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Adapting ‘lesson study’ to investigate classroom pedagogy in initial teacher education: what student-teachers think

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This paper reports findings from a project that explored the use of a modified form of ‘lesson study’ in a one-year programme of secondary school initial teacher education (ITE). Twelve mentors and student-teachers worked in pairs to design and teach two ‘research lessons’ in the course of two eight-week teaching practice placements as part of a university–school partnership for the preparation of new teachers. Participating student-teachers reported that engagement in this form of lesson study with a mentor was an effective way to help them grow individual teaching skills, knowledge and confidence in teaching placements. In addition, in most cases, it enabled active and creative participation in a community of teacher learners. However, engagement in lesson study not only supported student-teachers to meet ‘qualifying to teach’ standards, but also offered opportunities for holistic study of teaching and learning, leading to growth in what we characterise as ‘pedagogic literacy’.

Keywords: lesson study; initial teacher education; school-based; teaching practice

Introduction

Lesson study is ‘a systematic investigation of classroom pedagogy conducted collectively by a group of teachers rather than by individuals, with the aim of improving the quality of teaching and learning’ (Tsui & Law, 2007, p. 1294). Originating in Japan, it has recently been promoted in both UK (Dudley, 2011) and US schools (Lewis, 2002, 2009) as a collaborative learning-focused process, in which teachers work together on five main activities in a lesson study cycle (see Figure 1).

The cycle begins with the identification of a learning challenge. Collaborating teachers jointly plan a ‘research lesson’ to address the learning challenge and identify case-study learners for observation. In the third phase, one teacher teaches the agreed lesson, while the others observe, with their focus firmly on pre-identified learners and their reactions to the lesson, not the teacher’s performance. In the final two stages of the cycle, the collaboratively planned lesson is evaluated by the whole group, revised and then re-taught to another group.

Although we drew on the work of both Lewis (2002) and Dudley (2011), our application was a variation on traditional forms of lesson study for use in initial teacher education (ITE). Following a pilot study (Cajkler, Wood, Norton, & Pedder, 2013), we adapted the framework for use by a student-teacher and mentor working together. The study took place in eight schools during the course of a one-year

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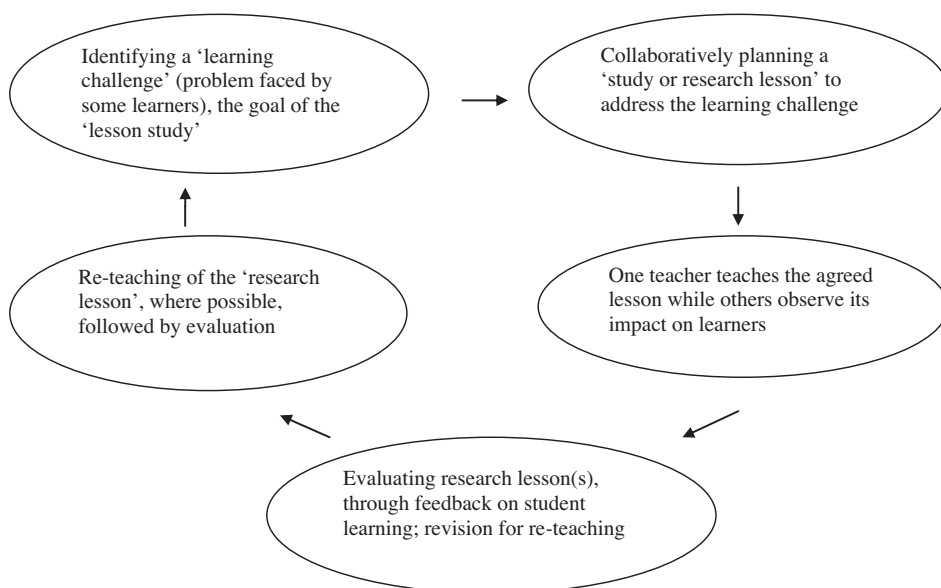


Figure 1. A cycle of lesson study.

postgraduate programme, offered by a university–school partnership in England. The project considered how mentor and student-teacher ‘lesson study’ contributed to their pedagogic development through a cycle of two research lessons. For this paper in particular, we studied student-teacher perspectives on lesson study. After reporting their perspectives, we will discuss student-teacher development in relation to what we term ‘pedagogic literacy’, a holistic view of pedagogic development that takes greater account, we argue, of the inherent complexity of both learning and teaching than current approaches to the in-school supervision of student-teachers.

The Use of Lesson Study in ITE

In this section, we review studies that evaluate how lesson study has been used in ITE, the challenges that its implementation poses, and adaptations used in ITE contexts. Models of lesson study recommended by Lewis (2002) and Dudley (2011) assume the participation of groups of practising qualified teachers engaged in a full cycle of lesson study, with opportunities for re-teaching of research lessons. Studies attempting a full cycle during teaching practice conclude that the process allows student-teachers to learn about the complexity of teaching in a holistic and situated way. However, the studies have been relatively few, for example, Chassels and Melville (2009), Sims and Walsh (2009), Tsui and Law (2007), and all admit to logistical obstacles to the completion of full cycles in ITE programmes.

