee 4, female)

That said, beginner teacher participants in schools which *did* employ specialist physics teachers did not always benefit from their presence to the extent that they might have, for three main reasons. First, some such specialist teachers were unable to make sufficient time for them. Secondly, some beginner teachers were reluctant to engage in open dialogue with experienced specialists in their schools due to issues relating to the performativity context discussed in the previous section. Thirdly, some beginner teachers considered that the physicists in their workplaces were too 'old school' (PEP mentee 15, female; SPN mentee 2, female) and (especially in comparison to EMs) were perceived to be:

*'people who are less equipped to help you and [who] go with established ways of doing things and [do] not make physics lessons as exciting as they can be'* (SPN mentee 7, male).

Our data show that the work of external mentors, who had dedicated time available to them to support their mentees, provided a powerful antidote to the issues raised here, and more generally played a valuable role in supporting the development of their mentees' identities as subject specialist teachers. They did so, as expert and passionate physicists and experienced classroom practitioners, by providing their mentees with greater opportunities to 'talk physics' and to consider innovative pedagogical approaches, by offering tailored support for their subject content and pedagogical content knowledge, and (partly through doing so) by boosting their confidence in and enthusiasm for the teaching of physics. So mentees explained that the support from their EM had helped by:

*'encouraging us to teach physics help[ing] those students who learn best by seeing things, through experiments and practicals, rather than by hearing it. As a result pupils are engaging more with what's going on in the lessons.'* (SPN mentee 7, male)

These findings support and complement those of Hobbs (2012), who stated that teacher identity development as a teacher of a particular subject is contingent upon the individual's:

*'commitment to the subject, being able to identify with it personally and professionally, and knowing how to bring the subject matter alive for students.'* (p.9)

She goes on to argue that this does not happen simply at a cognitive level but also at an aesthetic level. Our findings suggest that external mentors can inspire and foster a passion for the subject within beginning teachers who initially lack confidence in that subject, and that this helps them to identify both with the subject and with themselves as teachers of that subject.

#### *Forming identities as part of a community of practice*

Teacher identity formation is also connected in various respects to teachers' relationships with and to relevant professional communities (Talbert and McLaughlin, 2002). One important ingredient of identity development involves being accepted into various communities of practice (Lave and Wenger, 1990). As suggested above, however, some beginner teachers of physics lead something of a 'balkanized' existence (Hargreaves, 2001) and have limited opportunities to develop their teacher identities alongside subject-specialist colleagues in their schools. As one participant in the present study put it, *'you can be working in a bit of a vacuum'* (PEP mentee 2, male). Our analyses suggest that the majority of the newly and recently qualified teachers we spoke to felt isolated in their schools, either because there were no specialist teachers with whom they could 'talk physics' or because they were trying to teach physics in a manner that was not consistent with how the department approached the subject. In such a context, involvement with a broader professional community assumes even greater importance to a beginner teacher's identity development.

Our data reveal that PEP external mentors in particular played a valuable role in connecting beginner teachers of physics to their broader communities. They did so, firstly, by working to establish a peer network amongst PEP participants through both face to face and social networking. This often began during the early stages of the PEP programme, with the mentor encouraging mentees to attend social functions such as group meals, and continued through participants' PEP, PGCE and NQT Induction programmes to the end of their second year in teaching (though those beginner teachers who took up posts in different regions to those where they had followed their PEP and PGCE programmes – and which their external mentors served – were less able to attend social get-togethers and sometimes became psychologically as well as geographically disassociated from their peer group). Most of the mentees we spoke with valued the networking opportunities facilitated by their EM. The following quotations are illustrative:

*'[E]ven the PEP course itself wasn't as valuable as what [the EM] was doing... He organised us and we kept together and we built up camaraderie in our team and we felt we could bounce ideas off each other because he brought us all together.'* (PEP mentee 15, female)

*'[O]ne of the best things is knowing other people are going through the same things as you are. Knowing that there is a learning curve and ...you are all going through it. You share ideas, de-stress with each other and it helps you stick with it... it certainly has helped keep me going.'* (PEP mentee 18, male)

Secondly, external mentors were catalysts not only in developing peer support networks but also in encouraging (both PEP and SPN) mentees to become involved with their local science teaching communities and providing a conduit to national professional organisations of subject specialists, specifically the Institute of Physics and the Association for Science Education. Indeed for some participants, apart from networking with PEP and PGCE course-mates and/or colleagues in their departments, interaction with other members of the physics teaching community occurred *only* through opportunities created by their EM. Through promoting mentees' involvement with the broader community of physics and science teachers, as well as through their direct contact with mentees, EMs helped compensate for the feelings of isolation felt by some beginning teachers and provided further opportunities for them to develop their identities as physics teachers. One such teacher commented that:

*'...it makes you feel part of the whole thing, feel part of the wider ... world of physics.'* (PEP mentee 16, male)

In contrast, some 'post-pilot' PEP participants who did not have access to an EM articulated concerns about their potential isolation following the completion of their course and dispersal of their PEP and PGCE peer groups:

*'I think from our discussions at the moment we have all this support, [but] what happens when we're on our own? ...we would definitely appreciate a regional mentor, someone [we] can always have...'* ('Unmentored' PEP participant 2, female)

