

**Evaluation of Co-operative Learning
in Initial Teacher Education**

FINAL REPORT

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Executive Summary

In September 2005, SEED commissioned an external evaluation of the Critical Skills Programme pedagogy in Initial Teacher Education (specifically the Professional Graduate Diploma in Primary Education). The evaluation explored the impact of this pedagogy on beginning teachers in Scottish primary schools. This report provides an account of the evaluation, presents the main findings and identifies issues for further consideration.

In August 2003, part of the cohort of post-graduate students undertaking the Professional Graduate Diploma in Primary Education (PGDE) in the Faculty of Education in the University of Glasgow were introduced to Critical Skills pedagogy on a pilot basis. The approach was developed to make it compatible with the more generic model of co-operative learning model developed in Canada. At the end of each year virtually all the students were committed to take forward co-operative learning ideas and practices into their first teaching post. This report focuses on the experience of a group of teachers in their first year of teaching who were trained using a co-operative learning pedagogy in their ITE course.

Methodology

The methodology chosen for this study was essentially qualitative. The PGDE (Primary) cohort of around 200 students in 2005 was used to identify a small group of volunteers to track into their first year of teaching. They were invited to participate in a focus group at the end of the course in June 2005, again in December of the same year when they were half way through their induction year, and finally in June 2006, when they were just completing their first year of teaching. The participants were volunteers from one of the author's tutor group of 24. Five research questions were generated to structure the evaluation. These were:

- Do probationary teachers who were introduced to co-operative learning theory and practice during their one-year ITE course attempt to introduce co-operative learning into their classroom practices during their first year of teaching?
- What response do such teachers get from the school's management and the respective local authority staff? Is the response supportive or resistant?
- In schools where co-operative learning has been deployed, how does it become embedded, how is it sustained and under what conditions?
- What reaction do other teachers in schools have towards co-operative learning introduced by probationary teachers ITE-trained in co-operative learning? Do they engage with co-operative learning and participate in it?
- How do probationary teachers ITE-trained in co-operative learning perceive the response of students to the co-operative learning approach?

Conclusions

The factors affecting the translation of student teachers' stated intentions into practice in the classroom fall into three main categories, all of which are interconnected: the support of the local authority and school staff, the reactions of children, and the confidence of the new teachers in their own ability to implement and justify an innovative teaching approach.

Support

The most important influence, because it impacts on all the others, seems to be the support available in these early stages of a new teacher's teaching career. The influence of the school culture and level of support for innovative teaching practices was mentioned again and again by the new teachers and seemed to be the overwhelming factor in determining the extent of their implementation of co-operative learning. Interestingly more than one of the above factors can come into play at the same time, so that new teachers reported that the pressure to cover the curriculum through the use of set schemes, was still apparent even where the school were quite supportive of the idea of the methodology.

Perceived effectiveness of the strategies

A second important influence was the success the new teachers actually had with the teaching strategies they used. When children appeared to make good progress and to be enjoying the learning they had organised, the teachers were motivated to continue and became increasingly convinced of the effectiveness of their approach. They felt their approach was validated when they saw the progress that could be made because they were able to gradually teach children to work together by learning the social skills required for co-operative learning.

New teachers' confidence

All of the factors mentioned above affect deeply the confidence of new teachers at the beginning of their teaching career. It seemed to be easily knocked by negative circumstances and some had struggled hard in adverse conditions to hang on to what they believed to be good practice. This belief in the methodology is a crucial dimension of their ability to persevere with it and has important implications for how we prepare teachers for their first year of teaching. All of the new teachers in this study clearly stated their commitment to co-operative learning and the reasons for that commitment. Their confidence was clearly affected by the external factors mentioned, but their central resolve about the effectiveness of co-operative learning appeared to have remained intact. This has implications for the ways in which we prepare new teachers with regard to developing a rationale for their teaching.

Recommendations

The school context and level of support has been identified as a crucial factor in new teachers' implementation of co-operative learning. There are a number of issues at different levels where that context needs to be addressed.

The macro level

There is some evidence that the influence of the *Assessment is for Learning* (AifL) initiative is affecting the classroom context for student teachers who are out on school placement. In this last year

there has been a considerable shift in the reported level of support from teachers. The introduction of A Curriculum for Excellence is also a positive influence: the development of successful learners, confident individuals, effective contributors and responsible individuals is an imperative which leads to the need to scrutinise teaching strategies to assess their fitness for purpose. Co-operative learning would seem to be an ideal vehicle for teachers to deliver *A Curriculum for Excellence* and formative assessment and its more formal support by SEED would lend further legitimisation to its use in schools. This would in turn help to create the climate which would make it acceptable for new teachers to be experimenting with these methodologies and for schools to support them. Clearly the expectations of HMIE are instrumental in driving the agenda in schools and there are possibilities for greater formal encouragement of innovative practice in the inspection regime.

School level

Central and in-class support for probationers varies from one local authority to another, and where it is well organised and positive, it has a highly motivating and confirming effect on new teachers. The support provided often reflects the policy context as much as the individual pedagogical preferences of individual staff in schools and so the policy framework referred to above is significant here too. Individual teachers, induction supporters, and school managers are much more likely to be supportive if they feel they are working to a policy agenda and inspection regime which matches the pedagogical aspirations of new teachers and helps ease the dilemma schools face about teaching for understanding as opposed to curriculum coverage.

Higher Education Institutions

In terms of the ways in which Higher Education Institutions (HEIs) can equip new teachers to implement innovative approaches to learning and teaching, two key factors seem to emerge: the methodologies experienced by students on teacher education courses and the extent to which student teachers are given opportunities to explore their own personal stance to develop a rationale for their teaching which will stand up to scrutiny. These contribute to the confidence levels of new teachers as they begin their teaching careers and their resilience in the face of lack of support or outright opposition.

The methodology is crucial and as has been outlined above: it is a modelling tool for student teachers so there is an important role of the tutor in understanding and translating into practice, the methodology students are being encouraged to use in school, both on placements and in their teaching when they are qualified. As well as modelling the practice, it is equally important to underpin the approaches being used by a strong theoretical and research base. For this reason, students need to be exposed to the wide range of research evidence which demonstrates the effectiveness of co-operative learning and the theoretical frameworks within which it fits. This requires the tutors who teach on teacher education courses to have that understanding themselves and to incorporate this dimension into the courses they offer.

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1. Introduction

In September 2005, under the Framework Agreement between the Scottish Executive Education Department (SEED) and Professor J.E. Wilkinson of the Faculty of Education in the University of Glasgow, SEED commissioned an external evaluation of the critical skills pedagogy in Initial Teacher Education (specifically the Professional Diploma in Primary Education). The evaluation explored the impact of this pedagogy on beginning teachers in Scottish primary schools. This report provides an account of the evaluation, presents the main findings and identifies issues for further consideration.

