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Geography mentors' written lesson observation feedback during Initial Teacher Education

This paper explores geography mentors' written lesson observation feedback by analysing data from across a one-year Initial Teacher Education (ITE) programme delivered through a university-school partnership in England, asking two main questions: in what ways is geography / geographical knowledge discussed in written lesson observation feedback given to beginning geography teachers? In what ways does research feature in the written lesson observation feedback given to beginning geography teachers? The paper offers one response to calls from geography education researchers for greater attention to be given to subject-specific issues in lesson feedback during ITE, and is also set within wider discourses around research-engagement. The argument is made through empirical evidence suggesting an absence of explicit engagement with research in written lesson observation feedback, a position in principle for increasing the interactions between research and practice in teacher education, and analysis of the specific areas highlighted in the written lesson observation feedback. Suggestions are made for improving the attention given to geography and research evidence in lesson feedback, and to support these aims three possible priority areas for geography education research are offered: progress; explanation; and terminology.

Keywords: lesson observation; feedback; initial teacher education; research-engagement

Introduction

The practice of more experienced colleagues observing beginning teachers' lessons is a common feature of Initial Teacher Education (ITE) programmes internationally. To varying degrees, school-based and university-based mentors give feedback, normally through a verbal discussion and then a written account. Such observations are used formatively to improve beginning teachers' practice, and as part of summative judgements on their practice. At one point, in England, these judgements were in effect

reduced to a single number in the cases where Ofsted (Office for Standards in Education, Children's Services and Skills) grades running from one ('outstanding') through to four ('inadequate') were attached to a lesson. As the wider Assessment for Learning literature has long argued, expressing a judgement through a grade like this has the potential to minimise or completely nullify the substantive content of any formative feedback accompanying this number. Such judgements are unreliable (Gargani & Strong, 2014; Strong, Gargani, & Hacifazliog, 2011) and, as has long been argued in the wider Assessment for Learning literature, counterproductive against the more important aim of improving practice (Black & Wiliam, 1998; Butler, 1988): there can easily be conflicts between measurement and educational objectives (Baird, Andrich, Hopfenbeck, & Stobart, 2017). Feedback aimed at improving practice is argued to be an important aspect of education more broadly (Hattie & Clarke, 2019; Hattie & Timperley, 2007; Shute, 2008); and within teacher education, educative rather than evaluative feedback has been shown to be developmental (Blanton, Berenson & Norwood, 2001). However, critical questions have been raised in geography education about aspects that seem to receive insufficient attention during lesson feedback. In particular, 'the geography', the 'material content' and 'geographical knowledge' – used synonymously – have been argued to be absent or marginalised in post-lesson discussions during ITE (Brooks, 2006; Firth, 2011; Morgan & Lambert, 2011; Roberts, 2010).

There is strong agreement over the importance and influence of feedback from mentors (Crasborn, Hennissen, Brouwer, Korthagen & Bergen, 2011; Feiman-Nemser, 1998; Hudson, 2012, 2016; Marion Jones & Straker, 2006), and on the importance of noticing subject-specific incidents (Scholten, Höttecke & Sprenger, 2020). However, research on lesson observation feedback has focused on the verbal discussions and so

we know little about written feedback. For example, Rawding and Tapsfield (2017) assert its importance in these terms: ‘personalised written feedback is useful because it can be reflected on and referred to later by both parties. It is also very important in ITE because it provides evidence of a trainee teacher’s progress and indicates future targets’ (p.314). In the current paper we extend Rawding and Tapsfield’s argument to suggest that written lesson observation feedback is also important because of the opportunity it offers to create rich, research-engaged dialogues between school and university colleagues that contribute to the construction of teaching not just as technical activity or a craft, but as an intellectual professional endeavour (Winch, Oancea & Orchard, 2015).

The current paper draws on a larger study of written lesson observation feedback exploring the ways in which, across a number of secondary school subjects and lessons (n=508), ‘good teaching’ is discursively constructed through written lesson observation feedback. Here, we focus specifically on the written lesson observation feedback given to beginning geography teachers (across a sample of 31 lessons), asking:

- 1. In what ways is geography / geographical knowledge discussed in written lesson observation feedback given to beginning geography teachers?**
- 2. In what ways does research feature in the written lesson observation feedback given to beginning geography teachers?**