### ***Mentoring dialogues as third spaces***

We have seen above that external mentors played an important role in supporting beginner teachers of physics in three broad aspects of their teacher identity formation, and in helping them to overcome impediments to their identity development within each of these areas. That EMs were able to perform such a role, where school-based mentors appeared often unable to do so, may be explained, at least in part, by recourse to the concept of third space outlined earlier. We suggest that beginner teacher participants in this study – individuals of different ages, genders and backgrounds – brought their varying experience of their informal first spaces to the more formal second spaces of schools, where many experienced dissonant discourses and practices. For some beginning teachers, their first spaces might favour openness, collaboration and a degree of risk-taking, for example, traits and behaviours which may be tempered or quashed in the more authoritative second spaces of schools characterised by hegemonic discourses around becoming a teacher which centre largely upon the national Teacher Standards and performance management structures.

Our data (drawn from direct observation of interaction and discourse between beginner teachers and their EM and peers, as well as participants' perceptions of these interactions as recollected and rehearsed in the research interviews) suggest that the work of EMs acted as a catalyst for third, in-between, discursive spaces to be created out of the intersections of the first and second spaces that mentees inhabited. That is, beginner teachers' interactions both with their EM and with peers in networks facilitated by their EM, created a form of refuge and reflexive space within which participants could critically reflect on their practice and that of their school. An illustrative example of this is from field notes taken for one of the case studies of PEP mentoring, specifically at one of a series of regular group meals organised by the mentor.

There were eight mentees at this session, all were NQTs and had been on the same PEP course together. [EM] sat in the middle of the group and joined in but did not necessarily lead discussions as the meal progressed. There was a relaxed informal atmosphere and the

conversation drifted between talk about physics and science teaching more generally as well as more personal topics ranging from life outside school to ‘*the strain of doing cover, of Ofsted<sup>7</sup>, of in-school mentors*’.

When interviewed, this case study mentor explained that the meals and other activities he initiated were designed to cultivate an informal support network amongst mentees. He suggested that getting to know others in the same situation – ‘*knowing they’re not alone, is the most important thing of all – teaching is very tough...*’ (PEP mentor 1, male).

These kinds of activities created opportunities for beginning teachers to negotiate new understandings and professional identities. In these third spaces, mentees were more able to recognise and critically interrogate the dominant discourses of schools and schooling, and to explore and interrogate pedagogies that they felt were more in line with the kind of teacher self the mentee wanted to become:

‘[Y]ou can get a bit consumed with your own school and think that is the only way’ (PEP mentee 8, female)

‘[I]t gave me an opportunity to see or question how I was doing it.’ (PEP mentee 9, male).

Our data also suggest that in this safe, discursive space, beginner teachers felt able to talk informally with their EM and with each other about a range of matters, including issues relating to what one mentee referred to as their ‘*flaws*’ (PEP mentee 3, female), or to their development as teachers and subject specialists, which they were not always willing or able to openly discuss in their schools:

‘*Just having a relaxed conversation and not feeling you are under any pressure. There is no judgement, you know it is completely non-judgemental and private which I think really helps. Because there are often more of us in the same boat we can really relate, and then [EM] is there to ... reassure... us*’. (PEP mentee 8, female)

Our analyses suggest that key to this was external mentors’ independence from schools and their performance management structures, and the particular approaches to mentoring that they adopted, described by one PEP mentor as:

‘*free access to me, to seek support and bounce ideas around with, without the possible other agendas that might exist with coaches and mentors in school*’ (PEP mentor 1, male).

## Conclusions and implications

The findings reported in this paper support those of some previous studies which have found that teacher identity is multi-faceted and that identity formation is influenced by a number of socio-political considerations including power relationships. Our study enriches the evidence base in this field, most notably by demonstrating benefits that working with an external mentor can bring for beginner teacher identity development, and by mobilising third space theory to help illuminate and understand some of these benefits. Before elaborating upon this we first wish to acknowledge that, like all research, the present study is not without its limitations. For example, and firstly, in terms of the validity or credibility (Guba and Lincoln, 1994) of our data, we should beware taking participants’ accounts, which our analysis mostly draws upon, at face value (Dingwall, 1997), especially perhaps in a context in which some of these have stated that they have not been honest about some matters with colleagues in their schools. That said, the accounts of our mentee participants are generally consistent

<sup>7</sup> Ofsted (the Office for Standards in Education, Children’s Services and Skills) is the non-ministerial government department of Her Majesty’s Chief Inspector of Schools in England (HMCI), which inspects and regulates services providing care for children and young people, and education and skills for learners of all ages.

with those provided by those external mentors we interviewed, with the email exchanges between mentors and mentees that we analysed, and with our direct observation of mentor-mentee interaction, while the very fact that some teacher participants were willing to admit that they were not always honest with their colleagues suggests a certain degree of openness with ourselves as researchers.