A crucial part of the educative process concerns the pedagogical arrangements that teachers use to enhance children's learning which has hitherto been regarded as an exclusive part of teachers' professional domain. This domain, however, has very recently become the focus of government attention, particularly in the UK. In Scotland, the Scottish Executive Education Department (SEED) has set up the Future Learning & Teaching Programme (FLaT) to attempt to identify innovative pedagogic practices.

One such pedagogic method that is attracting attention in the UK and the US is commonly referred to as 'co-operative learning':

The studies and reviews.....confirm co-operative learning as an effective teaching strategy that can be used to enhance achievement and socialisation among students and contribute to improved attitudes towards learning and working with others, including developing a better understanding of children from diverse backgrounds.

(Gillies and Ashman 2003 : 8)

At least two variants of this new pedagogy are now being piloted in British schools. In Scotland, for example, North Lanarkshire, the second largest authority in the country, has invested heavily in the Johnson and Johnson (1989) model, using Canadian trainers to work with larger numbers of teachers in the authority. Other local authorities in the UK have adopted a form of co-operative learning from North America, referred to as the 'Critical Skills Programme' (Weatherley, 2000) which has recently been deployed in every school on the island of Jersey, as well as in individual schools in many other local authorities (for example, Dumfries & Galloway). Wragg *et al.* clearly regard this pedagogy as highly desirable:

In order to flourish over what could be a very long lifetime, (children) will need a firm foundation of knowledge, skills, attitudes and forms of behaviour alongside positive personal characteristics such as determination, flexibility, imagination. They will also require the social intelligence and will to pool their strengths with those of their fellows as well as the independence of mind to act autonomously. One important question is whether CSP is likely to help equip children with the tools they will need to think and act independently and with others.

(Wragg *et al.* 2004 : 7)

Critical Skills Programme (CSP) has also been introduced into a cluster of schools in the City of Glasgow. An evaluation of the implementation of CSP and its impact on children's learning was recently undertaken (Baron *et al.* 2004) and the findings compared with those of the Jersey study (Wilkinson *et al.*, 2006). One of the critical issues in the context of this proposed evaluation is the mechanism by which schools can adopt and sustain new pedagogies. Schools, as separate educational institutions, develop and maintain their own culture and ethos which become major factors in resisting change. Modernising this culture is well recognised as a difficult task in the relatively short term. A key issue highlighted in the Glasgow evaluation report was the need for more intensive, on-going training of teachers involved in implementing CSP in their classrooms.

The training of teachers commences with courses in Initial Teacher Education (ITE) in Higher Education Institutions (HEIs). For many teachers this involves a four-year undergraduate degree course. However, for those who are already graduates (in a range of subjects) a one-year post-graduate diploma is also available, either in Primary Education or Secondary Education.

In August 2003, part of the cohort of post-graduate students undertaking the Professional Graduate Diploma in Primary Education (PGDE) in the Faculty of Education in the University of Glasgow were introduced to Critical Skills pedagogy on a pilot basis. As the initial year was well received by students, it was decided to continue with the CS approach in the PGDE in 2004, though modifying the approach to make it compatible with the co-operative learning model developed in Canada. At the end of each year virtually all the students were committed to take forward co-operative learning ideas and practices into their first teaching post. This report focuses on the experience of a group of teachers in their first year of teaching who were trained using a co-operative learning pedagogy in their ITE course.

2. Co-operative Learning and Initial Teacher Education

2.1 The Scottish context

Co-operative Learning is an increasingly popular instructional strategy in Canada, the US, Europe, including the UK in recent years. Johnson and Johnson's (1993) model identifies five basic elements which should be built into activities for effective co-operation:

- positive interdependence;
- individual and group accountability;
- explicit teaching of social skills;
- face to face promotive interaction;
- group processing of learning.

Canadian trainers have worked extensively with school staff in North Lanarkshire and have supported the training of local support staff to develop the approach in classrooms throughout the local authority. They are also working with many other local authorities in Scotland who are interested in this way of working. North Lanarkshire Education Department are in the process of training all their teachers in the use of co-operative learning and see clear connections with a Curriculum for Excellence and their policy on raising achievement.

Alongside this development is the Critical Skills Programme (CSP) promoted by Network Educational Press in Scotland, and gaining increasing numbers of practitioners (Weatherley, 2000). The training manual for CSP this approach to co-operative learning as:

a practical response from teachers working in real classrooms to the theoretical arguments supporting constructivist, collaborative, experiential, authentic and democratic learning environments. CSP can provide a real life "how-to" model to address the worthy ideals espoused throughout recent literature.

(Network Educational Press, 1997 : 3)

Both these models are gaining increasing acceptance in Scotland, particularly in the light of recent policy developments. The introduction of a *Curriculum for Excellence* (ACE) in 2004 has laid increasing emphasis on the development of key capacities for children leaving school in the 21st century. *Our aspiration is to enable all children to develop their capacities as successful learners, confident individuals, responsible citizens and effective contributors to society* (SEED, 2004). Three factors are identified by SEED as integral to children's development of the four capacities outlined above: the environment for learning, the choice of teaching and learning approaches, and the ways in which learning is organised. Teachers are encouraged to make learning active and to give children opportunities to develop and demonstrate their creativity. Teachers are being asked to review their teaching strategies to assess the extent to which they are effective in delivering these capacities.

Co-operative learning provides an approach to teaching which is conducive to the development of the skills required for a changing world and its benefits are well documented. There is extensive research into the effectiveness of co-operative learning as a particular method of structuring this social interaction, which increases pupil attainment. Johnson *et al's* (2000) meta-analysis of research on co-operative learning refer to over 900 studies carried out on the relative benefits of co-operative, competitive and individualistic learning demonstrate the effectiveness of the methodology.

An extensive search found 164 studies investigating eight co-operative learning methods. The studies yielded 194 independent effect sizes representing academic achievement. All eight co-operative learning methods had a significant positive impact on student achievement.

(Johnson, *et al.* 2000 : 1)

The breadth of this research provides a solid basis for the conclusions drawn. They identify three major benefits to co-operative learning: higher achievement and greater productivity, more positive relationships and greater psychological health, social competence and self-esteem. They argue that there may be no other teaching strategy that simultaneously achieves so many different outcomes.