Feedback

There are parallels in the way that feedback functions across education and other professions such as medicine. In particular, there are interesting themes to explore between the ways in which complex interactions between research, theory, practice and the practical wisdom of more experienced colleagues are made available for beginning

teachers' and medics' induction into their professions. The way in which feedback has been defined in the medical education literature (Saedon, Salleh, Balakrishnan, Imray, & Saedon, 2012) highlights questions about the ideal standard against which beginning practitioners might be compared. Feedback is defined in the medical literature as: 'specific information about the comparison between a trainee's observed performance and a standard, given with the intent to improve a trainee's performance' (Van De Ridder, Stokking, McGaghie, & Ten Cate, 2008, p. 189). What counts as the 'standard' is a key issue, raising questions such as what this standard is, who decides, and on what basis? One response developed below is that research-based knowledge ought to be at least one dimension of the answer to these questions. Feedback also has distinctively geographical meanings. For example, the positive feedback associated with snow albedo in which reductions in snow cover increase further solar radiation absorption which exacerbates the initial warming (Thackeray & Fletcher, 2015). Similarly, the relationship between rising temperatures and resultant increases in micro-organism respiration rates which result in increased greenhouse gases, leading to further warming, and so on, is another example of 'the myriad positive feedbacks that intensify the effect of environmental change in an unpredictable and non-linear fashion' (Derickson, 2018, p. 427).

Geographical understandings of feedback mechanisms, including conceptions about the complexity of these systems and their unpredictable and non-linear changes offers a different picture to one involving a straightforward relationship between information and improvement. Instead, lesson observation feedback might be understood as part of the construction of complex inter-personal systems involving the interactions between, among other things, beginning teachers' previous knowledge and expertise (Brooks, 2007, 2010), performative school and departmental cultures (Puttick,

2017), beginning teachers' precarious status and power dynamics (Sirna, Tinning, & Rossi, 2008), the emotionally-driven dimensions of learning to teach (Hagger, Burn, Mutton, & Brindley, 2008; Hinchion & Hall, 2016; Kaldi, 2009), and the contested relationship between different types of knowledge, including research and practice (Winch et al., 2015). Appreciating the complexity of the webs into which feedback is given has implications for the ways in which this is approached, the kinds of purposes towards which it might contribute, and the expectations we might have of it.

There has been limited research attention on written lesson observation feedback more generally (Bunton, Stimpson, & Lopez-Real, 2002; Healy, Walshe, & Dunphy, 2019; Lock, Soares, & Foster, 2009; Soares & Lock, 2007), and also in the specific case of geography: of those cited, Healy et al. (2019) is the one example. In *IRGEE*, the search terms 'written lesson observation feedback' returns 36 results, none of which are about (or reference) the written accounts given to teachers following a lesson observation. Similarly, the broader search terms 'written feedback' returns 89 results, of which none are about the written feedback that might be given to teachers, whether post-lesson observation or more broadly during either ITE or continuing professional development. In the limited examples of research on written lesson observation feedback published elsewhere, an argument is made for the importance of this feedback, based partly on its permanence. In Bunton et al.'s (2002) terms, written lesson observation feedback is a 'permanent record, unlike speech which may be forgotten or inaccurately heard and remembered' (p.233). These studies highlight the variability in feedback across different purposes, proformas, and subjects, but also the consistency in content which includes: prioritising feedback on generic issues, and an absence of explicit engagement with research-based evidence. One question raised in these accounts is about the purpose of the feedback. The geography education research

literature – while not directly engaging with these studies – has responded that critical discussion of geographical knowledge should be at least one aim of this feedback. In part, this argument has been prompted by concerns raised about the apparent absence of geographical knowledge in such discussions, such as:

Over the last decade, in post-observation discussion with trainee teachers and their more experienced teacher mentors about teaching and learning in geography, my experience has been that geographical knowledge has rarely, if ever, figured in such discussion. It has been marginalised by the exigencies of everyday practice and the imperatives of policy. (Firth, 2011, p. 312)

This experience seems to be echoed in the wider literature on verbal post-lesson discussions, which has argued that feedback is often superficial (Land, 2018) and focused on generic (that is, not subject-specific) issues about teaching and learning (Soares & Lock, 2007). Following the above description of experience, Firth (2011, p. 312) poses the question: ‘how can engagement with disciplinary knowledge be enabled in schools and teacher education?’ Recent analysis of written lesson observation feedback in the context of geography has provided further support, finding some evidence of attention to the pedagogic didactic (teacher-student relations), references to the subject (or teacher-content relations) ‘frequently appeared through superficial binaries of subject content being known (or not known), rather than any meaningful or critical engagement with conceptual disciplinary understanding’ (Healy et al., 2019, p. 15). The current paper seeks to provide further empirical evidence through which to better understand the ways in which geographical knowledge is engaged with through this feedback, and also to suggest that collaborative school and university-based mentor written lesson observation feedback offers strong potential for engaging with these kinds of questions. The shifts in the level of attention given to subject-specific

discussion achieved in Soares and Lock's (2007) work – providing additional training seeking to enable subject-specific mentors in replacing comments about 'generic pedagogy' with 'subject knowledge, understanding, topic-specific pedagogy' (p.82) – supports the claim that focusing written lesson observation feedback on geographical knowledge has great potential for increasing the attention given to these questions.