Chassels and Melville (2009) experimented with lesson study during a four-week practicum. The study reported benefits to candidate teachers, but highlighted a range of limitations, notably that few student-teachers had the opportunity to re-teach lessons. Following a study conducted over two years with 32 pre-service teachers in Year 1 and 25 in Year 2, Sims and Walsh concluded that lesson study can help student-teachers:

... to look at the complexities of teaching with a more investigative lens – a stance that may help them seek out and grow from the support of fellow teachers as they begin their careers. (2009, p. 372)

They stressed the importance of student-teachers experiencing a full cycle of lesson study, while acknowledging that their adaptation of lesson study encountered several obstacles, particularly in the first year.

Tsui and Law (2007) followed two student-teachers of Chinese through two cycles of lesson study over four weeks. Their project was considered a positive experience, but the two student-teachers encountered challenges. The most notable of these was intense pressure from over-mentoring, as a result of which the student-teachers judged the first cycle to be ‘stressful and unrewarding’ (p. 1295). Furthermore, switching the focus of attention to the study of learning (rather than teaching) presents challenges to teacher educators, accustomed to judging how well a student-teacher performs in practicum lessons. Student-teachers, despite having much less experience and expertise than other participants, need to have a degree of autonomy and confidence so that they actively evaluate lessons, rather than just listen to corrective feedback, the traditional approach to teaching practice supervision.

Such findings are echoed in other studies (Gurl, 2011; Marble, 2006, 2007). So, the effectiveness of lesson study in teaching placements is highly dependent on the preparation not just of student-teachers, but crucially of their mentors. Myers (2012, p. 16), in a study of 20 lesson study reports, concluded that quality of mentor support was central, ‘in order to encourage continued thought and deeper reflection about the topic’.

Full cycles of lesson study in ITE are not frequently reported in research studies; the obstacles to their inclusion are significant. Other researchers have used variations on lesson study with positive outcomes, for example, Parks (2008, 2009) and Fernandez (2010). Fernandez’s use of micro-teaching lesson study with 18 prospective teachers, working in groups of three, involved collaborative planning, peer micro-teaching and evaluation, but did not include school-based practice. Fernandez reported that it was effective in promoting reflective engagement in both planning and practice, which suggests that her variation on lesson study would be a valuable approach for collaborative study of pedagogy in ITE contexts. Parks (2008, 2009) included only one research lesson with no opportunity for revision and re-teaching, expressing reservations about her project (calling it ‘lesson study like’). She also highlighted some pitfalls, for example the embedding of potentially negative thinking by student-teachers (2009, p. 94):

.... their dispositions toward collaboration did not translate into either deep explorations of teaching or the questioning of assumptions about students.

Incorporating lesson study in ITE faces a number of challenges, and is still largely unexplored (O’Leary, 2014). However, if new teachers are to teach and continually adapt their teaching to address the complexity of the classroom and the diversity of learners (Darling-Hammond, 2006), we need to offer opportunities for expert collaboration and classroom research within the confines of already heavily compressed teacher preparation programmes.

In England, ITE programmes are beset by demands for evidence that teachers are meeting craft skill competences (DfE, 2012), a deterrent to experimentation. In this context, we used our adaptation of lesson study with six student-teachers of

geography and six of modern languages during eight-week teaching practice placements.

Theoretical framework

Communities of Practice (Wenger, 1998) provided the lens through which to study student-teacher perspectives regarding the impact of lesson study on their development. Our model of lesson study was designed to enable student-teachers and mentors to work together in a 'joint enterprise' (Wenger, 1998, p. 73), with the objective of designing, teaching and evaluating resources to develop a 'shared repertoire' (Wenger, 1998, p. 73), in this case a cycle of research lessons. Communities of Practice are formed when a group of people engage in a process of collaborative endeavour. Lesson study, we speculated, could contribute to the student-teacher's 'scaffolded' engagement in the study of pedagogic principles.

Since ITE programmes are now largely school-based in England, teachers and student-teachers often engage in joint activities, sharing experiences and expertise to enable progressive induction into the subject's community of practice. In Wenger's terms, the participants share a domain of interest; they work together in a process of 'mutual engagement' (Wenger, 2000) on important pedagogic activities, principally planning, teaching and observing teaching. Consequently, relationships may be built that mean the members of the community learn together. Of course, we recognise that the relationship is likely to be asymmetrical because the mentor is clearly the lead practitioner. Nevertheless, we believed that lesson study would offer to the student-teacher and mentor a focused and structured opportunity to create 'a shared repertoire' of resources: lesson plans, resources, and ways of addressing recurring problems – in short, they would work together in a form of shared practice that required sustained interaction. This entrance through collaborative enterprise is, according to Wenger, a critical condition for the development of professional skills. Thus, in this project, Communities of Practice provided the framework to evaluate how a modified form of lesson study facilitated the induction of student-teachers into the school's pedagogic practices.

The project

In partnership with eight secondary schools (11–14, 11–16 or 11–18), hosting 12 student-teachers of geography and modern languages, we explored how lesson study:

- contributed to the development of student-teachers' pedagogy;
- supported student-teachers to observe the learning of their students;
- enabled student-teachers to integrate into teaching roles in subject departments (secondary schools in England are typically organised on subject department lines).

