Developing a pedagogy for hybrid spaces in Initial Teacher Education courses

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We share an emerging pedagogy for Initial Teacher Education (ITE) mathematics tutors who are seeking new ways to work with student teachers in what Zeichner (2010) defines as hybrid spaces. In terms of Initial Teacher Education, hybrid spaces are those spaces which are formed to "bring together school and university based teacher educators and practitioners and academic knowledge in new ways to enhance the learning of prospective teachers" (92). For the last three years the PGCE secondary mathematics programme in the authors' university has included a Saturated Learning Project (SLP). This has involved taking all of the secondary mathematics students into school one morning for each of ten weeks to work with groups of pupils in a shared communal space, supported by class teachers and university tutor. The project has now been extended to the PGCE primary course with ten student teachers specialising in mathematics. They also worked over a number of weeks with a group of Y6 pupils. The experiences in such hybrid spaces enriched and extended students' practical and pedagogical knowledge by facilitating understanding of theories about teaching and learning mathematics in a real, shared context. This new pedagogical approach is strengthening school-university partnership and improving learning experiences for both student teachers and their pupils.

Keywords: hybrid spaces, saturated learning, initial teacher education

Context and background of Initial Teacher Education

Initial teacher education (ITE) in England is at present more than at any other time in its history a site of great contestation and change. The pace of political reform is exponential and will force unparalleled and abrupt cultural and organisational changes by universities and partner schools. The new UK coalition government's drive to shift the focus of control of teacher education into schools by reforming the current system has significant and not yet fully understood implications for Higher Education (McNamara and Menter 2011). Placing greater emphasis on the workplace and employment based routes will require university initial teacher educators to reconsider and reposition themselves within the field. Justifying critically the unique and valuable learning spaces created for the beginning teacher by the university is an important step forward towards a new vision of professional learning. This paper sets forward the response of tutors at a particular university and how the development of hybrid spaces (Zeichner 2010) may be part of a new pedagogy which offers additional expansive learning experiences and new democratic ways of working with schools to support student teachers and their professional development.

Origins of the Hybrid Space

Zeichner (2010) outlines hybrid spaces in ITE as those spaces which involve a "rejection of binaries such as practitioner and academic knowledge and theory and practice and involve the integration of what are often seen as competing discourses in new ways" (2010, 92). Three years ago the secondary mathematics education tutor introduced the Saturated Learning Project (SLP) as an enhancement to the exisiting programme offered as part of the university taught course. The project was in keeping with the vision of a closer, more democratic partnership with school mathematics departments involved in the ITE programme. It was designed to allow an exploration of new ways of working more closely with partner schools, using the cohort of PGCE mathematics student teachers as co-enquirers. The project involved challenging boundaries between the 'academic' learning situated in the university and the 'professional' learning situated in the school setting. The SLP created a new hybrid space in which academic and professional practice were brought closer together by moving one of the weekly university sessions into a partner school and involving the mathematics department more closely in the content and purpose of the sessions.

The original SLP involved the entire cohort of secondary mathematics students placed in a pilot school for a morning a week, working with the same two groups of pupils for ten weeks. It contrasted as a learning experience with the traditional 'solo' model used on the university PGCE secondary course, where a trainee is placed on their own in a school with a supervising mentor. This is a model which forms the basis for many secondary teacher training courses run by universities and, as Bullough et al. (2002) note, one that has remained little changed for 50 years. Placing all the student mathematics teachers in the one learning space presented a new learning experience for not just the student teachers but for the university tutor, the school teachers and colleagues.

The design of the SLP facilitated the formation of small communities of enquiry (Senge 1990) as the school teachers, student teachers and university tutor worked collectively with the same group of pupils. The experience provided a new space to enrich and extend students' practical and pedagogical knowledge by facilitating understanding of theories about teaching and learning mathematics in an authentic, shared context. The student teachers developed practices which were not the same as those in their individual placement schools and thus the SLP afforded knowledge of a different practical and pedagogical nature to reflect on and against.

In 2012 this saturated model was extended into a partner primary school. The ten specialist mathematics PGCE primary students worked over a series of weeks with a Y6 class who were preparing for the Key Stage 2 National Curriculum tests (NCTs) and in addition worked with the mathematics coordinator to prepare a series of enrichment activities for all year groups as part of a mathematics week.