Secondly, for various reasons, including those relating to the sampling strategies we deployed (outlined earlier) and our achieved sample size, we are not able to claim that our findings are representative of all PEP and SPN beginner teachers who worked with an external mentor, and certainly not of all those who had the *opportunity* to access the support of an external mentor. Nor is it possible to speculate on the extent to which our various findings are transferable to other contexts. Most of our participating teachers were those who had taken advantage of the offer of EM support, and it is likely that those who volunteered to participate (especially those whose details were initially passed on to us by SPN mentors) would tend to have a relatively positive attitude towards external mentor support. More generally, in a number of ways our sample of beginning teachers of secondary physics, many of whom had not completed a first degree in the subject, may not be representative of other secondary or primary school teachers. They may, for example, have a relatively greater need to access external expertise, particularly those teaching (or on placement as student teachers) in schools where there is no physics specialist to whom they may turn for subject-specific support. On the other hand, in a number of educational systems globally large numbers of both primary and secondary teachers teach subjects which they did not study as a major component of first or postgraduate degrees, and many teachers who *are* teaching their specialist subjects are nonetheless unfamiliar with some aspects of the school curricula in those subjects. More generally, appreciable numbers of teachers, especially those of minority subjects and ‘single person departments’, do not have subject specialists within their schools to whom they can turn for support. Our sample of beginner teachers may thus not be as atypical of the broader population as it may first appear. In addition, those findings presented above relating to the potential benefits of EM support are supported by the analysis of data generated from our follow-up national teacher survey (n=1558) (Hobson et al., 2012). Here, over two-thirds of both primary (67%) and secondary school teachers (71%) in their first five years in teaching indicated that they would value the support of an external mentor for one or more of the subjects they teach. Secondary teachers of physics were not more likely than other teachers to indicate that they might benefit from external mentor support, and nor were non-specialist teachers of physics or other subjects.

We should also acknowledge that our study – and readers of this paper – might have benefited from greater contextual detail relating, for example, to the amount of interaction between participating teachers and external mentors, and to other science teachers in the participants’ schools. Finally, it should also be noted that while in discussing their experiences of external mentor support many participants highlighted differences between this and the support provided by school-based mentors, our study does not allow for a direct comparison of the quality or pros and cons of the support provided by school-based and external mentors. That said, our evidence suggests that, in addition to the benefits associated with the confidentiality permitted by beginner teachers’ relationships with external mentors, more generally the quality of the mentoring provided by school-based mentors was highly variable (as previous research has shown), while that provided by PEP and SPN mentors was of a more consistently high standard. This may be explained by a number of considerations, including the relatively rigorous selection process employed and the greater degree of choice available to the Institute of Physics in appointing the PEP and SPN mentors, the fact that they were paid and trained to undertake the role, and tended to have more time in which to provide the mentoring.

Despite its remaining limitations, this study casts new light on the processes of beginning teacher identity formation as they apply to at least some categories of beginning teacher, and develops the evidence base in a number of important respects, as we now go on to explain.

### ***External mentor support for identity formation in a third space***

In this paper we have highlighted three distinct and important features of beginner teacher identity development, and ways in which external mentors can facilitate and help beginner teachers overcome obstacles associated with each of them. More specifically, and drawing on third space theory (Bhabha, 1994), our analyses have shown that the work of external mentors, who are purely supportive and have no assessment function, can provide ‘motivating’ and ‘safe’ spaces (Luehmann, 2007) within which non-specialist, beginning teachers of physics are able to negotiate the practices, expectations and performance measures that define their work contexts and, in doing so, to overcome impediments to their professional learning and positively develop their professional identities. First, for some beginning teachers, ‘safe’ and ‘motivating’ third spaces (in which opportunities exist to overcome contextual barriers to PLD) were created through informal face to face contact, or through digitally-mediated dialogue, in the form of email or mobile phone text, (typically) initiated by the beginning teacher. Within these third spaces, some usual practices were suspended and hierarchical relationships flattened as beginning teachers voluntarily turned to their more experienced mentor or their peers to explore and better understand the professional contexts in which they were learning and working, without (or with a much reduced) fear of judgement. The creation of a third space in this way allows for identification with alternative ways of being a teacher which go beyond the expectations embodied in dominant discourses. These findings extend existing literature which explores the ways in which teacher identity development is affected by socio-cultural and political contexts (Sachs, 2005; Kelchtermans et al., 2009) and demonstrate some of the ways in which, through their discourse with their EM (and their peers in networks facilitated by their EM), beginning teachers make sense of their emerging ‘identity struggle’ (Trent, 2013) as they examine the norms, policies and practices of their institutions.

Secondly, moving beyond these expectations of teacher identity within dominant discourses involves a certain element of courage on the behalf of most beginning teachers as ‘trying on a new identity within a community of practice (especially when it is counter to the norm) involves assuming risks’ (Leuhmann, 2007, p. 828). Our findings suggest that mentees’ dialogues with the EM and within the peer network cultivated by the EM provided a space in which the EM legitimised any risks taken by the mentee and in so doing strengthened the processes of identity formation. Within this space, the potential existed for beginner teachers to explore thoughts, feelings and practices which may run counter to the prevailing views and practices within the institution. We suggest that this helped the new entrants navigate differing views, school based expectations and their own desires and understandings of what their experiences as emerging teachers of physics should or could be. This is especially important for beginning teachers joining departments with no physicists. Access to a specialist EM who can work with the novice in a safe space in which they can both assume a discourse of detached criticality, can enable better understanding of the ways in which subject pedagogy can develop. We do not wish to suggest that beginning teachers without access to the support of an EM are never able to create alternative third spaces (perhaps with like-minded colleagues in school) through which they will be able to develop aspects of their professional identity. However, this study shows how the construction of a third space with an independent experienced subject specialist can help beginner teachers develop professional identities through processes by which they become more informed, critically aware and astute, and more able to manage different ‘personal, professional and situational factors’ (Day et al., 2007, p.122).