The schools had all received favourable inspection reports (good or outstanding) but their location was varied (two rural, five city-centre, one suburban), with two having been described as working in challenging circumstances, that is, in areas of serious social deprivation. In theory, student-teachers and their mentors followed the plan

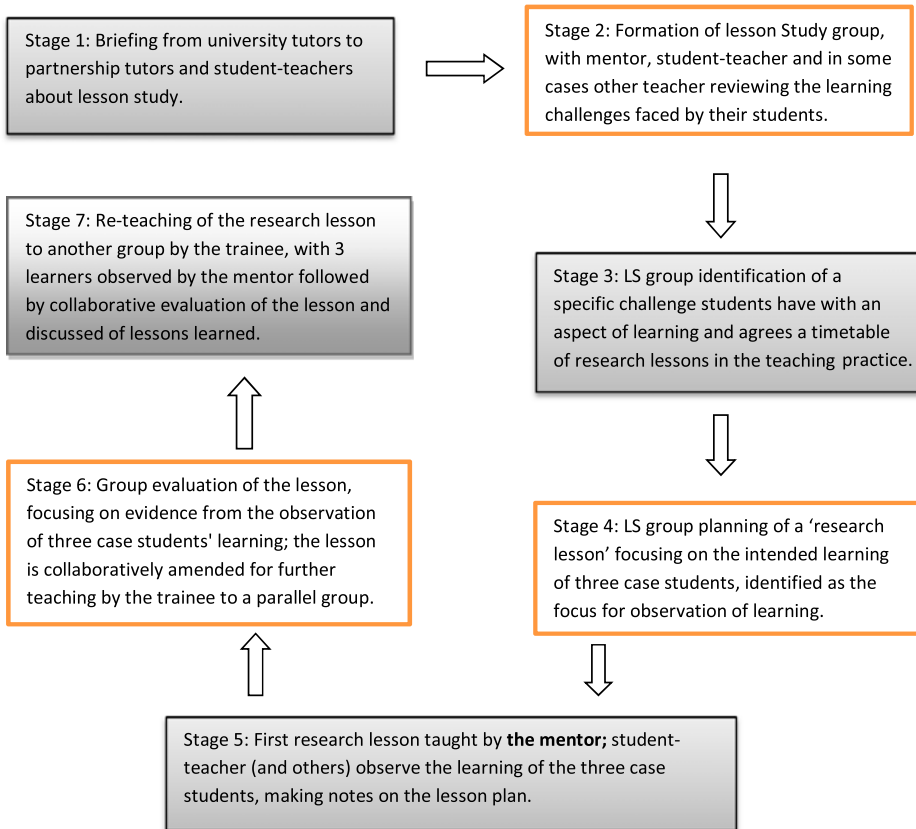


Figure 2. Teaching placement lesson study stages.

presented in Figure 2, during two eight-week teaching practice placements in partner schools.

Participants

The authors are both subject tutors in the ITE programme, in which the project took place. One teaches the modern languages methods modules, while the other teaches the equivalent modules for student-teachers of geography. The lesson study project did not form part of the assessment programme. Student-teachers' practical skills are assessed by school-based mentors not university tutors, the latter being responsible for the teaching of the university-based methods course, which precedes school placements.

We explained lesson study during meetings with mentors in preparation for the school–university partnership's programme, which includes two teaching practice placements in different schools. Six schools volunteered for the Phase A placement (November to January 2012–2013), and six for Phase B (March to May 2013). However, in each phase, only four schools managed to complete the process for a variety of reasons: workload, illness and difficulties arising from examination timetables.

Consequently, 11 women and one man, six teaching geography and six teaching modern languages, completed lesson study cycles. Three worked in triads (student-teacher, mentor and another collaborating teacher), while nine worked with the mentor only. It should be noted that, during the year, each participating student-teacher had just one teaching placement with lesson study. So, they were able to compare the experience of a practicum that included lesson study with one that was completed on traditional lines.

The two researchers inducted mentors and student-teachers into the lesson study process at specially convened meetings. We were supported by two mentors who had participated in the pilot. They discussed the tensions between teacher and learner-focused observations with the mentors who were new to lesson study. We drew on Dudley's *Lesson Study Handbook* (2011) and our own piloting experience conducted in the previous year (Cajkler et al., 2013), emphasising the need for collaborative planning to meet an identified learning challenge (stage 3 in Figure 2) and the fact that the focus of observations is on a small number of learners, not the teacher or student-teacher.

During the project, student-teachers planned collaboratively with mentors, who taught the first research lesson (stage 5). Following joint evaluation and revision, the student-teacher re-taught the revised lesson to a different but parallel group of students in the same year group, i.e. another group following the same programme. This re-teaching to another group allowed for completion of a full cycle of lesson study. Such a mentor-led approach does not appear to have been investigated in ITE-related studies of lesson study. The use of pairs in the majority of cases reflected the challenge of implementing lesson study within the constraints of a short-term practicum. Consequently, we used Dudley's approach (2011) to observation, with the student-teacher observing three pupils during the mentor's lesson, and making field notes on the lesson plan. The mentor did likewise during the student-teacher's research lesson.