Research/practice and ITE

Underpinning our second research question (In what ways does research feature in the written lesson observation feedback given to beginning geography teachers?) are ongoing debates about the nature of teachers' professional knowledge and the relationships between research and practice. At the Universities Council for the Education of Teachers (UCET) Annual Conference 2018, Clare Brooks' (UCL/IOE) keynote explored different conceptions of quality in ITE through comparative analysis of the Institute of Education's (quite different) Primary, Secondary and Teach First programmes. A question from the floor asked what aspects of these programmes are distinctively 'Masters level'? Brooks responded with their desire that all are: the vision is for the 'Masters level' criticality and engagement with research, evidence and reflection to be strongly integrated throughout all aspects of the programmes whether the beginning teachers are in school, getting feedback from lessons, in lectures and workshops in university, or working on written assignments. This vision of ITE is similar to Czerniawski's (2018), in which 'the use of evidence, enquiry and evaluation lie at the very heart of what it means to be both a teacher and teacher educator' (p.46). Beyond this, ITE seeking to be steeped in research engagement and premised on close interactions, intrinsic links, or symbiotic relationships between 'theory and practice' is echoed throughout ITE literature globally,

where the importance of integrating different sources of knowledge (e.g. research-based understandings and the knowledge gained from practical experience in the classroom) has been recognised as the way to enable beginning teachers to draw on all such sources as they seek to make sense of their own classroom experiences. (Mutton, Burn, & Menter, 2017, p. 15)

Again, in the terms of the BERA-RSA Inquiry into Research and Teacher Education:

Research and enquiry has a major contribution to make to effective teacher education in a whole variety of different ways; it also contributes to the quality of students' learning in the classroom and beyond. Teachers and students thrive in the kind of settings that we describe as research-rich, and research-rich schools and colleges are those that are likely to have the greatest capacity for self-evaluation and self-improvement. (BERA-RSA, 2014a, pp. 3–4)

This argument was frequently made in the defence of university involvement in ITE during the recent period in which, particularly under the then secretary of state for education Michael Gove, was a 'hostile environment' for university involvement in ITE and received a 'particularly savage handling' (Czerniawski, 2018, p. 3), including popular and policy (mis)conceptions of 'a conceptual binary around 'theory/practice' and a related 'universities/schools' divide' (Murray & Mutton, 2016, p. 70). These divides provided rhetorically useful antagonisms, positioning – and prioritising – schools as the centre of 'practice', and universities as providers of largely irrelevant and disconnected 'theory', which is not a new caricature (Hazel Hagger et al., 2008), just as the call for greater integration of practice and research evidence is also part of an ongoing conversation (Counsell, Evans, McIntyre, & Raffan, 2000) and in principle arguments for close interactions between research and practice based primarily on beliefs about the nature of teaching expertise. In Hagger and McIntyre's (2006) terms:

The notion that student teachers should learn good theoretical ideas in universities, and then put them into practice in schools, is flawed in many ways but most

obviously in that it is based on quite false conceptions of the nature of teaching expertise and of how such expertise is developed. (p.158)

The development of the Oxford Internship Scheme described by Hagger and McIntyre was based on beliefs about the symbiotic contributions that schools and universities ought to make in fostering beginning teachers' 'practical theorising' as the 'means through which beginning teachers would be asked to draw critically on diverse kinds of knowledge in order to develop valid classroom teaching expertise' (p.158). Throughout the process of practical theorising student teachers seek to establish answers to questions where certainty is not available - a process of argument testing: student teachers developing reasoned beliefs about what is more or less likely to work given the specific context. This type of knowledge is 'individual and personally accumulated' (Toom, 2012, p.621), but this is not to 'relieve us of the obligation to show how it is objectively reasonable to believe what we are contending' (Fenstermacher, 1994, p.28): research evidence has an important place in this evidentiary process. Our interest in the current study into the ways in which research evidence might feature in written lesson observation feedback contributes to this broader aim of facilitating beginning teachers' practical theorising by expanding the diversity of knowledge that is drawn critically on. The existing literature suggests that both subject-specific feedback, and explicit discussion of research - and these are not necessarily exclusive categories: research may be pedagogical/educational, or geographical research relevant to the content of the lesson - rarely feature in lesson observation feedback.

Methodology

This paper draws on a larger study of written feedback in ITE across a wide range of subjects at one ITE programme based around a partnership between a university and

schools in the Midlands of England (Reference omitted for anonymity during peer review). Here, we focus specifically on the geography lesson observations (n=31) from the larger sample. On this ITE programme observations of beginning teachers are jointly conducted, and the written feedback is co-constructed by school and university-based mentors. The written feedback was produced for the students on the programme, and we only sought permission to analyse the text for research purposes after it had been written. This decision was based on consideration of the ethical implications that might result from prior knowledge leading to increases in workload and stress, and also adverse effects on the ‘authenticity’ of the data. As the producers of the writing, we sought their voluntary informed consent, and were also granted ethical approval from the research ethics committee at the institution in which the programme operates.