Methodology

The project evolved as an action research project. Action research is characterised as a form of:

> self-reflective enquiry undertaken by participants in social (including educational) situations in order to improve the rationality and justice of (a) their own social or educational practices, (b) their understanding of these practices, and (c) the situations in which the practices are carried out. It is most rationally empowering when undertaken by participants collaboratively ... sometimes in cooperation with outsiders. (Kemmis 1983: 34).

As university tutors, instigating the research project, we were both insider researchers as well as cooperating outsiders. Although we were fully participatory in the research project it could be argued that we were outside of the school community in which the project was sited. There were advantages to this position as we had, as insiders, some of what Coughlan (2001) refers to as "the pre-understanding from being an actor in the processes being studied" (2001, 49), together with a degree of objectivity through our external position as university tutors.

The original SLP projects took place in the first semester of the secondary PGCE course and involved the secondary mathematics cohorts working with examination groups of Y11 (16-year old) pupils on a one-to-one basis and small groups of three or four Y7 pupils with two student teachers. In the second year all of the learning took place in the school hall which provided a large physical space in which all groups could work alongside each other. Before and after each session an hour was set aside for preparation and anticipatory reflection (Van Manen 1995). The morning ended with a further reflective hour when the student teachers initially discussed their experiences and evaluated the successes and identified areas for improvement in their own learning groups and then contributed comments and reflections to the whole cohort.

The SLP project started at the beginning of the PGCE course so the tutor in collaboration with the school's head of department prepared the lessons. The student teachers in their small working groups had to spend one hour before teaching reviewing and adapting the materials. Initially the tutor felt it would have been of greater benefit if the students had had the opportunity to co-construct and plan their own lessons for their pupils. However the time constraints of the programme overall and the very early stage of the student teachers' own professional development meant this was an unrealistic aim.

In retrospect this model offered some advantages to the student teachers and the tutor as it ensured more effectively the delivery of a quality experience for the pupils and provided a scaffolded experience in lesson planning and the development of active learning strategies. The students concentrated their efforts on translating the tutor's and head of department's plans and activities into engaging experiences for the particular pupils they were working with. The subsequent discussions focussed on the effectiveness of the learning experienced by their pupils.

Evaluation of the SLP

The research project evaluation had two different aspects; firstly the impact of the project on the pupils' learning and the school more generally, and secondly the impact on the student teachers. As initial teacher educators we have a responsibility to provide expansive learning experiences for our student teachers but ultimately these must have a value in preparing them to teach i.e. have a resulting impact on pupil learning. From the school's perspective the partnership with ITE providers needs to be seen as one that offers positive benefits for their school. Increasingly as schools are focused on performance and accountability many hold a deficit model of beginning teachers not seeing the possibilities of their positive contributions to their pupils early on in their PGCE course.

The projects have been evaluated using largely qualitative methods involving questionnaires, short interviews and focus group discussions. These have involved all of the stakeholders: heads of department, coordinators and classroom teachers, a sample of the pupils together with the student teachers. In all three years the

secondary SLP has involved working with Key Stage 4 (15-16 years) examination classes and groups of Y7 or Y8 pupils (11-13 years). Some quantitative data of the KS4 pupils' progress has also been collected.

The outcomes of the project have been extremely positive from all of the participants' perspectives. All of the schools involved have evaluated the project as beneficial for their pupils and staff. The heads of department have viewed SLP as contributing to their KS4 pupils' achievement in public examinations. The expected grades for pupils in the SLP pilot school were exceeded with 55% of the pupils involved in the sessions achieving an examination grade higher than originally predicted. The second year SLP project head of mathematics wrote a report which included the following:

> We believe with the explained support and personalised pathways put in place through the SLP, these pupils are in a good position to build upon these foundations and bring their attainment in line with National expectations of 3 levels [of progress] from KS2 to KS4. (Head of Department report to Governors, 2010)

The pupils' views were collated using a questionnaire. A majority of the responses have been encouraging with over 85% making positive comments. All pupils who responded said they felt it was a good project. Across the three years of the project the examination groups' responses have been particularly positive, perhaps understandably as they have appreciated the individual support afforded by the student teachers as they approach their formal examinations. The Y7 and Y8 pupils' responses have also been positive, their evaluations indicated after the individual support, the enjoyable nature of the practical mathematical activities ranked second for the thing they liked most about working with the extra student teachers.