Data collection and analysis

Our evaluation of lesson study and its impact on student-teachers was qualitative, drawing on analysis of recordings of mentors and student-teachers during planning and evaluation meetings, DVDs of research lessons and artefacts such as lesson-plans/resources. At the end of each lesson study cycle, researchers conducted individual semi-structured interviews to elicit accounts of professional learning in the project from student-teachers and mentors. Student-teacher perspectives are the focus for this paper.

Participants were invited to recount their experiences under three broad headings: their engagement in the process, the problems that it posed and its consequences, including what was salient or most significant to them in the process. We prepared a schedule (see Appendix 1) with possible 'prompts' for use during interviews, but the questions acted as a guide for discussion. The modern languages tutor interviewed geographers, and the geography tutor interviewed the modern language student-teachers. Each interview lasted between 25 and 40 minutes. At the end of the one-year programme, student-teachers were brought together for two focus-group meetings with the two university tutors. Each tutor met with six student-teachers: the geography tutor with the six modern linguists, the modern languages tutor with

geographers. There was a suggested outline agenda for these meetings (see Appendix 2), used to ensure consistency.

We acknowledge the danger of research based on single interviews. Bloch (1991) argued that when respondents say they learned or experienced something we need to be cautious, recalling that teachers might report what researchers might prefer to hear. As a result, any interpretation from results should be tentative. In addition, we have data from both mentor interviews and transcripts for planning and evaluation meetings, so further papers that draw on analysis of these are being prepared.

For this study of student-teacher perspectives, interview transcripts were independently analysed by the two researchers and interpreted through the lens of Communities of Practice (Wenger, 1998, 2000). Initially, we divided each transcript into idea units (Tsui & Law, 2007), which were then thematically coded. An idea unit consists of a proposition that relates to one idea, such as 'student engagement in the lesson', or 'benefits of collaboration with the mentor'. Like Tsui and Law, when the same idea was illustrated by examples we counted this as one idea unit. Similarly, we did not count direct elicitations, repetitions or confirmatory comments because the analysis focused on informant propositions concerning their participation in lesson study.

For comparative content analysis and thematic coding, we made three sweeps of the data, finally agreeing the coding of themes (91% match after our second sweep), within 769 idea units, into which we had originally divided the text before finally agreeing on 10 broad themes (see Appendix 3). Through further refinement, these themes were grouped and reduced to five principal themes (presented in Table 1).

Findings

When exploring student-teacher perspectives, we found that three themes were the most frequent in individual interviews. These are discussed below, under three headings related to the research questions:

- (a) impact on pedagogy (theme 1);
- (b) learning about students (theme 2);
- (c) collaboration and integration into subject teaching roles (theme 3).

Table 1. Themes from analysis of post-lesson study interviews.

	Themes	% of themes
1	Impact on approaches to teaching and teacher learning	47
2	Student-focused observation (engaging in observation) and discussion	28
3	Collaboration (and integration into subject teaching roles)	12
4	Potential of lesson study including constraints	7.5
5	Summative evaluation of lesson study	5.5

Impact on pedagogy

Student-teachers valued collaborative practice for its contribution to greater awareness of what to think about when planning a lesson. Responses were typified by the following:

I think it is the fact you plan a lesson so closely with an experienced teacher helps in a lot of ways to, well, there's a lot of things I wouldn't have thought of when I planned a lesson on my own. (A, ML)

The collaboration in planning–teaching–evaluating had positive impacts on participants' learning how to teach and on the quality of learning experiences for their students, but these gains were not reported as immediate:

When XXXX [the mentor] taught it, because I didn't know what exactly I was meant to be looking for it was all a bit new, and I was still a bit confused. By the time we were doing the second cycle [research lesson], and we were doing the debriefing, and I'd seen how the lesson had improved from the first one, you could see the benefit of it, how the students were more engaged, the types of activity ... how we sort of altered the activity slightly. It had such a greater impact on their learning and they all seemed to ... write the answers out for themselves more so than before. (W, Geog)

Having seen the lesson field-tested by the mentor, interviewees described quite detailed discussion of how lessons were amended to meet learner needs. In some cases, student-teachers suggested that this resulted in lessons that were more effective in addressing the learning challenge than the mentor-taught lessons, for example:

I mean we changed one thing which was quite a major thing, which was the resource that I'd made was actually completely useless actually in the lesson. So like, we both looked at it and thought it was a really good resource, and then because he [mentor] did it practically we thought actually it didn't help him at all for what he did. And then when I did it, it was completely useful.... (T, Geog)

This student-teacher was able to learn from the relative failure of the resource, but also the mentor's way of responding in the classroom. She recounted how the mentor amended practice in the face of learner responses to the resource. Reflecting in action, she changed what had been planned in order to make sure that the impact was not negative.

A modern languages student-teacher claimed to enjoy greater success than her mentor:

... we realised that we could improve the lesson by changing the order of activities, which was good because, when it came to my lesson, it was clear that the students learnt the topic much better than in my co-tutor's lesson. (C, ML)

There was also evidence that insights from lesson study had impacted on practice more widely, for example on how student-teachers planned other lessons:

On every lesson plan after that, I then started putting an extension on the bottom, so if I do things too quick I've got something.... (W, Geog)

Perceptions of greater learner awareness in both planning and teaching were frequently recounted. A modern linguist expressed a somewhat imprecise view:

So, by doing the lesson study, it made the learning of the pupils at the forefront of the planning. (A, ML)

All interviewees reported that the process steered them to planning with learners in mind rather than thinking about the teaching events, or the resources that they might organise. Generally, they believed that the emphasis in their thinking had shifted towards learners and their learning, rather than being focused on what they did as teachers.