The analysis was conducted by the two researchers through a combination of separate and collaborative work; initial thematic analysis conducted separately resulted in us developing themes independently, and following this we engaged with a process of discussion and analysis of these themes, followed by a further process of reading and re-reading the allocation and inclusion of texts within themes. This iterative process resulted in a reduction from 12 to five categories organised across a continuum (Figure 1).

To code the references to geography / geographical knowledge we used an inclusive approach in which any geographical terms (such as may be listed in the glossary of school geography books), and even the term ‘subject knowledge’, were included as an instance of subject-specific reference in the written feedback.

Findings and discussion

The lesson observation feedback proforma on this programme was completed on an electronic record of professional development and included open text boxes on: strengths; areas for development; action plan; and then each of the Teachers' Standards (Department for Education, 2011). This meant that across the 31 lessons there were 341 text boxes. Of these, 103 (30%) contained some reference to geography / geographical knowledge, which was higher than references to subject knowledge found across other the other subjects in the wider study. This percentage is also very similar to the mentors' written lesson observations prior to receiving additional subject-specific training in Soares and Lock's (2007) study. In Soares and Lock's work, the post-training percentage of subject-specific comments rose to 80% of all feedback. In our study, nearly one third of these comments about subject knowledge were found in the column headed Teachers' Standard Three ('Demonstrate good subject and curriculum knowledge'). Examples of this feedback are discussed below through a continuum moving from simpler to more complex subject-specific references (Figure 1).

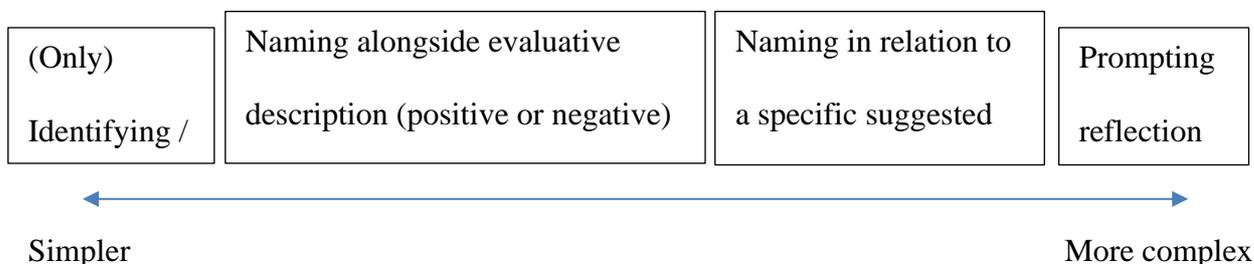


Figure 1. Continuum of subject-specific references to geography in written lesson observation feedback

These references are dominated by instances of the observer naming and providing some kind of positive evaluative comment (Figure 2).