Thirdly, the development of a subject specialist teacher identity is dependent upon a range of factors including confidence in the subject and the associated pedagogy (Fox, 2010; Beijaard et al., 2000) and a growing sense of becoming a part of, and belonging to, a professional body of subject experts (Saka et al., 2012) at a time when beginning teachers, especially non-specialists, are experiencing the ‘vulnerable’ early years in the profession where constructing an identity as a teacher of science is particularly characterised by ‘struggles’ and reliant upon a ‘range of professional influences’ (Daniellson and Warwick, 2004). This study demonstrates that the work of EMs in facilitating entry into different professional communities of practice, including the wider science education community in addition to school-based communities, made another important contribution

to their mentees' identity formation, notably by helping mentees interpret and reflect upon the discourses associated with and utilised by these communities of practice. As the beginning teachers became more confident and skilled in engaging with these discourses and participating within these communities, their identities as teachers of physics were developed and strengthened (*cf.* Luehmann, 2007; Hobbs, 2013). Our focus on the work of the EM has thus drawn attention to their role in the development of a subject specialist identity as the mentees come to self-identify as beginning teachers of physics who are developing confidence in their subject knowledge and their subject pedagogy. The study adds further weight to literature which suggests that positive identification with the subject is an important aspect of teacher identity formation (Hobbs, 2012). The people who were appointed as EMs were not only experienced practitioners, they were subject knowledge experts who had a passion for their subject and were able to enthuse mentees to be so too, as is evidenced in the extreme by one mentee when she said '*I never imagined that I would be able to teach physics. It [EM support] has changed me, even over [my specialist subject] biology, I prefer to teach physics, it has changed me that much*' (PEP mentee 15, female).

Finally, our analysis lends support to poststructuralist understandings of identity construction by suggesting that as the beginning teachers traversed the boundaries between the different spaces discussed in this paper they were (consciously or otherwise) making decisions about which aspects or facets of their identities to display to others. So, for example, some beginning teachers spoke of the need to conceal their lack of subject knowledge from their school colleagues in what we have characterised as their second space whilst choosing to seek advice about this from their EM within what we have suggested to be a third space. The choices they made were context-dependent. Consequently, some beginning teachers felt they needed to present what they felt significant others<sup>8</sup> within their school communities would recognise as socially desirable or competent 'performances', whilst their interactions with the EM within a third space enabled them to be more 'themselves'. The EMs contributed to their mentees' professional learning and identity development partly through the provision of psychological support within this space, which helped beginner teachers navigate the emotionally charged processes of becoming a teacher (Hobson et al., 2008). Within a third space, beginner teachers became more confident about their own positions and viewpoints (whether they chose to voice these within their institutions or not). Their interactions with their EMs and peers within this space helped them to make sense of the performative contexts which characterised their second space, and for some this led to 'new understandings and enhanced practices' (Martin et al., 2011, p. 300).<sup>9</sup>

### ***Some implications for policy, practice and further research***

We suggest that the findings reported in this paper have a number of implications for policy, practice and further research relating to identity development and to support for beginning teachers more generally – in the UK and further afield. Firstly, policy makers have an important role to play in bringing their influence to bear on dominant discourses about the nature and importance of PLD for beginning teachers. Our findings suggest a need, in England at least, for a shift in these dominant discourses towards positive acknowledgement and recognition of the ways in which teachers' professional learning and development come about, including through making mistakes and critically reflecting on these (Lovett and Davy, 2009, p. 563), alongside a recognition that opportunities for risk-taking and innovation are desirable for professional learning and identity formation.

Secondly, as new entrants to the profession within England are judged against a common set of Teachers' Standards (DfE, 2012b) which apply to all teachers regardless of their background or experience, there is a need for beginner teachers to have an 'ally' who can help negotiate these Standards and create spaces where they feel able to acknowledge their 'flaws' and needs in order to

---

<sup>8</sup> We use the term 'significant other' (Sullivan, 1953) to refer to those colleagues and leaders who participants perceive have importance and influence in their contexts.

<sup>9</sup> We should acknowledge that it may well be the case that beginner teacher participants only became consciously aware of the presentation of a different aspect of their identity – if at all – as they interacted with us within the research interview, which arguably became an additional third space for some.

learn and develop. Settlage et al. (2009) suggest that ‘self-doubt’ and ‘uncertainty’ are crucial components of teacher learning and identity development. We believe that external mentors (to whom mentees’ ‘self-doubt’ can be expressed without fear of judgement) can be potentially vital in this learning process and that the selection of individuals for this role should be based on their subject knowledge, their expert practice as teachers and mentors, and their ability to provide an independent perspective. In our view, there may be a strong case for providing *all* beginner teachers with opportunities to access external mentors, at least those in education systems, like our own, in which their identity development and PLD more widely are impeded by performativity cultures in general and by the requirement for school-based mentors to formally assess their development in particular. To facilitate this, regional or national networks and registers of trained external mentors might be established for different subject areas.