Learning about students

The opportunity to observe the lesson through the experiences of two or three learners proved to be a revealing experience, although observing learning was not considered straightforward. Eleven student-teachers felt that their thinking about learners and their learner awareness (about approaches to learning, levels of engagement, and even levels of ability) changed significantly. One respondent expressed (again in rather vague terms) some impact on pedagogy, resulting from the observation of an individual student:

Well, that was interesting because *we* didn't actually change that much after watching him. *We* changed one thing, but just watching him, it meant that when I was explaining it I sort of knew things that I wouldn't have mentioned before. (T, Geog)

Despite the vague language, perhaps the 'we-inclusive' discourse is noteworthy, reporting a joint mentor–mentee perspective.

Observations of individual students often resulted in revised judgements about their abilities and teacher expectations; for example, when a geography student-teacher conducted the plenary part of her lesson:

So, one of the boys, he was quite fiddly, like playing with his pen, but then, when it came to the plenary and they had to come up to the board, he was the one who was putting his hand up and going up and giving all the answers. (P, Geog)

Her mentor's feedback also highlighted the engagement of the boy despite his apparently distracted behaviour. Engagement in the project challenged thinking about what can be seen in classrooms, and made participants realise the limitations of observation from the front of a class:

In a classroom of 30 kids, there is no way that a teacher is able to consistently track the engagement and attainment of every pupil in that lesson. (S, ML)

... it's interesting because you don't notice it as a teacher, but if you're just looking at three students and they don't realise you're watching them, it's brilliant.... (V, Geog)

Other observations led to changes in practice, seeking to improve student participation in interactive activities in a language lesson:

... with my year 9 class, like with that lad who was sort of on his own, it really made me think ... it's all about the learners, and it made me really sort of adjust how I taught them in future. And, when I did ... a revised seating plan, getting him more involved in things.... (M, ML)

However, observation of learning was, and remained, difficult. Two student-teachers were particularly challenged by what they should be observing, and felt that they were at sea. Another reported that his ability to concentrate on case students was limited and that observations were somewhat generic in focus. We found a similar admission in his mentor's transcript.

One student-teacher felt confident about observing teaching, but much less so when looking at learning:

He was spot on with how he taught it. In terms of observing the students, I think the point was: what exactly am I meant to be observing? (W, Geog)

The project had not adequately prepared her for this activity:

So, I think if it's going to be done again with a student-teacher who's never done lesson study, they need to know what to look out for when they're observing. (W, Geog)

When introducing lesson study projects, teacher educators need to engage in explicit discussion with participants concerning the nature of learning. Our failure to do this adequately is perhaps not unique to this study. Our review of the ITE-related lesson study research literature suggests that limited space is devoted to reporting how learning is observed in research lessons, and that opportunities for observation of learners in ITE settings are limited. There are exceptions, most notably Sims and Walsh (2009), who explained how multiple observers divided up the classroom, and observed with a specific focus. In other ITE-related studies, however, we found that the approach to observation of learners was seldom described in the detail achieved by Sims and Walsh. Despite the advice available from Lewis (2002) on the observation of students' eyes and faces and Dudley's recommendation for targeted observations of case study learners (2011, 2014), many ITE-related studies rarely achieve opportunities for first-hand observation of actual learners in the classroom. Consequently, discussion of how to observe learning is limited.

While we managed to achieve the first-hand observations of the reactions of actual learners, as recommended by Lewis (2002), these were limited to a small number of case students because there was usually just one observer. A limitation in the study that we conducted lies in the absence of multiple observers, compared with traditional lesson study in Japan, where it is not uncommon for several observers to be watching children very closely. This is unlikely to be possible in ITE programmes in England in the near future. As a result, it is essential that, in future studies, we refine and improve our approach to using observations of a small number of case students (Dudley, 2011), to make the impact more consistent. While the geography student-teacher, reported above, found that she was unprepared for close observation of students, two other student-teachers claimed to find the opportunity for such focused observation both absorbing and enlightening. A geography lesson study team filmed the lesson to assist review, which was fortunate given the 'engrossed' way in which the student-teacher observed:

I was so engrossed in watching what the students were doing, rather than thinking right now we should be moving onto this or ... I honestly couldn't tell you what went on in the first lesson. I just had no idea, and then I had to go back obviously, like, watch it to write my own lesson plan for it. (V, Geog)

The fact that 'V' appears to have been tasked to write the lesson plan, or re-write it, was not unusual in this project. Some mentors varied the process in ways that we did not expect, as will be discussed in the next section. However, there were no complaints from student-teachers of mentors observing student-teachers instead of focusing on case students in the classroom. Nevertheless, we learned from analysis of evaluation meeting transcripts that this occurred in at least two cases.

On the other hand, nine student-teachers expressed a firm belief that observation had affected thinking about learners, and how to amend teaching for more effective learning. For example, partly as a result of her mentor's observations of three case students, a modern linguist felt that her lesson study group was the one regarding which she had the greatest understanding:

I think it helped me understand more the pupils in that class, as well. By the time I left, I felt I knew that class the most out of all my classes. (S, ML)

Nevertheless, among this group of student-teachers, there remained uncertainties about what and how to observe, with wide variations in the application of the process.