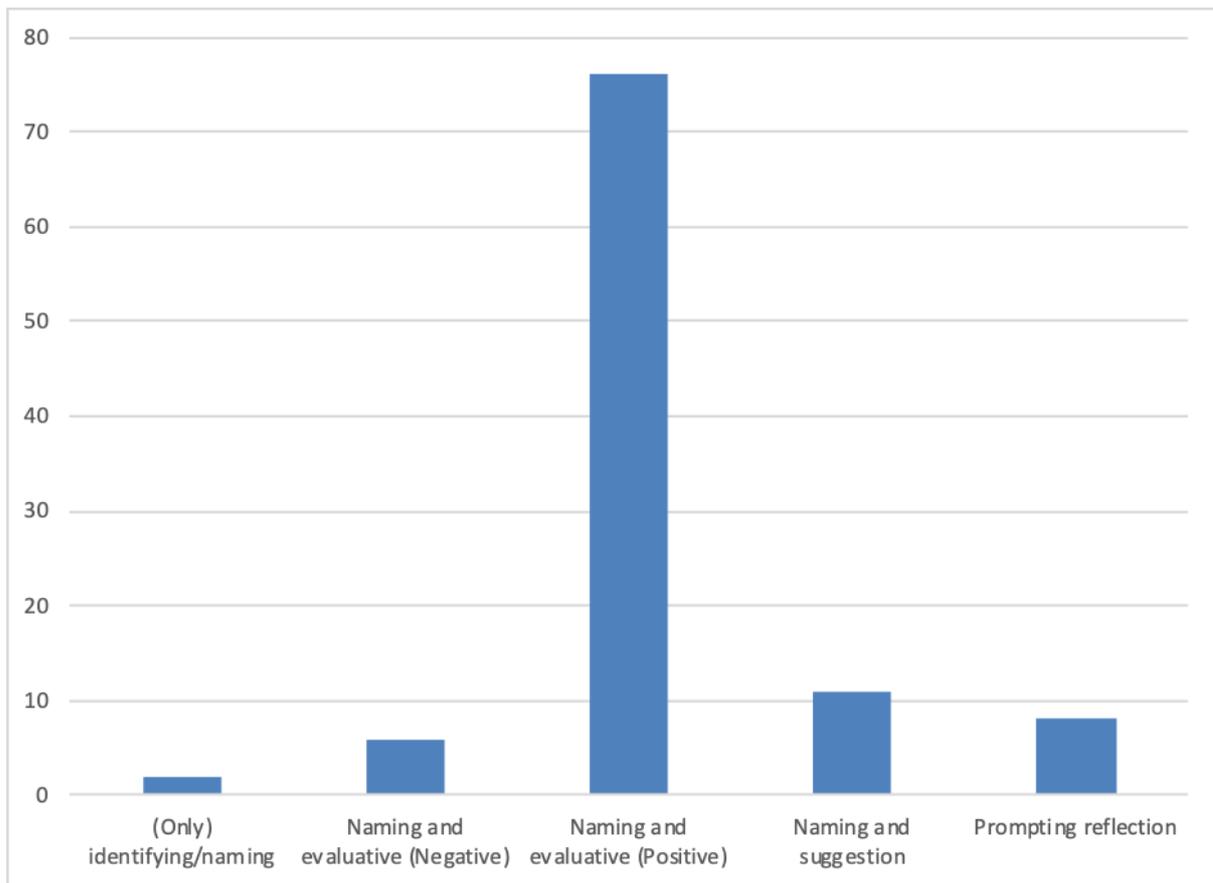


Figure 2. Frequency of types of subject-specific feedback

In what ways is geography / geographical knowledge discussed in written lesson observation feedback given to beginning geography teachers?

Across the continuum of subject-specific comments we identified 10 broad areas of feedback: geographical terminology; questioning; progress; planning; explanations; engagement; differentiation; feedback; peer-assessment; pace. The frequency count in Figure 3 presents the number of times we found each, although this does not imply that more space (such as by word count) – or importance - is necessarily associated with higher frequencies. For example, geographical terminology was frequently mentioned, although most instances of these were found in relatively short phrases such as:

Really good use of geographical terms, which you kept reinforcing well.

Good reminders of previous work, revisiting some of the specialist terms (e.g. ‘sediment rather than sand).

Good use of geographical vocabulary that you consistently reinforce (e.g. picking students up on language ‘not going down’ - what is it? - ‘going South’)

Some examples of subject-specific references were counted across multiple topics. For example, the following was counted under the categories of ‘planning’ (underlined) and ‘*progress*’ (italicised): ‘Very well-planned lesson, which built on students’ prior learning well and helped to develop their thinking and understanding about uses of the rainforest.’