Alongside *A Curriculum for Excellence* is another policy initiative which has impacted on the methodology teachers use in the classroom. The *Assessment is for Learning* (AifL) programme was introduced in 2002 and marked the beginnings of a stronger link between assessment and the promotion of learning. The *Review of Assessment* (SEED, 1999) established the Assessment Development Programme in Scottish Education. The review gave an important place to formative assessment and was influenced by Black and Wiliam's (1998) work which made explicit links between formative assessment and raising attainment. In the AifL programme a collaborative approach has been used, involving all major stakeholders: local and national policy makers, Learning and Teaching Scotland (LTS), Her Majesty's Inspectorate in Education (HMIE) the Scottish Qualifications Authority (SQA), teachers' professional organisations, researchers, parents and teachers. This approach was informed by recent research and has led to the establishment of effective support structures to encourage implementation.

The work of Black and Wiliam (1998) has also been significant in providing both research evidence and practical advice in relation to the most effective instructional strategies. Their wide-ranging review of the research has focused attention not only on the ways in which teachers and pupils interact with one another, but also on the interactions between pupils, in the normal day to day work in the classroom. It shows very clearly that effective formative assessment and effective teaching are inextricably linked. They identify five key strategies for teachers:

- engineering effective classroom discussions;
- providing feedback that moves learners forward;
- sharing learning intentions and success criteria with learners;
- activating students as owners of their own learning;
- activating students as learning resources for one another.

Again, co-operative learning is an approach to learning and teaching which delivers the key components of formative assessment by offering the opportunity for regular and rigorously designed group work, where children are very clear about the learning intentions and success criteria and are encouraged to work collaboratively while still encouraging individual accountability.

2.2 The implications for teacher education

The training available in relation to co-operative learning is largely aimed at qualified, experienced teachers. This report addresses the issues related to the implementation of co-operative learning by newly qualified teachers, who had just completed the one year Professional Graduate Diploma in Education (PGDE Primary). Co-operative learning techniques, and the philosophy behind them, have been taught through the Professional Studies component of the course for the past three years.

The course philosophy is firmly based on constructivist approaches to learning and teaching which is modelled in tutorials. Richardson (1997) argues for a more constructivist approach to teacher education where tutors are encouraged to implement what they advocate. She points out that students generally come to teacher education with a transmission view of teaching, and suggests a number of strategies to address this, including detailed debriefing of school experience and the use of reflective writing in journals to promote deeper thinking and to gauge understanding. These strategies have been adopted in Professional Studies. The aim of the course is to build on the experience of student

teachers on school placements and in Faculty, modelling the importance of the constructivist learning.

The course is based on a democratic notion of respecting the learners as individuals, while at the same time recognising the value of a collaborative learning community. In the groups, the experience of students is examined and they are challenged on their notions of what it is to be a “teacher” and a “learner”. The emotional dimension of teaching and the enormous investment of self in the process is recognised. An important part of the course is therefore aimed at exploring students’ experiences, values, beliefs and assumptions in relation to learning and teaching.

What teachers do, how they teach, is shaped primarily by what they believe about learning and learners, rather than by what they are told to do by any textbook or course description.

(SCCC 1996 : iii)

Self-knowledge is seen as an important precursor to becoming an effective teacher and self evaluation is a key dimension of the course. Good teaching can never simply be reduced to technique. It depends upon the integrity and identity of the teacher. The course, therefore, does not focus exclusively on technique. This approach is grounded in theories of the central importance of experience in learning, most notably put forward by Dewey (1963), which argue the case that the learner’s experience should be the obvious starting point for other learning. Boud and Miller (1996) argue five key propositions about learning from experience:

Experience is the foundation of, and stimulus for, learning. It is a central consideration and cannot be bypassed.

Learners actively construct their own experience, influenced by their unique past, as well as current context

Learning is holistic and the connectedness of knowledge must be highlighted

Learning is socially and culturally constructed and it is challenging to move beyond the influence of context and culture

*Learning is influenced by the socio- emotional context in which it occurs –
“Denial of feelings is denial of learning.”*

(Boud and Miller 1996 : 10)

Students are actively involved in making meaning, processing and relating information to their own experience through dialogue and collaboration. There is an emphasis on understanding and the learner’s increasing responsibility for his or her own learning. This reflects an holistic view of learners, which takes account of the emotional aspects of learning.

Co-operative, experiential learning is modelled and explicitly discussed in tutorials, providing students with concrete ideas about the strategies they will be expected to put into practice on school experience. Group work is rigorously planned, promoting definition of roles, individual accountability and performance of understanding. Design terminology is explored and quality criteria for both product and process are made clear, often in negotiation with students. Debriefing of sessions helps students to make sense of their learning and make connections to other learning. In line with co-operative learning, efforts are made to build a community of learners in each tutorial group where students can feel supported in their learning over the year. Ground rules for how participants treat one another are developed at the beginning of the course. These are a working set of guidelines, which are amended over the course of the year, based on experience. The aim is to

involve students actively in the learning and to create the kind of atmosphere in the class where learning is enjoyable as well as effective.

The internal informal evaluations of this approach to ITE have been largely very positive and students have valued the emphasis on experiencing the methodology as part of their own learning. Increasing numbers of students have become confident enough to try to implement the strategies modelled in tutorials, and have now moved to including the requirement to carry out a series of co-operative learning lessons in the remit for the final school placement of the course. Recent policy initiatives, outlined above, have made it easier for us to persuade sometimes sceptical, student teachers that these approaches to learning and teaching are highly relevant in the 21st century. It became increasingly clear that it was essential to convince PGDE students of the research evidence underpinning the approach. However, the work in Faculty was often hampered by the lack of examples of practice in this methodology and by the response students sometimes received in schools when they tried to implement co-operative learning in their classes. This situation is gradually changing as more schools are influenced by the AifL initiative and are routinely giving children more opportunities to work together. The framework for *A Curriculum for Excellence* also adds legitimacy to the endeavour and students are more likely to come back to Faculty reporting that their teachers are using some of the approaches advocated in the ITE course. More importantly, these changes in methodology are clearly in line with major national initiatives and less easily dismissed as a whim of university staff.

This study aims to find out the extent to which student teachers, who have been exposed to this way of working in ITE, are predisposed to using the methodology in their own teaching when they qualify.

3. **Methodology**

The methodology chosen for this study was essentially qualitative. It sought to explore newly qualified teachers' experiences of attempting to introduce co-operative learning in their classrooms. The PGDE (Primary) cohort of around 200 students in 2005 was used to identify a small group of volunteers to track into their first year of teaching. They were invited to participate in a focus group at the end of the course in June 2005, again in December of the same year when they were half way through their induction year, and finally in June 2006, when they were just completing their first year of teaching. The themes for each focus group discussion are shown in Fig. 1.

Figure 1 : Focus Group Themes

June 2005

Co-operative, interactive learning strategies were used regularly in Professional Studies tutorials and advocated for use in schools.