Collaboration and integration into subject teaching roles

Some 12% of the interview themes focused on the nature and value of collaboration, which related to induction into pedagogic practices. How lesson study facilitated integration into subject teaching roles was rarely explicitly mentioned, but collaboration with mentors was described as a strength. However, participation in discussion was not even. In some cases, practice appeared to be at variance with traditional lesson study. In four cases, we learned that the mentor began the planning meetings with preconceived ideas about what should happen, and actually determined the learning challenge and approach. We confirmed the accuracy of these student-teacher reports by cross-referencing with mentors' interviews and planning meeting transcripts. Discourse analysis of meeting transcripts forms part of our ongoing investigation into the use of lesson study in ITE. Interpretation of participants' claims for the effectiveness of lesson study will remain tentative until such discourse studies are completed.

In the other nine cases, there were stronger claims for mutual engagement (Wenger, 1998), student-teachers reporting that, during planning meetings, they contributed actively to discussion concerning learning challenges and the design of learner-responsive teaching. However, we need to be cautious about these claims, which were only partly supported by comparison with transcripts. Mentors generally took the lead in directing the conduct of planning meetings, and the number and length of contributions from student-teachers varied quite considerably. In five cases, student-teachers were asked to write up the resulting lesson plans, again revealing deviations from expected collaborative procedures, probably resulting from time pressures.

Further studies of lesson study in ITE are needed to explore the constraints and their impact on the quality of collaboration. However, one student-teacher claimed that her induction into collaborative work in her geography department had been very rapid. The lesson study made her feel part of a pedagogic team from early in the placement:

Yeah, it definitely changed just from within the first week, so I felt like I could ask them questions and that we were all working together to create good lessons rather than this 'independentness' where that's your lesson, you get on with it, kind of thing. So, I don't know if it's more of a reassurance on my part, or whether it was the fact that it actually did make me a lot more confident ... because I could go into a lesson knowing that someone with M's [mentor] experience thought that that was a good idea. So, I knew that it would be OK, and that it would kind of work. (P, Geog)

Willingness and confidence to contribute so early were exceptional. Others began with much greater reticence, a feature that we can observe in planning transcripts. When engaging in discussion with mentors regarding pedagogy or providing feedback on the learning observed in the mentor's research lesson, there was nervousness; for example H in her first research lesson:

I think, looking back, I wasn't very confident with maybe making a suggestion because I didn't feel like a professional. (M, ML)

In her modern languages department, a second cycle was concluded, allowing her to grow into her role with greater assurance and to share in suggesting possible solutions to pedagogic challenges:

I kind of felt a bit more confident that to make more suggestions on what I think would suit, and especially in the reflection sessions, like after I'd observed J [mentor], and how I could adapt it to my group. (M, ML)

The opportunity for a second full cycle was exceptional. This resulted in her assertion that lesson study had:

... made it more clear what I have to do and you know about lesson structure and how to teach.... And I even, I think J [mentor] said to me at the end of second cycle, she noticed that I was more confident in myself. (M, ML)

This feeling of gradual assurance and integration into the role was frequently mentioned in interviews, particularly in relation to the second research lesson. For a geographer (W), working in a lesson study triad, this even included challenging the thinking of her two more experienced collaborating colleagues:

And he had some really, really good ideas that XXX [mentor] used in the first one, and at first I was a bit like: Oh well, I don't know if I can say maybe we shouldn't do it like that, but then the second time that we did it when I, it was just me and no it was all three of us that planned it after XXX had done his, I was much more willing to say: Well, no, maybe we should do it like this because this didn't work very well, without feeling like I was being rude. (W, Geog)

Despite this, when reflecting during the focus-group meeting, this particular student-teacher was not convinced that her lesson study placement was superior to the non-lesson study placement, her mentor's approach being the determining factor:

I think, didn't you find, that with XXX [mentor], everything's sort of there on a plate. I didn't have much chance to, like, experiment because it's always his ideas. (W, Geog)

This was not a criticism of lesson study per se, but evidence that didactic, craft-driven approaches could occur in lesson study placements leading to over-mentoring (echoing Tsui & Law, 2007), possibly resulting from the participants' status and experience differences.

Where it worked well, student-teachers welcomed collaborative shared responsibility:

I know it sounds silly, but it takes away the level of responsibility from one person, because if it goes disastrously you can both look at each other and go well, oh well, you know, we know what to do next time, but you don't sort of feel like a failure in that sense because it's not just on you. (S, ML)

Collaborative planning was the principal benefit identified by most respondents, a feature which appeared infrequent in other teaching practices that did not include lesson study:

... at my first placement I didn't do any like collaborative planning or anything.
(V, Geog in focus group)

Ten student-teachers agreed that collaboration was less frequent in teaching placements that did not include lesson study. The fact that protected time was set aside was seen as helpful and effective:

Well, I'd probably just say allocating planning time, having an experienced person was the thing that helped me most. So, you had an hour where you would just sit down, talk to him about a few lessons, a few things that you could do rather than five minutes here, five minutes there, things like that. (T, Geog, focus group)

Participants recognised the value of the engagement they had experienced, including the opportunity to see mentors teach the first research lesson. Teaching a lesson that they had evaluated and re-planned, following the mentor's teaching, was seen as valuable by all participants:

I felt more comfortable teaching a lesson that I'd already seen because ... because we'd worked on it quite a lot as well, discussing ideas and things like that. I felt a bit more comfortable rather than going in with something completely new. (M, ML)

I really enjoyed watching it first to see how it's done, and it was so much easier seeing it.... (Geog, C in focus group)

Eleven student-teachers saw the mentor's research lesson as an example of modelling, even though they were observing a small group of case-study learners. The emphasis on modelling may highlight the asymmetric relationship between the mentor and student-teacher, in the way the latter perceives the process of observation.