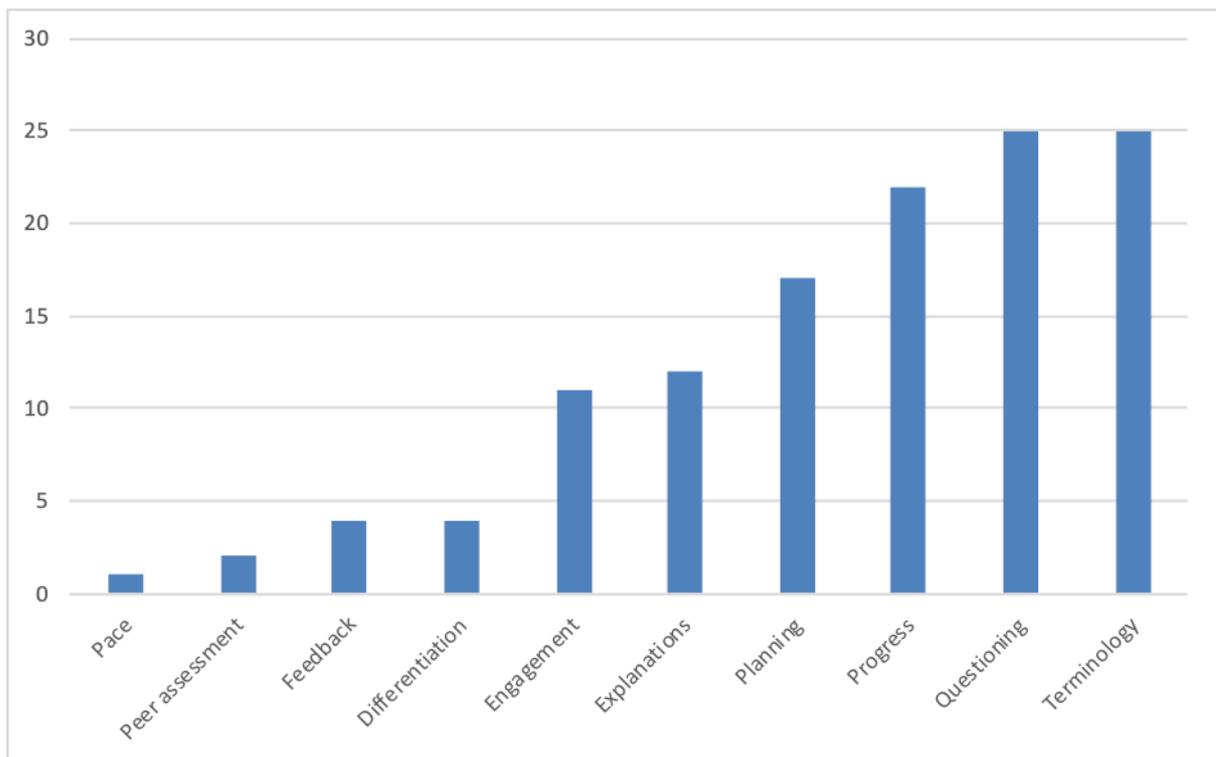


Figure 3. Frequency of areas referred to in subject-specific feedback

(Only) identifying / naming

At the simplest level, references to geography / geographical knowledge were made in a purely descriptive manner. There is no evaluative judgement attached, and nothing

(whether questions, critique or suggestions) follows. We only found two examples of this kind of simple identifying or naming:

This lesson was a series of three consecutive lessons about tsunamis
Pupils making their own corrections (in red) to self-assess answers to Indian states.

They both seem to function as a record or a reminder of what the lesson was about, in the first instance to locate the lesson within a sequence, and in the second to describe what pupils were doing. Moving right on the continuum, the next category of subject-specific references involved similar levels of naming and to which an evaluative judgement was added.

Naming alongside evaluative description (negative)

82 instances were found of positive and negative evaluative descriptions alongside naming a subject-specific reference, - therefore, the majority of the total (103). These references to geography were made in relatively simple ways, and most were presented through a positive evaluative judgement. Notably, the small number of negative references (six) were not negative evaluations about the teachers' geographical knowledge. For example:

The lesson was focused around student led learning. Instructions were given about each task but no actual subject content was discussed unless it was in one to one conversations with students.

Keep making sure that pupils are all clear about the meanings of terms (e.g. economic / social / environmental) - some seemed slightly unsure what these meant beyond economic = money.

The first is about a lack of whole group discussions about subject knowledge, and in the second the negative evaluation is made in reference to the students' knowledge. It may

be surprising to see no negative references to teachers' subject knowledge, particularly in the light of previous suggestions about widespread misconceptions (Knight, 2007; Winter, 2018), and claims that 'imperfections in teacher knowledge and understanding are – as many studies have testified – a source of misconception' (Dove, 2016, p. 52).

Naming alongside evaluative description (positive)

Naming an aspect of geographical knowledge with a positive evaluative statement was the single most frequent category. Within this category we found variation in the complexity with which geographical knowledge was discussed. Most references were very simple, and a small number engaged at a slightly more complex level. One test of this distinction is to substitute the geographical term with another (non-geographical term), and asking if the positive evaluative statement still makes sense. For example, in the first statement below the [brownfield / greenfield] is the reference to geography that has been coded. In this case, [brownfield / greenfield] could be substituted with something from a different subject, such as [Shakespearean sonnet], and the praise would still be valid because the focus is on the peer assessment: that is what is directly related to the claim about student responsibility, rather than anything intrinsically related to the geography. Further examples of statements from this category include:

Peer assessment for the brownfield / greenfield was a useful activity to help pupils take responsibility for their own work.

Well structured 'risky' lesson which ensured that students learnt about Palm oil in the rainforest.

Some good links were made with the work they had done on physical geographies of the regions (e.g. Tibetan plateau).

Great, focused atmosphere - the Velcro population pyramid engaged students well.

Well planned lesson, with some great activities: engaging city photographs to stimulate some good questions; map work using population data and representing this graphically; good exam question related well to this work...It was brilliant to see you using lots of subtle skills really effectively - small things that anticipated issues and helped students to make progress. E.g. noting distinction between Dakar & Dhaka.

In the last of these examples, there is some sense of a connection between the positive evaluation and the geographical knowledge, such as the photographs of the city that stimulate good questions.

Naming in relation to a suggested improvement

Moving further right on the continuum (Figure 1) this category includes similar naming of geographical knowledge, but here the naming is made in relation to a suggestion for the teacher, for example, 'it could have', 'develop', 'keep using', and 'ensure that...'

Illustrative examples of statements in this category include:

Differentiation could be further developed, particularly to scaffold those with weaker prior attainment. (E.g. help with the four countries to list on the table & extending by adding a blank column; increase challenge in the lesson objectives, and make opportunities to extend their thinking by reducing time spent for simpler tasks and using this time for further questioning).

Students' locational knowledge seemed to cause some to slow down / find it harder to engage in earlier aspects of the lesson - this prior knowledge could have been

recapped / quickly revised at the start to help all students to be able to engage well with the subsequent analysis of the map that relied on this locational knowledge.