- Why do you think this approach was used?
- Was it a successful strategy for your own learning?
- Were you able to use such methodologies in your teaching practice in schools?
- How do you think children respond to this way of organising learning?
- How would you describe the response of staff in your placement schools to the kinds of ideas involved in cooperative, interactive learning?
- If you were in a school where such methodologies were employed, how were they embedded in the everyday work of classroom teachers? What conditions need to be in place for this to happen? What militates against this?
- Do you intend to use any of these strategies when you have your own class next year?
- Do you foresee any challenges in trying to adopt this approach next year?
- If so, how do you see yourself overcoming such challenges?

December 2005 and June 2006

- To what extent have you been able to use the co-operative learning strategies you experienced in ITE?
- Which strategies have you actually used?
- What has been the response from
 - other staff
 - management
 - children
- What factors, if any, have hindered you?
- What factors, if any, have helped you?
- What challenges do you face now in continuing to work this way?
- How confident are you feeling generally about your teaching methods now?

The participants were volunteers from one of the author's tutor group of 24. Allowing for those who had departed to other countries, eleven students volunteered to participate. They took part in two separate focus groups in the first session which looked back to the students' experiences of co-operative learning as a vehicle for their own learning on the course, and forward to their intentions regarding the methodology as they prepared to take up their induction posts.

The second session took place at the end of 2005, by which time one participant had dropped out because of personal problems, and one was unable to attend. These nine newly qualified teachers participated in a single focus group because of the difficulty in arranging suitable dates at a very busy time for them in schools and because of the reduced number of participants. They discussed their current experience of co-operative learning, at this half way stage in their first year of teaching and reflected on the success and challenges they faced.

The final session proved equally difficult to organise, again because of the many school commitments at the end of the school year, and the only arrangement possible was to organise two groups on two different days. On this occasion, seven participants were involved and the groups looked back on their first year of teaching to assess the impact of co-operative learning on their teaching and their children's learning.

The group interviews proved a useful method to gather rich data in a social context where the new teachers were free to consider their own views in the context of others (Patton, 2002). The atmosphere in these interviews was important in terms of gathering authentic data. Merton, Fiske and Kendall (1990) assert that the most successful focused interviews are conducted in homogenous social or intellectual groups like this one linked by their educational background and their probationer status. The facilitator of the focus groups, who was one of the authors, has an established, positive relationship with the participants as their former tutor on this course. It was believed that her presence would help to maintain a high level of trust, honesty and empathy in the group and assist in making the interactions comfortable and relaxed, opening the door to more informed research (Denzin and Lincoln, 1994). Nevertheless, the possible bias has to be acknowledged. The lack of anonymity afforded in this group may have impacted on the way the stories were recounted. The participants and the interviewer may have reacted in particular ways to the stories as they unfolded because of previous bonds and expectations. There may have been more empathy or sympathy shown and less challenge to viewpoints than could be expected of a group of strangers, although it could be claimed that a group of peers are more likely to take each other to task. There may also have been a desire on the part of the participants to please their former tutor and tell her what they thought she wanted to hear, based on their prior relationship.

Rather than seeing the author's involvement as a disadvantage, it was regarded as a positive factor. The groups were made aware at the outset that all assessments for the course had been completed and therefore the author held no residual power from her role as assessor. At the time of the first focus group, the students had finished and passed the course. It was repeatedly made clear to them that the purpose of the investigation was to get at the real experiences of new teachers, and that their honesty and openness would be important.

The focus group sessions were used to generate data to respond to the following research questions:

- Do probationary teachers who were introduced to co-operative learning theory and practice during their one-year ITE course attempt to introduce co-operative learning into their classroom practices during their first year of teaching?
- What response do such teachers get from the school's management and the respective local authority staff? Is the response supportive or resistant?

- In schools where co-operative learning has been deployed, how does it become embedded, how is it sustained and under what conditions?
- What reaction do other teachers in schools have towards co-operative learning introduced by probationary teachers ITE-trained in co-operative learning? Do they engage with co-operative learning and participate in it?
- How do probationary teachers ITE-trained in co-operative learning perceive the response of students to the co-operative learning approach?

4. Findings

4.1 Students' Experience of the ITE Course

4.1.1 Students' experience as learners using co-operative learning methodology

At the end of the course, participants were asked to consider the extent to which the co-operative learning methodology used on the course had helped their own learning. The methodology was aimed at modelling good practice in effective learning and teaching so it is important to explore the experiences of the students as learners.

All participants were very positive about the effectiveness of the methodology, but for a number of different reasons. They were very much aware of the value of modelling the practices expected of them when they were out on school placements. They identified this practical assistance as an important dimension contributing to their understanding of how group work might be organised and implemented in the classroom with children. This experience of the process added to the insights gained from reading, research and school experience. They also commented on the quality of learning they had experienced and felt that the way learning was organised meant they had to engage meaningfully with the ideas discussed, resulting for them in deeper understanding. The level of engagement was also mentioned in relation to the strategies used to ensure high levels of participation: students felt that the design of group work to include individual accountability ensured they had no option but to engage:

I think that everyone knew that given the way we work, you really had to make a conscious effort to engage, to listen and to really focus for those two hours.

The unexpected benefits of collaboration were mentioned, in particular the opportunity to get to know others in the class, to recognise and use different strengths in the people in the groups, and the support of others in giving confidence to speak and share opinions in smaller groups were identified as important. For many students this experience of co-operative learning in Professional Studies classes altered their attitude to learning, shifting the focus from being exclusively on the teacher and the teaching, to the learner and the learning.

Professional Studies was where I would say I did seventy per cent of my learning this year, and it changed my attitude completely towards learning. I would have felt as a teacher, I would want to be the centre of the class and the centre of everything and talking a lot.... I found out that you are allowing them to do more of the work and then there is deeper learning. They're actually teaching it to each other, so it's successful.

One caveat mentioned by one student related to the make up of groups and the possibility of difficulties because of clashes of personality. This highlights the importance of regularly changing the groups to allow different combinations of students and the need to teach explicitly the group work skills involved in co-operative learning.

4.1.2 Students' reported use of co-operative learning methodology on school placement

All students indicated that they had used the methodology in some shape or form during their time in schools. Typically they found they did not feel confident or skilled enough to really experiment with these instructional strategies until later in the course and most experience relates to the final two placements which take place in the second half of the one year course (January - June). They mostly started small and tried to work in specific areas: Environmental Studies topic work, Expressive Arts

and Religious Education were identified as the easiest places to start and many had early success in these contexts. More challenging for the students, was to find ways of incorporating this way of working into the daily routine of Mathematics and Language teaching. They reported the use of a range of strategies:

- allocation of roles and responsibilities
- explicit teaching of social skills
- brainstorm
- brainstorm carousel
- think - pair - share
- jigsaw
- numbered heads together
- presenting information/explaining ideas to the class
- debrief

Importantly, they reported their attempts to generally increase the levels of pupil participation and interaction.