Generally, however, student-teachers talked about a more involved and collaborative process than was the norm in their teaching practice without lesson study. One student-teacher, who had engaged in lesson study in the second teaching placement, expressed the view that it could not be mandated as part of the programme:

If I imagine my last co-tutor, I don't think she would have wanted to do it, and if she had had to do it she wouldn't have done it properly. (A, ML)

Her view was echoed by others in the focus-group meeting. Not all mentors would be ready to engage in lesson study, which is food for thought for teacher educators who might like to see lesson study (or similar forms of inquiry) as routine in school-based programmes of ITE.

Other caveats emerged, the most significant being that of time. In most subject departments in which the student-teachers worked, they thought that more than one cycle of two lessons was unrealistic:

But the workload, because it's quite big, but at the end of it I learnt a lot from it. So, I felt it really worthwhile and beneficial.... It's just the time-consuming element....
(C, ML)

The typical pattern in six of the schools was two research lessons (one taught by the mentor, the other by the student-teacher). One school achieved two such cycles of two research lessons, and one managed three research lessons (the first and third taught by the mentor).

The view that lesson study had been beneficial was not universal. One geography student-teacher was uncertain about the process, believing that it had come too early in her teacher preparation programme. She remained hesitant about what, and how, to observe in the classroom. Others shared apprehension about their observation of learning, emphasising both their lack of experience to do this and the limited preparation that was offered in Step 1 of the project (see Figure 1). Additionally, there was nervousness when offering feedback about the learning that took place in the mentor's lesson, two student-teachers reporting this as quite challenging. However, the majority view was that the project had been worthwhile, and had helped them to integrate into their subject teaching roles.

Discussion

Most interviews with student-teachers suggest that lesson study allowed for participative discussion about learning and teaching, in a supportive process in which both mentors and student-teachers were learners focusing on the improvement of pedagogy, not just the training of the prospective teacher. Progress and participation were not universally smooth, but most respondents suggested that lesson study contributed to effective induction into the pedagogic team at departmental level. From a Community of Practice perspective, lesson study offered a structured process of mutual engagement (Wenger, 2000, p. 227) in the study of learning and teaching. Mentors clearly led the process, but student-teachers experienced feelings of increasing assurance, despite initial uncertainty. This, we believe, was the principal achievement of the project: a collaborative opportunity to explore the complex system of classroom-oriented processes that make up teaching and learning. Individuals were learning through group interaction within their practicum context. The situated learning (Lave & Wenger, 1991) which student-teachers described is regarded within the Communities of Practice framework as a social construct. However, understanding for a purely social perspective can lead to the danger of losing the agency of the individual, as Billett (2007, p. 59) states:

... data from workplaces of different kinds, over time, consistently emphasise the importance of dualities that comprise both contributions or affordances of the workplace, and the bases by which individuals elect to engage with what is afforded them, and the relationships between them.

The growth of the individual is negotiated within the group, leading to the need to understand both the perspectives of the individual and the nature of the relationship to the group. Even in developing collaborative approaches, the mentor and student-teacher brought individually constructed meanings and experience. Likewise, they took away different lessons from the collaboration. Billett argues that:

While a phenomenon may have some common meaning, its construal by individuals will be shaped by particular sets of values, subjectivities and the discourses to which they have access. (2007, p. 65)

Despite some uncertainties, all participants agreed that they took away different ideas and pedagogic insights as a consequence of their interactions within the collaborative process of lesson study. To understand this individual development in ITE contexts we need to consider what it means to become a teacher, beyond merely

meeting a list of teaching standards and being inducted into a team of teachers in a subject department.

In order to understand teacher progression within a school-based community of practice, we propose the notion of ‘pedagogic literacy’ as a continuum for understanding teacher growth. Part of what it means to be human is an ability to teach, which enables us (as parents, peers, friends, colleagues) to pass on knowledge, skills and other attributes. However, much of this ability is tacit and is, therefore, not a firm foundation for the capacity to teach in schools. Becoming a teacher draws on experiences and skills that emerge from working with and learning from others, in an explicit process of deepening and extending our pedagogic understanding. This collaboration and our associated reflections enable a heightened understanding of teaching and learning. This notion implies a complex dynamic vision of how teaching quality develops, in a continuum composed of learning from a very long and wide range of experiences. These include critical reflection on one’s own learning in instructed and non-instructed settings, as well as acquisition of theoretical understanding and practical teaching skills. Specific but interdependent professional skills, for example lesson-planning, use of questions and understanding of a huge variety of teaching approaches, contribute to pedagogic literacy, as do attributes such as commitment to professional growth and engagement in reflection on practice (Schön, 1983). Crucially, it also includes the ability to interpret what is going on in lessons (Schön’s reflection-in-action), through a heightened, sharp awareness of how learners respond to any teaching. This ability to read lessons is at the core of pedagogic literacy. We would argue that adaptations of lesson study in ITE could provide interactive opportunities to both student-teachers and mentors in order to heighten awareness of what is going on during lessons.