The sorting exercise ‘type of weather’ was well designed and helped to get students thinking about these type[s] of weather, their effects, and examples of them. There is scope to differentiate it further by adding an additional (blank) column or row to add another level of challenge to stretch some students (E.g. row - add another type of weather; column - add ideas for preparation / mitigation).

Two overlapping categories of suggested improvements were found under this theme: those focusing on pedagogical suggestions for the teacher, and those foregrounding suggestions to improve students’ geographical knowledge. Similar to the discussion above about evidence from the literature on common geographical misconceptions held by teachers and also represented in various teaching resources and textbooks – in addition broader critical issues and socio-political considerations (Land, 2018) – we again found no suggestions for the teachers’ geographical knowledge. Our second research question – about the ways in which research featured in these accounts – is discussed below, and it is notable that the examples shown above, presented as representative of this category, make no explicit reference to research evidence in support of the claims that are made for these suggested improvements. That is, while we have explored these two issues (geographical knowledge / research) through distinct research questions, they are not necessarily separate. The kinds of ‘research’ potentially included in our analysis covers pedagogical and geographical research: our argument is that both geographical knowledge and research, whether about this subject knowledge or about other aspects of teaching, are valuable for high quality mentoring practice.

Prompting reflection

At the 'most complex' side of the continuum is feedback that does something 'beyond' simple naming, evaluative judgements, or practical suggestions, and explicitly prompts 'reflection', drawing on the distinction made by Winch et al. (2015) between craft, technical and extended professional conceptions of teaching. Feedback in this category included:

Keep reflecting on the material (particular, the PPT slides) used in the lesson, and take out anything that doesn't help to challenge students. E.g. photos with simple descriptions of the weather - giving more time to the climate graphs might have helped to stretch this particular class more.

Definition of 'model' as something very good that you want to copy: is this the most useful definition in the context of model villages? Maybe gives the impression that these kinds of villages are a 'good' model to copy, rather than being representations of what these kinds of places are 'normally' like?

When the terms were written at the beginning, you defined three on the board (urban, decline, rural), but not the other two - was there a reason for this? First two also underlined, but third not - again, was this to emphasise certain aspects?

Critical reflection is one aspect of Winch et al.'s conception of teaching as a professional endeavour and here we have used 'prompting reflection' in contrast to statements that simply tell the teacher what is and how good (or not) it is, and those that tell the teacher what they ought to do. Against these types of feedback, those prompting reflection empower the teacher and require them to engage in their own practical theorising, deliberating and then making and defending their own choices about their practice. Examples at this end of the continuum posed open questions for the beginning teacher to reflect on, and there is a sense in which the orientation towards knowledge shifts slightly. Further 'left' on the continuum primarily treats subject knowledge as something inert and a given, rather than something that is contestable / dynamic /

subject to change / and always in need of critical reflection. To express this slightly differently, further left the focus is on how teachers use knowledge, but not on critical questions about the knowledge itself and its recontextualisation or representation. The limited number of questions raised in these final examples (such as those asked of the ‘model’ of villages) start to hint at the kind of critical reflection on geographical knowledge that others seem to be calling for.

In what ways does research feature in the written lesson observation feedback given to beginning geography teachers?

In our analysis we have only included explicit reference to research, which might be about any aspect of the feedback (such as; geographical knowledge or pedagogy). By ‘explicit’ reference, we mean that we did not assume that when feedback makes claims and suggestions these are based on research evidence unless that was made clear. For example, an observer may make a claim about the improvements that would be possible through using more open questions based on their understanding of robust research evidence about questioning. But, because our focus is on the ways in which research evidence is made explicit to the beginning teachers, we only counted instances where this ‘making explicit’ is obviously the case. A different study, for example, one focusing on the kinds of knowledge that observers draw on, might argue for the significance of mentors’ tacit knowledge that was developed through critical engagement with research evidence. In our case, only that which is explicitly presented to the beginning teachers is included. Applying this criteria, we found no explicit references to research evidence. Instead, feedback to beginning teachers is either testimonial knowledge of the observer who asserts what the beginning teacher needs to change, and the mentors’ craft knowledge either expressed as testimonial knowledge or

as deductive reasoning. One possible exception involved three references to practitioner enquiry as a potential source of evidence. In these cases the observer suggested a specific aspect of practice to research further, providing a method of enquiry (such as audio recording) and reflective questions to support the analysis of this data. Because this was not making use of existing research evidence, we classified such examples as prompting reflection.