4.13 Factors affecting students' use of co-operative learning on school placement

While on school placements, student teachers are working in the classrooms of experienced teachers and the choices they make about the teaching strategies they use must be set in this context. In trying to evaluate the influences on students as they made these decisions, they were asked to consider the children's reactions, staff reactions and the challenges they perceived in organising learning along the lines described above.

4.14 Children's reactions

The response of children to this way of working was generally favourable to such an extent that it motivated students to continue to experiment with the methodology. There was a feeling that children were glad to be involved more actively in their own learning and not merely passive recipients, so the sense of ownership seemed to be important. They produced good results, which sometimes surprised themselves and the student teachers, and were generally really positive and enthusiastic often not seeing it as 'work'.

The children were quite proud of the work they were able to put in. I think they were a bit shocked. When I got them all round together, I think they couldn't believe what they had achieved through group work.

There were concerns, however, for some that the benefits were only obvious when the group work was well organised. Noise levels associated with this kind of interactive work could sometimes be a challenge for student teachers, who questioned their own competence as a contributing factor. Nevertheless, they recognised that success would not be instantaneous and mostly felt that the noise was an indication of productive work and that children gradually learned to modulate the noise levels in the room with experience. Although students reported that some groups were good at pushing any of their members who were not working, one challenge, in terms of the children's reactions, was the dynamic of the group. For example, sometimes the members of the group might not get their work completed and end up falling out, and some children did not like the person with whom they were paired to work. This reinforced the need to teach social skills explicitly, alongside academic skills.

4.15 Staff reaction

Less positive was the reaction of the existing staff. Few schools were encouraging and most students felt pressure to conform to traditional patterns of teaching and learning. The main objections of

teachers, reported by the students, were increased noise levels, perceived loss of control, and the poor behaviour of the children. Teachers were generally suspicious of the methodology and saw it as a distraction from covering the curriculum.

They didn't like co-operative learning; they didn't like group work, so I hadn't to do it. I felt for the rest of the placement I should try and fit in with what the class teachers were doing - try and keep them happy rather than do what I thought was the best thing to do. I just felt such pressure this year to fit in with the way the teacher worked.

In a small number of the schools, however, teachers were supportive and open to the new ideas, and students felt that more support should be given to teachers themselves to update their teaching. The main message from the students was that the reaction of the teacher really made a difference.

4.16 Challenges faced by student teachers

Indeed, in terms of overall challenges faced by the students, a negative reaction from staff was seen as one of the most influential factors. In particular they mentioned their worries about having a mentor who was not supportive of the ideas, school management who disapproved and the resulting pressure from being monitored and graded accordingly at the end of the probation period.

I think it's just fitting in with the school. You are being monitored. At the end of the year I am going to be given a grade and if you are being honest, and they don't want you to do it, I don't think I will.

There is also the obvious connection between this concern and the worries students have about their skill and confidence in teaching using co-operative learning in their new classes. The worry about gaining approval and being able to justify the approach is related to their confidence about their own ability to carry it out successfully, especially in the early stages of the induction year. These newly qualified teachers are self-conscious about being able to justify their instructional strategies to more experienced colleagues, both in theory and practice

I think if you are trying to do it and it's not working and then you're into your next week and your next week and someone's sort of saying, "What is going on here?" I don't know if I can do it in a day, in a week, I don't know how long it takes. And it might be that you just need another day and you might think – forget this, get the workbooks out and start filling in those sheets. You know, as a probationer, there would be huge pressure to see what you are producing.

4.17 Students' intentions in relation to co-operative learning methodology

Despite these challenges, all the students interviewed stated that they intended to try to use co-operative learning methodology when they took up posts as probationers. They were quite clear about this and gave these reasons:

- all children get a chance to shine.
- it makes school a more positive experience.
- children are more involved and there are higher levels of participation.
- it will be the student's class and she can establish ground rules.
- group work is more like real life and so more useful and relevant.
- it encourages community.
- it encourages independent learning.
- short term pain (in setting it up) will lead to long term gain for children.
- it is more enjoyable for the teacher

So these newly qualified teachers, having just completed their one year PGDE course, were keen to experiment with co-operative learning, were aware of many of the possible challenges and were still positive about the value of the approach. In the next section the experience of teaching in their first year and the extent to which they managed to carry out their intentions will be explored.

4.2 **Beginning Teachers' experiences**

4.2.1 **New teachers' reported use of co-operative learning on school placement**

After four months of teaching in their induction year, the teachers returned to share their experience of co-operative learning. All had made attempts to incorporate the strategies into their teaching, with varying degrees of success. Many reported that they found it overwhelming at first just to survive in the classroom in these early months and had often found that they defaulted to using the language and mathematics schemes in the first instance. As their confidence grew, however, most were able to attempt co-operative learning group work, starting small, usually with pair work, and with one area of the curriculum, often a topic in Environmental Studies. All agreed this was the easiest way to begin and that Mathematics and Language were the most challenging in terms of finding ways to incorporate co-operative learning strategies. Other curricular areas mentioned as being easier to approach were Expressive Arts (Drama, Music and P.E) , Science and IT.

By the time they had completed their first year of teaching, their confidence had grown and they spoke with considerable insight about the ways in which they had and had not been able to carry on implementing the methodology. They recognised the progress they had made in this second half of the year and were able to make pedagogical connections with other initiatives, for example, formative assessment. Interestingly all were still very much convinced of its benefits and keen to find ways to keep incorporating it into their teaching repertoires.

Yes I think I probably use it more. I am more confident and used to the class. I think it's been them getting used to you and you getting used to them, and getting into the routine of doing different things, especially a lot of formative assessment stuff. I think you kind of catch up on yourself a bit more and get more time to think about it.

On the whole they were still reporting that Environmental Studies topic work was the place where they found it easiest to use co-operative learning groups, although some had found ways of using it effectively in other contexts. This was mostly related to their concerns about coverage of the curriculum, in the form of Mathematics and Language schemes, and the restrictions placed on their approaches to teaching by the relentless use of set resources. Although a few felt they had grown in confidence sufficiently to adapt them, most felt that the schemes were the major impediment to them adopting innovative teaching strategies. When freed up from those restrictions, for example, in using a novel for reading, rather than the reading scheme, they found it highly conducive to using co-operative learning and reported good results, even with very young children, when their teaching was not entirely resource driven.