The policy recommendations suggested above could positively impact the practices of those working with beginning teachers in schools. If dominant discourses at a policy-level acknowledge that beginning teachers are on a developmental journey this could potentially have a powerful impact, enabling teacher educators and mentors to adopt a more pragmatic and developmental approach to supporting beginner teachers than that allowed by performativity contexts, and one which better acknowledges the realities of teaching and professional learning. This is especially important in an evolving landscape of ITP which prioritises school-based and school-led training, as is the case in England (DfE, 2010). Crucially for some beginning teachers, the approach taken by the EMs in our research ran counter to the narrow, technicist model of teaching (McNally and Blake, 2012) enacted in some induction programmes and so provided an alternative view of what teaching could be.

We also extend Ruohotie-Lyhty’s call for identity development to be ‘taken into consideration’ in teacher education programmes (2013, p. 127) by suggesting that those involved in supporting teachers’ initial preparation and early professional learning and development consider their role in helping beginner teachers shape and develop their identities. We suggest that ITP programmes should offer opportunities for overt discussion of professional identity development and of the idea that identity can be understood as multi-faceted, multi-layered and constantly evolving. Beginning teachers may then be in a stronger position to understand that the choice to present a specific aspect of their identity at a given time might have consequences which they need to address – if for example, they are concealing any perceived limitations in their knowledge or practice. Explicitly sharing this understanding with beginning teachers during the early stages of their professional learning (for example, during ITP) could potentially be empowering for them.

Further research which examines the ways in which beginning teachers view the processes by which they assume different identities might enable us to better understand whether or not these are conscious choices (and whether or not this matters). More generally, we would encourage additional studies which explore the viability and potential of similar or different models of external mentor support for beginning teachers of different subject areas and phases of education, wherever these may exist or be introduced or piloted. To the extent that such studies might mobilise third space theory in a planned as opposed to retrospective fashion, researchers should seek to generate data which capture a more substantial amount of direct evidence and examples of the discursive practices which mentees engage in with both external mentors and their peers.

Finally, further research might also usefully explore the extent to which beginner teachers in other contexts – especially education systems where the GERM is less influential (Sahlberg, 2010) and/or where school-based mentors are not required to formally assess them as well as support their PLD (Ulvik and Sunde, 2013) – can engage in discursive practices where they are able to critically negotiate professional influences which we argue is a key function of third space. It may be that in such contexts, entrants to the profession may not have to negotiate the kinds of impediments to identity development that we have identified in the English context, thus perhaps obviating the need for external mentors.

## References

- Asada, T. (2012). Mentoring novice teachers in Japanese schools. *International Journal of Mentoring and Coaching in Education*, 1 (1), 54-65.
- Beauchamp, C. and Thomas, L. (2009). Understanding teacher identity: An overview of issues in the literature and implications for teacher education. *Cambridge Journal of Education*, 39, 175-189.
- Beck, C. and Kosnick, C. (2000). Associate teachers in pre-service education: clarifying and enhancing their role. *Journal of Education for Teaching*, 26 (3), 207-224.
- Beijaard, D., Verloop, N. and Vermunt, J. D. (2000). Teachers' perceptions of professional identity: An exploratory study from a personal knowledge perspective. *Teaching and Teacher Education*, 16 (7), 749-764.
- Beijaard, D., Meijer, P. and Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teaching and Teacher Education*, 20, 107-128.
- Bell, D. and Klein, R. (Eds). (1996). *Radically speaking: feminism reclaimed*. Melbourne: Spinifex Press.
- Bhabha, H. (1990). The third space: Interview with Homi Bhabha. In J. Rutherford (Ed.), *Identity: Community, culture, difference* (pp. 207-221). London: Lawrence and Wishart.
- Bhabha, H.K. (1994). *The Location of Culture*. New York: Routledge.
- Bradbury, L. (2010). Educative mentoring: Promoting reform-based science teaching through mentoring relationships. *Science Teacher Education*, 1049-1071.
- Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.
- British Educational Research Association (BERA), (2011). *Guidelines for Ethical Research*. London: British Educational Research Association.
- Britzman, D. (1993). The terrible problem of knowing thyself: Towards a poststructuralist account of teacher identity. *Journal of Curriculum Theorizing*, 9, 23-46.
- Bryk, A., and Schneider, B. (2003). Trust in schools: A core resource for school reform. *Educational Leadership*, 60 (6), 40-45.
- Bullough, R.V. (2009). Seeking eudaimonia: The emotions in learning to teach and to mentor. In: P. Schutz and M. Zembylas, (Eds). *Advances in teacher emotion research: The impact on teachers' lives*. New York: Springer.
- Bullough R.V. (2012). Mentoring and new teacher induction in the United States: A review and analysis of current practices. *Mentoring and Tutoring: Partnership in Learning*, 20 (1), 57-74.
- Crasborn, F., Hennisson, P., Brouwer, N., Korthagen, F. and Bergen, T. (2008). Promoting versatility in mentor teachers' use of supervisory skills. *Teaching and Teacher Education*, 24, 499-514.
- Danielsson, A. T. and Warwick, P. (2014). 'You have to give them some science facts': Primary student teachers' early negotiations of teacher identities in the intersections of discourses about science teaching and about primary teaching. *Research in Science Education*, 44, 289-305.