The primary project has had similar positive responses from the school. The coordinator was pleased that the NCT mathematics results increased from 47% achieving level 4 and above in the previous year to 53%. In particular she felt the impact had been most significant on those achieving level 5 and above which increased from 18% to 28%. Although this increase has many contributory factors the teachers' perceptions were that the SLP had made a difference. The feedback from primary pupils was also very positive. A concern for many of the student teachers is that they will swamp the pupils and be overwhelming for them. However, as with the secondary pupils' responses the primary pupils were largely un-phased by the additional adults and saw the benefits of greater attention and access to support and guidance.

Impact on the beginning teachers

A more detailed evaluation of the student teachers' opinions was obtained through questionnaires and focus group discussions. Overall the student teachers found the experience beneficial in several ways. They recognised the value of getting a close up understanding of a learner over a series of weeks, as one put it: "it helps you get inside the head of a learner". They also found working closely with a peer extremely beneficial. In particular they valued the peer support when they were not sure how to support learner understanding of a concept. Many have also commented on the benefits in listening to and watching the teaching styles of their peers.

> During the SLP I was paired with another teacher and this proved an excellent learning experience not only for the children but for the teachers. When a pupil could not understand a concept being taught by one of us, we could look across

and ask for another interpretation. It highlighted that all teachers are different and they have been taught differently. PGCE secondary student 2011

Not having to prepare the lesson materials was also viewed as a positive by many of the students who felt it allowed them to concentrate on the pedagogical aspects of the tasks and spend time considering the most effective ways to teach. It also provided a dry run for activities which they transferred and adapted for their own solo teaching.

The SLP has been identified by over 85% of all secondary student teachers involved over the three years as having a significant positive impact on their practice, as one student noted; "I have subsequently used some of the ideas in my own class teaching and found them to be very successful." The students also recognised that the pupils had benefited from their support but most of their comments were about the benefits to themselves rather than the pupils.

> Although I stated that our mission was to help prepare the Y11 pupils for their GCSE exam, it has to be recognised that the PGCE students benefited from the SLP as much if not more than the pupils. (PGCE Secondary Student 2010)

> Maths Week gave me a chance to experiment and take risks without the worry of being observed which meant I produced much more creative lessons. (PGCE Primary Student 2012)

> Gave valuable experience of working in an inner city school with a lot of special needs. (PGCE Primary 2012)

> I remember being quite shocked by the inability of GCSE pupils to recall basic number facts during the early SLP session. But the experience stood me in good stead when I began to teach my own lessons as I was better prepared to deal with such issues by the time my first school placement began. (PGCE Secondary Student 2012)

Conclusion and discussion- what is afforded by the Hybrid space?

One of the original driving forces for the SLP was the awareness of how many students move towards a privileging of school experience over university experiences, often viewing the two aspects of their professional learning as separate, indeed disparate. Allen (2009) argues student teachers re-orientate their practice as they increase the time spent in school, giving agency to the school based practice over their university experiences. This dichotomy of theory and practice is one initial teacher educators need to challenge. The development of the student teacher over the PGCE course should not be a process of displacement; with the student teachers substituting theories about practice with all the situated practices of the placement school, but one of critical integration. Edwards and Protheroe suggest that the student teachers' knowledge is "heavily situated and that students are not acquiring new ways of interpreting learning that are easily transferable" (2003, 227). This is supported by Hobson et al (2008) who found a majority of student teachers viewed the university component of their courses as least relevant. Indeed over half failed to see the links to the authentic classroom setting.

By relocating the site of learning the university tutors were able to work with the students in an authentic setting and to facilitate a greater level of connection between theory and practice. The SLP affords more opportunity for the mathematics tutor to offer different perspectives at possible sites for contestation in the school context. Wilson (2005) notes that one of the dangers of the university – school model, is that student teachers spend two thirds of their time in school where there may be limited opportunity to discuss with anyone their emerging practice on a practical

level. She argues that this "may severely limit the novice teachers' capacity to be critically reflective of their own practice" (2005, 375). The SLP creates a reflective space which allows time to consider some of these important practical issues concerning developing mathematical understanding with peers, teachers and tutor.

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