Many had realised that their forays into co-operative learning did not need to be elaborately constructed sessions involving huge amounts of planning and preparation, but that it was possible to build it into teaching in more limited, equally effective ways. Pair work was cited by many as a strategy which could be routinely used to raise the levels of pupil involvement and participation and the increasing emphasis in Scottish primary schools on formative assessment techniques has resulted in this kind of pair work becoming more common. This has also helped in lending legitimacy to other strategies with which the new teachers were experimenting. Peer assessment and teaching, for example, was used by some, as children's confidence in the methodology grew.

I see simpler ways of using it, because I always thought it had to be this big production with all these resources and how am I going to cut them all up and get them all ready and I found that just fell apart for me. But then I realised more and more that with all the formative assessment they're bringing in now and really pushing, it could be much simpler. So I feel like my understanding of what co-operative learning is has changed in last six months so I feel a bit more confident that we do that in our class.

The following list describes the range of strategies being used by the new teachers:

- Think – pair – share
- Brainstorming
- Carousel brainstorming
- Non-verbal quiet signal
- Numbered heads together
- Assigning roles and responsibilities
- Explaining things to other groups
- Heterogeneous groups (including different stages in a composite class)
- Thumbs up, down
- Fist to five
- Asking children to reflect on today's learning
- No hands up
- Jigsaw
- Self and peer assessment

Some had found it easier than others to implement co-operative learning depending on the context in which they found themselves working. Those who had experienced the coaching in context model used in one local authority to encourage teaching for effective learning had found this extremely helpful in motivating them to continue with their co-operative learning strategies and in providing practical assistance for similar methodology in the classroom. Those who had supportive management or mentors had found it easier, whilst the few who were left essentially to their own devices or who had very challenging classes, had to be self-motivating and found it much more demanding. This affected on their confidence generally as well as their ability to persevere with co-operative learning practices. These contextual factors and their effects are to be examined in the next section.

4.22 Contextual Factors affecting new teachers' continued use of the methodology

In trying to assess the factors which impinge on the motivation of the new teachers to continue to use co-operative learning, they were asked to reflect on the reaction they get from staff in their school, including mentors and managers, the responses they get from the children when they use the methodology, and the general challenges to this way of working which they encountered in the course of the year.

4.23 Children's reaction

The new teachers were very positive about the responses of their pupils and many talked about how much the pupils had enjoyed working this way. The children enjoyed the increased responsibility and the ownership that came from being more involved in the process of learning.

There's one boy who's really clever, very bright, but he can sit and just not work – not the easiest child to have in the class, but when we do group learning, he just works really well and out of all of them, I'd have said he'd have found it most difficult, but he responds to it really well. I've found the group work takes away some of the frustration from the very difficult pupils I've got. When they're doing group work, they're able to express themselves verbally. I've seen a significant improvement across the year.

They were empowered by being given the opportunity to do the explaining and teaching in the group. For some children, who were shy, the support of the group gave them the confidence to contribute and others, whose behaviour was sometimes challenging, responded well and were more likely to stay on task. One teacher reported that a parent had actually commented on the change in her child's confidence levels.

I feel I've really achieved something because this child's mother actually said to me at parents' night "I can't believe how much he's come on, he's a lot happier, he can socialise now. He seems to have friends in the class which he didn't have before." I feel the group work went a great way to sort of help bring down those barriers and he was forced to develop his skills to interact.

However, there were also challenges, especially when, as was the case in most schools, the children had not worked in this way before. Then there were issues around the need to train children in the methodology and begin the process of explicitly teaching the social skills involved. Typically the problems faced by the teachers in these early stages were related to their children's perceptions of group work: some thought it might be an opportunity to opt out, some found it difficult to share and take turns, some saw collaboration as 'cheating', some complained about the composition of the group. The teachers were aware of these teething problems from their training placements and realised it would take time to induct children into new ways of working. The difference in the induction year was that they now had the opportunity to get to know the children over an extended period of time as their teacher, and this knowledge informed the decisions they made about the formation of groups. They reported the children's increasing ability to work in groups, as well as their own increasing ability to organise the groups effectively, which they were aware was a significant factor in the success of the group work.

4.24 **Staff reaction**

Staff reaction was a major factor in the development of the new teachers' confidence. The change in staff reaction from their time in schools as students in 2004-5, to their time in schools as probationers in 2005-6, is noteworthy. There is a considerable shift from a largely negative to largely positive response from teachers and school managers. Many new teachers reported that their mentors, who had observed their teaching in formal assessment sessions, were impressed with their use of co-operative learning teaching strategies and praised them for it. Many mentors were interested and positive about the approach and encouraged the new teachers in their work.

I was quite flattered when the DHT said she would love to get some of the other staff in to see me do it because the people that have been there for a long time are very resistant... So from that point of view I was really pleased because you do need someone to say that what you are doing is fine.

It's filtering through the whole school... Now we have a big push on towards co-operative learning.

Often mentioned was the link to formative assessment strategies and the staff's perception that the methodology being used by these new teachers, fitted well with the *Assessment is for Learning* (AifL) initiative. Indeed a few reported that their school's expectation was that they would work in this way.

Those school staff who were still sceptical cited the problems of the challenging behaviour of some children and how that could be exacerbated by the use of group work. They also conveyed to the new teachers the pressure they felt to make steady progress through the prescribed school resources and therefore saw the group work as a distraction.

My initial mentor was really supportive of collaborative learning and the different approaches I was using. She was very encouraging ... but she went off ill, and the new mentor is an older teacher and she's not for it. To be honest it is a difficult class and I have had problems. In those discussions I've had with her she's said - 'Keep them in their seat, just keep them working'. Her attitude is very much that the children can't cope with that. But how do they ever the develop the skills if they don't get the chance?

Despite some negative responses, there seems to be a perceptible shift in the reactions of individual staff in the schools concerned.

4.25 Challenges faced by new teachers

When asked to talk in more general terms about the challenges they faced in continuing to work this way, the new teachers were very clear about the influence of contextual factors. Not least was the culture of the school: its philosophy, school policies and practices, in particular, the attitude to the use of set resources and schemes, especially for Mathematics and Language. Many mentioned the stranglehold of the extensive or exclusive use of such resources and saw it as a major stumbling block to the use of innovative teaching methods. They described it in terms of the pressure teachers felt to increase coverage, rather than understanding. The level of support provided by the school, in general terms as a probationer, and in particular as a new teacher experimenting with teaching methodology, was also significant. This related to the other staff in the staffroom, the mentor and the promoted staff in the school.

It does depend a lot on the school and the surroundings, what's the philosophy of the school and do they agree with it (co-operative learning) and then you're going to have people in your class looking at what you're doing and saying 'You're not getting this done' or 'what's all this about' – or the opposite could be the case.

If you don't have the support of the management team then you're wasting your time really, to a certain extent.

They also mentioned more practical barriers: size of classrooms could be a factor if the room was so small it made the physical organisation of group work more difficult, and open plan classrooms gave new teachers increased worries about noise levels.