Day, C., Sammons, P., Stobart, G., Kington, A., and Gu, Q. (2007). *Teachers matter: Connecting lives, work and effectiveness*. Maidenhead: Open University Press.

Department for Education (DfE). (2010). *The schools white paper: the importance of teaching*. London: HMSO.

Department for Education (DfE). (2011). HC 1515 Attracting, training and retaining the best teachers, Written evidence. Available online at: <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmeduc/writev/1515/att22.htm>. [accessed 3<sup>rd</sup> August .2012].

Department for Education (DfE) and the Teaching Agency (TA). (2012). Subject knowledge enhancement courses Available online at: <http://www.education.gov.uk/get-into-teaching/subjects-age-groups/age-groups/teaching-secondary/boost-subject-knowledge/ske-courses.aspx>. [accessed 31<sup>st</sup> May .2012].

Department for Education (DfE) (2012a). Induction for newly qualified teachers (England): Guidance for appropriate bodies, local authorities, head teachers, school staff and governing bodies. London: HMSO.

Department for Education (DfE). (2012b). *Teachers' standards* Available online at: <https://www.education.gov.uk/publications/eOrderingDownload/teachers%20standards.pdf>. [accessed 2<sup>nd</sup> October 2012].

Dingwall, R. (1997). Accounts, interviews and observations. In: G. Miller and R. Dingwall (Eds). *Context and method in qualitative research*. London: SAGE.

Edwards, A. (1998). Mentoring student teachers in primary schools: assisting student teachers to become learners. *European Journal of Teacher Education*, 21 (1), 47-62.

Fox, K. (2010). 'Belonging' as a subject specialist: Challenging the barriers' *Teach Journal* 1(2) December [Online]. Available at: <http://bit.ly/tyfJ5M> (accessed 28<sup>th</sup> October 2013).

Gee, J. P. (2000). Identity as an analytic lens for research in education. In W.G. Secada, (Ed) *Review of research in education 25* (2000-2001). Washington DC: American Educational Research Association.

Guba, E.G. and Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In N.K. Denzin and Y.S. Lincoln (Eds.) *Handbook of qualitative research*. Thousand Oaks: Sage.

Gutierrez, K. (1995). *Script, counterscript, and underlife in the urban classroom: Constructing a third space*. Paper presented at the Fourth International Literacy and Education Research Network Conference on Learning, Townsville, QLD, Australia.

Gutierrez, K. (2008). Developing a sociocritical literacy in the third space. *Reading Research Quarterly*, 43 (2), 148-164.

Hall, S. (2000). Who needs 'identity'? In: P. Du Gay, J. Evans, and P. Redman. (Eds.). *Identity: A reader*. London: Sage.

Hamilton, L.C. (2010). Teachers, narrative identity and ability constructs: exploring dissonance and consensus in contrasting school systems. *Research Papers in Education*, 25 (4), 409-431.

Hammersley, M. (1996). The relationship between qualitative and quantitative research: paradigm loyalty versus methodological eclecticism, in J. T. E. Richardson (Ed.) *Handbook of qualitative research methods for psychology and the social sciences*. Leicester: British Psychological Society, 159–174.

Haraway, D. (1992). The promise of monsters: A regenerative politics for inappropriate/d others. In: L. Grossberg, C. Nelson and P.A. Treichler (Eds). *Cultural studies*. New York: Routledge.

Hargreaves, A. (2001). The emotional geographies of teaching. *Teachers' College Record*, 103, 1056-1080.

Helms, J.V. (1998). Science and me: Subject matter and identity in secondary school science teachers. *Journal of Research in Science Teaching*, 35 (7), 811-834.

Hillier, J., de Winter, J. and Twidle, J. (2013). I could enjoy teaching: The case of physics. *Canadian Journal of Science, Mathematics and Technology Education*, 13 (3), 287-302.

Hobson, A.J. (2010). On being bottom of the pecking order: Beginner teachers' perceptions and experiences of support. *Teacher Development*, 13 (4), 299–320.

Hobson, A.J. and Malderez, A. (2013) Judgementoring and other threats to realizing the potential of school-based mentoring in teacher education, *International Journal of Mentoring and Coaching in Education*, 2(2), 89-108.

Hobson, A.J. and McIntyre, J. (2013) Teacher fabrication as an impediment to professional learning and development: the external mentor antidote, *Oxford Review of Education*, 39(3), 345–365.

Hobson, A.J., Ashby, P., Malderez, A. and Tomlinson, P.D. (2009). Mentoring beginning teachers: what we know and what we don't. *Teaching and Teacher Education*, 25 (1), 207-216.

Hobson, A.J., Malderez, A., Tracey, L., Giannakaki, M.S., Pell, R.G. and Tomlinson, P.D. (2008). Student teachers' experiences of initial teacher preparation in England: Core themes and variation. *Research Papers in Education*, 23 (4), 407–33.