Across the continuum presented above (Figure 1) there are opportunities for enriching the discussion through research. For example, Cain et al. (2019, p. 1083 emphasis theirs) argue for using research to inform: bounded decision-making (that is, decisions intended to lead to specific outcomes at a practical level); teachers' reflection in terms of both shaping the questions and topics thought about, and how they might think about them; and organisational learning when research becomes a part of formal and informal professional conversations. In the cases of feedback relating to geographical knowledge, there might be opportunities to extend the discussion through reference to geographical research: critical reflection on 'models' outlined above might be enhanced by considering of the work that representation does, for example, through McCormack's (2012) analysis of abstraction.

If 'the ability to bring together research and practice is arguably the mark of a professional' (BERA-RSA, 2014b, p. 23), to what extent might written feedback from lesson observations contribute to this? In what ways might written feedback 'bring together research and practice'? Many barriers might be suggested for the lack of engagement with research evidence in the data we have presented, but here we want to offer a suggestion in relation to just one potential barrier: the limited subject-specific research in geography to which beginning teachers might be directed that speaks directly to the subject-specific topics raised in this feedback.

Priority areas for geography education research?

Before suggesting areas that geography education research might address, we want to clarify what we are - and what we are not - suggesting. In particular, our suggestion is not for narrow 'what works' research to respond to each of the areas, for example, asking in each case simply 'what is the most effective [insert topic here: questioning; forms of planning; explanation] for teachers to use?' Instead, we believe a diverse range of critical, ethnographic, action, and other research in combination with more experimental approaches all have important contributions to make both to the field and to the specific issue we might be concerned with. From different perspectives, critical engagement with research might contribute to the holistic development of beginning teachers who see teaching as not merely a craft or technical activity, but as a professional endeavour: beginning teachers who are able – and expect – to critically engage with a wide range of knowledges. This means that we are not calling for a simple 'toolkit' that teachers can directly implement. As Cain et al. (2019) express it: 'integrating research into professional knowledge involves an act of imagination: practitioners must actively transform insights generated in certain ways and certain circumstances, in order to employ them in different ways and circumstances' (p.1075).

The most frequent areas of subject-specific feedback in our data are: explanations; planning; progress; questioning; and terminology. We want to suggest that three of these areas: explanations; terminology; and progress might work as particularly useful foci for activity in geography education research. We have highlighted these areas because of their high frequency in this (albeit limited) sample of feedback, and because of the limited attention they have been given by geography education research. Research on these areas with theoretical rigour and clarity along with empirical work

analysing practical experiences with teachers might provide beginning teachers with higher quality research evidence through which, and in dialogue with other sources of knowledge, their practice might flourish. Parallels with work on these topics in science education might also offer a useful stimulus, such as research on explanation and argumentation (Martín-Gómez & Erduran, 2018; Ozdem, Ertepinar, Cakiroglu, & Erduran, 2013; Simon, Erduran, & Osborne, 2006).

Conclusions

We have offered this paper as one response to concerns raised about the lack of attention to geography / geographical knowledge in the feedback given to beginning teachers (Brooks, 2006; Firth, 2011; Morgan & Lambert, 2011; Roberts, 2010). The empirical evidence we have presented, drawn from a sample of geography lesson observations on one ITE programme in England, supports part of the claim in the literature about a 'lack of attention' to the subject. It provides this support through the finding that only one third of the text comments make any explicit reference to the subject, and among those references the majority are made through a relatively simple process of naming something subject-specific. However, our findings also qualify and soften these previous concerns by suggesting that it seems to be an overstatement to claim that there is a complete 'absence' of attention to the geography. Instead, we have presented the particular ways in which 'the geography' is given attention across a continuum of references, moving from simpler (only naming) through increasingly complex usage, including as a basis on which to prompt reflection. We also analysed the different topics that were addressed through the subject specific feedback, and have offered three particular areas as possible foci that geography education research might

prioritise. All of this was considered against the background of an appreciation (including from a geographical perspective) of the complexity of feedback mechanisms and the complexity of the systems into which feedback speaks which has implications for the epistemological dimensions of feedback (we would suggest more tentative framing), the values that feedback seeks to embody (including respect for the quality of evidence that ought to be presented to beginning teachers), and the sources of knowledge that beginning teachers should be introduced to (in particular, maximising opportunities to engage with research evidence as an important dimension of practical theorising).

Our argument concluded by posing a challenge for geography education research in terms of the research and resources that are available for mentors and beginning teachers. Based on these findings, and comparing them against existing literature, we suggested that explanation, progression, and terminology may be particularly worthwhile areas to explore further. In addition, we would suggest further research on lesson observation feedback: in what ways do beginning teachers respond to and interpret research evidence that might be drawn into this feedback? How can ITE partnerships best support the development of rich conceptions of teaching as a professional endeavour? What imaginative solutions might ITE partnerships create to facilitate rich engagement with research evidence? To what extent do mentors have control over this process to make their feedback deeper, more reflective (and, possibly, less certain)? What prompt questions might facilitate the most productive engagement with the widest range of knowledges? How can ITE partnerships support beginning teachers to engage with critical questions about geographical knowledge?

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