Some challenges related more closely to personal concerns: their level of confidence in their ability in this first year of teaching was a factor for most of the new teachers. This confidence was severely affected by the contextual factors mentioned above and had a considerable effect on their professional self- image and their motivation to persevere with innovative approaches to teaching, with no colleagues to share ideas and concerns.

You have to be prepared that what you're going to achieve initially is going to take an awful lot of time to build up and I don't think you have the confidence to at the very beginning.

We did invest time where we didn't seem to learn, but I felt I could justify it because we were learning about group work, about team work, they're never done it, they've never sat in mixed groups and we did spend a fair bit of time on this.

Also on a personal level, some mentioned the sheer energy required to survive their induction year and the exhaustion that resulted from the hard work involved. So sometimes it might seem easier to go with more traditional teaching which makes fewer demands on the teacher.

4.26 New teachers' confidence as they finish their first year of teaching

In general terms, the new teachers felt a sense of growing confidence in their teaching ability, even in the face of challenges with difficult behaviour.

I do feel confident in this kind of teaching and getting the children involved in things. At the same time I would say my confidence has been knocked by the behaviour management side of things, but as far as teaching goes, what they've learned and being able to communicate with these children, I do feel confident. I'm much more confident, especially with the motivation to learn, particularly a really, really poor group I've got who are the most motivated in the class.

Some mentioned the freedom of choice gained from being the class teacher, rather than the student teacher and the importance of getting feedback on one's effectiveness.

It has been great just being able to take it and run with it and then have someone come in and tell you that you are doing the right thing – you're actually being very effective in what you're doing. So from that point of view I feel pretty confident.

Even where they recognised that it was not always easy to implement co-operative learning, and they were still learning, there was an awareness that it was the best way to encourage engagement with the learning.

I would definitely say that the better days are the days when I have done something very co-operative and it's worked really well. You can see that they have been involved and they have been engaged and they do learn. You know definitely there is a real buzz about those days. I wouldn't say it happens every day. I've learned a lot but it's just trying to still adapt and still do your job and everything, but that's what I'm trying to achieve.

All stated that their confidence was boosted by the backing of other staff and particularly of management in the school, which they felt gave them the freedom to try out new approaches and take risks, in a supportive atmosphere. The local authority context was also mentioned, and in two in particular, new teachers felt well supported to engage in this kind of interactive co-operative group learning. They felt then that they were not sailing against the tide, but doing something the local authority valued. The opportunity as class teachers, rather than visiting students, to get to know the children gave them confidence about grouping children more effectively. They welcomed the space and time that this gave them to build relationships with children which then helped the new teachers to make decisions about how to organise learning for individuals. The children's reactions were also cited as being influential in reinforcing their view that they were on the right track, even where there was little support from elsewhere. They were motivated by the children's enjoyment and their obvious progress.

5. Conclusions

It should be noted that the conclusions drawn from this study are based entirely on the experiences of a small number of beginning teachers. Given the smallness of the sample, it would be inappropriate to make sweeping generalisations concerning the potential experience of all beginning teachers when attempting to introduce new ideas into their first teaching post in school. Nevertheless, the experiences of the participants in this study sheds light on what may happen in similar contexts.

The evidence gathered in this small study would lead to the conclusion that a number of key factors are at work in determining the ability of these interested new teachers to implement co-operative learning in the course of their induction year. At the end of the PGDE (Primary) course, all those interviewed were clear in their enthusiasm about co-operative learning and their intention to try to incorporate it into their teaching. So the factors affecting the translation of their stated intentions into practice in the classroom are worthy of exploration. These factors fall into three main categories, all of which are interconnected: the support of the local authority and school staff, the reactions of children, and the confidence of the new teachers in their own ability to implement and justify an innovative teaching approach.

5.1 Support

The most important influence, because it impacts on all the others, seems to be the support available in these early stages of a new teacher's teaching career. The teacher induction scheme in Scotland allows, in theory, for a maximum amount of class contact time (0.7), a guaranteed amount of development time (0.3) and the support of a mentor or induction supporter. Local authority initiatives and policies in relation to for example, raising achievement or teaching for effective learning also provide a second layer of centrally organised support in some local authorities. For some of those interviewed, the support was in place, at school and/or local authority level, which allowed them to develop their skill levels and maintain their motivation. For a smaller number of others, there was relatively little support and those teachers found it a challenge to remain motivated and secure in their ability to deliver effective teaching and learning generally, and through co-operative learning in particular. This was especially the case when the children's behaviour was particularly challenging.

There were varying levels of support, all of which seemed to be helpful. In some schools, the new teachers were seen as trail blazers who were using the kinds of teaching methodologies that the school management wanted to see in all the classrooms. In this case, the new teachers received confirmation of the value of their teaching style and the impetus to carry on with their innovative approaches. Promoted staff here seemed to understand the shift in methodology and connect it to other policy initiatives such as formative assessment. In others, they were praised in observed sessions for particular, individual strategies they used and commended for their teaching ability. There were schools whose support took the form of not interfering with what the new teachers wanted to do in the classroom and took a very hands-off approach, leaving them the freedom to make their own decisions about methodology. At the other end of the spectrum were those who put pressure on to dissuade the teachers from using co-operative learning because they believed it to be unsuitable for the children or because it was too time consuming and took away from the time needed to progress through the set schemes, usually for mathematics and language.

In these cases it was much more challenging for new teachers to persevere with their efforts to implement co-operative learning, as they felt the pressure to conform and fit in with the ways of working that were prevalent in the school. All of the new teachers were mindful of the power relationship involved and the assessment implications for them in their induction year, where those involved in giving them this advice on teaching methodology were also involved in completing their final report recommending them for full registration.

The influence of the school culture and level of support for innovative teaching practices was mentioned again and again by the new teachers and seemed to be the overwhelming factor in determining the extent of their implementation of co-operative learning. Interestingly, more than one of the above factors can come into play at the same time, so that new teachers reported that the pressure to cover the curriculum through the use of set schemes, was still apparent even where the school were quite supportive of the idea of the methodology. This highlights the pressures the staff in schools feel to cover the curriculum, and the dilemma they face in trying to organise learning to encourage understanding as opposed to coverage. New teachers find themselves in the middle of this dilemma and their lack of experience and expertise at the early stages of their teaching careers can make it difficult for them to justify their position.

The current policy context in Scottish education outlined in 2.1, in particular the introduction of *A Curriculum for Excellence* (2004) and Assessment is for Learning (AifL) arguably create a more conducive atmosphere for the introduction of innovative teaching practices and may make it easier for new teachers to take risks in their teaching.