Hobson, A.J., McIntyre, J., Ashby, P., Hayward, V., Stevens, A., and Malderez, A. (2012). *The nature, impact and potential of external mentoring for teachers of physics and other subjects in England*. London: Gatsby Charitable Foundation.

Hobson, A.J. & Townsend, A.J. (2010). Interviewing as educational research method(s). In: D. Hartas (Ed.) *Educational Research and Inquiry: Qualitative and Quantitative Approaches*, pp. 223-238. London: Continuum.

Hochschild, A. (1983). *The managed heart: Commercialization of human feeling*. Berkley: University of California Press.

Hobbs, L. (2012). Examining the aesthetic dimensions of teaching: Relationships between teacher knowledge, identity and passion. *Teaching and Teacher Education*, 28 (5), 718-727.

Hobbs, L. (2013). Teaching 'Out-of-Field' as a boundary-crossing event: Factors shaping teacher identity. *International Journal of Science and Mathematics Education*, 11, 271-297.

Ingersoll, R. M. (2003). *Is there really a teacher shortage?* Washington: Center for the Study of Teaching and Policy and The Consortium for Policy Research in Education.

Jenkinson, K., Turner, K., Lambley, C. and James, D. (2011). *Evaluation of The Stimulating Physics Network: Final report for The Institute of Physics and National Science Learning Centre*. York and Milton Keynes: Babcock Research.

Johnson, S., Berg, J., and Donaldson, M. (2005). *Who stays in teaching and why: A review of the literature on teacher retention*. The Project on the Next Generation of Teachers. Harvard: Harvard Graduate School of Education.

Kelchtermans, G., Ballet, K. and Piot, L. (2009). Surviving diversity in times of performativity: Understanding teachers' emotional experience of change. In: P. A. Schutz and M. Zembylas. (Eds). *Advances in teacher emotion research: The impact on teachers' lives*. New York: Springer.

Lasky, S. (2005). A sociocultural approach to understanding teacher identity, agency and professional vulnerability in a context of secondary school reform. *Teaching and Teacher Education*, 21, 899–916.

Lave, J., and Wenger, E. (1990). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

Law, L. (1997) Dancing on the bar: Sex, money and the uneasy politics of third space. In M. Keith and S. Pile (Eds). *Geographies of resistance*. London: Routledge.

Leaton Gray, S. (2006). *Teachers under siege*. Stoke: Trentham Books.

Lefebvre, H. (1991). *The production of space*. Oxford: Blackwell.

Lingard, B. (1995). Re-articulating relevant voices in reconstructing teacher education, The Annual Harry Penny Lecture, University of South Australia.

Lindgren, U. (2005). Experiences of beginning teachers in a school-based mentoring programme in Sweden. *Educational Studies*, 31 (3), 251-263.

Long, J. (1997). The dark side of mentoring. *Australian Educational Researcher*, 24 (2), 115–133.

Lopez-Real, F., & Kwan, T. (2005). Mentors' perceptions of their own professional development during mentoring. *Journal of Education for Teaching*, 31 (1), 15–24.

Lovett, S. and Davey, R. (2009). Being a secondary English teacher in New Zealand: complex realities in the first 18 months. *Professional Development in Education*, 35 (4), 547-566.

Lumby, J. (2009). Performativity and identity: mechanisms of exclusion. *Journal of Education Policy*, 24 (3), 353-369.

Luehmann, A. (2007). Identity development as a lens to science teacher preparation. *Science Education*, 91 (5), 82-839.

McNally, J. and Blake, A. (2012). Miss, what's my name? New teacher identity as a question of reciprocal ontological security. *Educational Philosophy and Theory*, 44, 196–211.

Mahony, P., Menter, I. and Hextall, I. (2004). The emotional impact of performance-related pay on teachers in England. *British Educational Research Journal*, 30 (3), 435-456.

Martin, S.D., Snow, J.L. and Franklin Torrez, C.A. (2011). Navigating the terrain of third pace: Tensions with/in relationships in school-university partnerships. *Journal of Teacher Education*, 62 (3) 299–311.