What we inferred from the analysis of student-teacher perspectives was that understanding of learner-responsive teaching was scaffolded through structured opportunities to discuss pedagogic processes. Traditionally, mentor and student-teacher relations are characterised by observation and guided reflection, a process that often leads to student-teachers ‘living’ and working in a parallel space to other colleagues, quite often planning alone and in relative isolation from other members of their departments (O’Leary, 2014). Effectively, the student-teacher plans and teaches as an individual, with periodic support from the mentor, a more distant form of collaboration than was the case in this project. Adapting lesson study, on the other hand, offered opportunities for a holistic collaborative exploration of pedagogy. This stands in contrast to ITE programmes that focus on gathering evidence of meeting lists of competences, characteristic of current approaches to the assessment of teaching skills, mandated by ministries of education.

The confidence expressed by student-teachers concerning this form of lesson study suggests that it has the flexibility and rigour to support their growth as teachers. However, the quality of growth in what we term ‘pedagogic literacy’ depended in large part on the quality of mentors, and the extent to which they were open to change and to new ideas. Commitment to increasing their own level of pedagogic literacy and willingness to allow a degree of autonomy to student-teachers appeared to be key determinants of success, issues we shall explore as we analyse mentor perspectives.

Conclusions

Our analysis of student-teachers' perspectives suggested that there were two principal gains: firstly, collaborative planning was valued; secondly, resulting opportunities to explore pedagogy in relation to learning challenges contributed to student-teachers feeling part of their pedagogic community of practice. From this perspective, we argue that lesson study can contribute to growth in what we term 'pedagogic literacy', an idea to which we shall return in other papers. In future studies, it would be useful to explore the extent to which there is a predictable pattern to the growth of student-teachers during their ITE programme, and then determine what lesson study (or other forms of student-mentor collaboration) adds to their development. Future studies could usefully explore the extent to which mentor-led lesson study helps to balance the asymmetric relationship between mentor and student-teacher to enable the latter to develop a clear identity as a future teacher. On the negative side, observation of learning was an unresolved challenge, to which we need to return. Furthermore, there was some hesitation about offering feedback to more experienced colleagues, and there were departures from expected lesson study procedures. Consequently, until further studies are completed, any conclusions about this form of lesson study in ITE remain encouraging but speculative.

Looking at teacher preparation in England from the perspective of pedagogic literacy offers a counter-view to the prevailing culture that sees teaching solely as a set of discrete, government-sanctioned competences (DfE, 2012). We argue that teacher preparation and development can be understood as a continuum of continual refinement of pedagogic literacy, centred on teachers' ability to read learner responses and develop learner-responsive approaches. Within this context, lesson study in ITE seems to offer a great deal of promise.

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Appendix 1. Interviews with student-teachers

- (A) What happened? The process
- (1) Can you tell us about the planning meetings you had with your co-tutor?
 - (2) Can you tell us what happened during the lesson taught by the co-tutor?
 - (3) Can you tell us what happened in the lesson debrief(s)/evaluation of the co-tutor lesson?
 - (4) What changes were made to the lesson before you taught it?
 - (5) What was your experience of teaching a lesson that was trialled by your co-tutor?
 - (6) What happened in the evaluation of your lesson?
 - (7) How is pedagogy developed within the department? How do you know this?
 - (8) Were any other teachers involved in your discussions? If so, what was your experience of this?

(B) Problems/challenges

- (1) What problems have there been in conducting LS in the placement?
- (2) Is there anything you want to advise? Suggestions about LS/ideas?

(C) Effects

- (1) What has LS given to you?

Possible supplementary prompts about effects:

What was important for you as a student-teacher in the process? What was most salient for you?

Example prompt: Can you help me to understand the impact you think it has had on

(a) thinking about teaching?

(b) thinking about learning?

(c) thinking about planning?

(d) thinking about your development towards QTS?

Appendix 2. End-of-year review with LS participants

Comparing the two placements you had:

- (1) How did the placement with Lesson Study (LS) compare with that without?
- (2) What opportunities did LS bring?
- (3) What drawbacks did the use of LS bring?
- (4) Is there any specific development in your teaching that you would attribute to LS?
- (5) To what extent do you think that LS should be included in the PGCE programme?
- (6) Please advise of any other observations/comments that you would like to make.

Appendix 3. Thematic coding of interviews

- (1) Student participation and progress in lessons
- (2) Student-focused observation
- (3) Teaching approaches (pedagogy)
- (4) Amendment/approach identified in review meeting
- (5) Summative evaluation of lesson study (observer perspective)
- (6) Summative evaluation of lesson study (teacher perspective)
- (7) Lesson study potential incl. constraints
- (8) Collaboration (and integration into subject teaching roles)
- (9) Teacher learning
- (10) Impact on practice