- Meyer, D. (2009). Entering the emotional practices of teaching. In: P. A. Schutz and M. Zembylas. (Eds). *Advances in teacher emotion research: The impact on teachers' lives*. New York, Springer.
- Miles, M. B. and Huberman, M. (1994). *Qualitative data analysis: An expanded sourcebook*. London, SAGE.
- Moje, E. B., Ciechanowski, K. M., Kramer, K., Ellis, L., Carrillo, R., and Collazo, T. (2004). Working toward third space in content area literacy: An examination of everyday funds of knowledge and discourse. *Reading Research Quarterly*, 39 (1), 38–70.
- Moor, H., Jones, M., Johnson, F., Martin K., Cowell, E. and Bojke, C. (2006). *Mathematics and science in secondary schools: The deployment of teachers and support staff to deliver the curriculum*, DfES Research Report 708, Nottingham: DfES.
- Osborne, J., and Dillon, J. (2008). *Science education in Europe: Critical reflections*. London, The Nuffield Foundation.
- Parry, B. (1994). Signs of our times. Discussion of Homi Bhabha's 'The location of culture'. *The Third Text: Third world perspectives on contemporary art and culture*, 28/29, 5-24.
- Pearce, J. and Morrison, C. (2011). Teacher identity and early career resilience: Exploring the links. *Australian Journal of Teacher Education*, 36 (1), 47-57.
- Postlethwaite, K. and Haggarty, L. (2012). Student teachers' thinking about learning to teach: A study of student teachers of mathematics and science at the end of their initial training. *Research Papers in Education*, 27 (3), 263-284.
- Prosser, B. (2006). Emotion, identity and hope as resources for teachers' work, *Australian Association for Research in Education Annual Conference Adelaide*, 28th November 2006, Adelaide.
- Rajuan, M., Beijaard, D. and Verloop, N. (2010). The match and mismatch between expectations of student teachers and cooperating teachers: exploring different opportunities for learning to teach in the mentor relationship. *Research Papers in Education*, 25 (2), 201-223.
- Roth, W.M. (2008). Bricolage, métissage, hybridity, heterogeneity, diaspora: concepts for thinking science education in the 21st century. *Cultural Studies of Science Education*, 3 (4), 891-916.
- Ruohotie-Lyhty, M. (2013). Struggling for a professional identity: Two newly qualified language teachers' identity narratives during the first years at work. *Teaching and Teacher Education*, 30, 120-129.
- Sachs, J. (2005). Teacher education and the development of professional identity: Learning to be a teacher. In P. Denicolo and M. Kompf (Eds.). *Connecting policy and practice: Challenges for teaching and learning in schools and universities*. Oxford: Routledge.
- Sahlberg, P. (2010). Rethinking accountability in a knowledge society. *Journal of Educational Change*, 11, 45–61.
- Saka, Y., Southerland, S. A., Kittleson, J. and Hutner, T. (2013). Understanding the induction of a science teacher: The interaction of identity and context. *Research in Science Education*, 43, 1221–1244.
- Scott, P. and Ryder, J. (2007). *Physics Enhancement Project (PEP) Evaluation: Final Report*. Leeds: University of Leeds.

Settlage, J., Southerland, S.A., Smith, L.K. and Ceglie, R. (2009). Constructing a doubt-free teaching self: Self efficacy, teacher identity, and science instruction within diverse settings. *Journal of Research in Science Teaching*, 46 (1), 102-125.

Shepherd, C. (2008). Towards physics: training programmes for non-specialists. *School Science Review*, 89, 328- 334.

Smith, T., and Ingersoll, R. ( 2004). What are the effects of induction and mentoring on beginning teacher turnover? *American Educational Research Journal*, 41 (3), 681–714.

Smithers, A. and Robinson, P. (2008). *Physics in school IV: Supply and retention of teachers*. Buckingham: Carmichael Press.

Soja, E. W. (1996). *Thirdspace: Journeys to Los Angeles and other real-and-imagined places*. Oxford: Blackwell Publishers.

Spindler, J. and Biott, C. (2000). Target setting in the induction of newly qualified teachers: emerging collegueship in a context of performance management. *Educational Research*, 42 (3), 275-285.

Sullivan, H.S. (1953). *The interpersonal theory of psychiatry*. New York: W.W. Norton.

Su, J.J. (2011). *Imagination and the contemporary novel*. Cambridge: Cambridge University Press.

Talbert, J.E. and Mclaughlin, M.W. (2002). Professional communities and the artisan model of teaching. *Teachers and Teaching: Theory and Practice*, 8 (3), 325-343.

Taylor, M., Klein, E.J. and Abrams, L. (2014). Tensions of reimagining our roles as teacher educators in a third space: Revisiting a co/autoethnography through a faculty lens. *Studying Teacher Education: A journal of self-study of teacher education practices*, 10 (1), 3-19.

Trent, J. (2013). From campus to classroom: a critical perspective on approximations of practice in teacher education, *Research Papers in Education*, 28 (5), 571-594.

Tomlinson, P.D. (1989). Having it both ways: hierarchical focusing as research interview method, *British Educational Research Journal*, 15 (2), 155-176.

Tomlinson, P.D. (1995). *Understanding mentoring: Reflective strategies for school-based teacher preparation*. Buckingham: Open University Press.

Ulvik, M. and Sunde, E. (2013). The impact of mentor education: Does mentor education matter? *Professional Development in Education*, 39 (5), 754-70.

Wang, J. and Odell, S. J. (2002). Mentored learning to teach according to standards based reform: A critical review. *Review of Educational Research*, 72 (3), 481–546.

Wilson, R. E. and Kittleson, J. (2012). The role of struggle in pre-service elementary teachers' experiences as students and approaches to facilitating science learning. *Research in Science Education*, 42, 709–728.

Williams, J. (2014). Teacher educator professional learning in the third space: Implications for identity and practice. *Journal of Teacher Education*, 65 (4), 315-326.

Woods, P. and Jeffrey, B. (2002). The reconstruction of primary teachers' identities. *Journal of Sociology of Education*, 23, 89-106.

Zeichner, K. (2010). Rethinking the connections between campus course and field experiences in college and university-based teacher education. *Journal of Teacher Education*, 61 (1-2), 89-99.