5.2 Perceived effectiveness of the strategies

A second important influence was the success the new teachers actually had with the teaching strategies they used. When children appeared to make good progress and to be enjoying the learning they had organised, the teachers were motivated to continue and became increasingly convinced of the effectiveness of their approach. They felt their approach was validated when they saw the progress that could be made because they were able to gradually teach children to work together by learning the social skills required for co-operative learning. They were also keenly aware of the difficulties of working in this way with children who were not used to being expected to make a contribution and to work co-operatively with others. They knew they needed to spend time with children, establishing ground rules and creating the climate in the classroom where this way of working is normal. Here again they faced the problems of carving out the time required to do this, especially at the start of the term when the new teachers were not confident about justifying this investment of time.

The behaviour of the children was also a factor in the perceived effectiveness of co-operative learning. The perceptions of school staff were influential here, sometimes discouraging new teachers from using group work with 'difficult' children and there is no doubt that the challenging behaviour of some children was a major obstacle for some new teachers in gaining their confidence and maintaining their motivation. In some of the discussions that arose out of the problems faced by new teachers working with challenging children, the key factor seemed to be the level of support from the school in dealing with the behaviour problems, rather than the methodology being used. Indeed there was evidence that the group work was one of the strategies new teachers sometimes found to be effective in engaging children who were difficult to handle and who were reluctant to contribute. There is no doubt that the need to simply survive in this first year of teaching is uppermost in the minds of new teachers and challenging behaviour from children exacerbates the sense of not being in control. It can add to the pressure to revert to traditional teaching and to keep children under tighter control, restricting their movement around the class and opportunities to interact with others. Despite the fact that some of the participants found the group work to be helpful in this respect, it is easy to see how new teachers might be tempted to default to a more authoritarian stance where children are given fewer rather than more opportunities to take responsibility.

5.3 New teachers' confidence

All of the factors mentioned above affect deeply the confidence of new teachers at the beginning of their teaching career. It seemed to be easily knocked by negative circumstances and some had struggled hard in adverse conditions to hang on to what they believed to be good practice. This belief

in the methodology is a crucial dimension of their ability to persevere with it and has important implications for how we prepare teachers for their first year of teaching. All of the new teachers in this study clearly stated their commitment to co-operative learning and the reasons for that commitment. They had spent a year experiencing the methodology, attempting to implement it on school placements, and exploring their own and others' reactions to it through reflection and discussion. As a result, they moved into their induction year with a view of the way in which effective teaching and learning should be organised and this seems to be an important factor in their persistence, even when they faced difficulties. This is not to diminish the emotional impact of the challenges they faced or the stress that caused some of them as they navigated a course through their induction year. But every one of the new teachers interviewed, despite the negative influences outlined above, and the fact that some did not at the time of the final focus group have a job for the following year, intended to continue with their plans to implement co-operative learning in their second year of teaching. Their confidence was clearly affected by the external factors mentioned, but their central resolve about the effectiveness of co-operative learning appeared to have remained intact. This has implications for the ways in which we prepare new teachers with regard to developing a rationale for their teaching.

6. Recommendations

The school context and level of support has been identified as a crucial factor in new teachers' implementation of co-operative learning. There are a number of issues at different levels where that context needs to be addressed.

6.1 The macro level

There is some evidence that the influence of the *Assessment is for Learning* (AifL) initiative is affecting the classroom context for student teachers who are out on school placement. In this last year there has been a considerable shift in the reported level of support from teachers. As students on placement in 2004-05, the participants were much less likely to come into contact with methodologies which were compatible with co-operative learning than they were in their induction year (2005 -06). Hayward *et al* (2004) have reported on the quiet revolution in Scottish schools which is taking place as a result of a high profile focus on formative assessment and there is evidence in this small study that the changes are having an effect on the reactions to co-operative learning experienced by new teachers. Experience in schools with student teachers on placement in 2005-06 also backs up this. The introduction of A Curriculum for Excellence is also a positive influence: the development of successful learners, confident individuals, effective contributors and responsible individuals is an imperative which leads to the need to scrutinise teaching strategies to assess their fitness for purpose. Co-operative learning would seem to be an ideal vehicle for teachers to deliver A Curriculum for Excellence and formative assessment and its more formal support by SEED would lend further legitimisation to its use in schools. This would in turn help to create the climate which would make it acceptable for new teachers to be experimenting with these methodologies and for schools to support them. Clearly the expectations of HMIE are instrumental in driving the agenda in schools and there are possibilities for greater formal encouragement of innovative practice in the inspection regime.

6.2 School level

Central and in-class support for probationers varies from one local authority to another, and where it is well organised and positive, it has a highly motivating and confirming effect on new teachers. The support provided often reflects the policy context as much as the individual pedagogical preferences of individual staff in schools and so the policy framework referred to above is significant here too. Individual teachers, induction supporters, and school managers are much more likely to be supportive if they feel they are working to a policy agenda and inspection regime which matches the pedagogical aspirations of new teachers and helps ease the dilemma schools face about teaching for understanding as opposed to curriculum coverage.

There is work to be done with teachers. Some of our new teachers were sympathetic to the plight of experienced teachers and their requirement to keep up to date in a rapidly changing educational context. Teachers need to be supported too and the widespread, co-ordinated approach to staff development put into place for formative assessment is a useful model for the future. The use of co-operative learning as a mechanism to embed formative assessment and help deliver A Curriculum for Excellence has real possibilities and if new teachers and student teachers are to be well supported and experience relevant practice in schools, the training for co-operative learning needs to be extended to more experienced teachers in a more systematic way. Good progress has already been made towards more learner centred, empowering approaches through AifL and *A Curriculum for Excellence* sets the scene for further development through the wider introduction of co-operative learning.

6.3 Higher Education Institutions

In terms of the ways in which Higher Education Institutions (HEIs) can equip new teachers to implement innovative approaches to learning and teaching, two key factors seem to emerge: the methodologies experienced by students on teacher education courses and the extent to which student teachers are given opportunities to explore their own personal stance to develop a rationale for their teaching which will stand up to scrutiny. These contribute to the confidence levels of new teachers as they begin their teaching careers and their resilience in the face of lack of support or outright opposition.

The methodology is crucial and as has been outlined above: it is a modelling tool for student teachers and the so there is an important role of the tutor in understanding and translating into practice, the methodology students are being encouraged to use in school, both on placements and in their teaching when they are qualified. The more first hand experience students have of constructivist, learner centred approaches to learning and teaching, the more likely they are to make sense of them and apply them in their own teaching. There is still a heavy emphasis in higher education on lectures and very teacher centred methodology, and faculties of education should be at the forefront of changing that pedagogy. There are many challenges: increasing student numbers, lack of suitable teaching accommodation, finding time to change courses and skilling staff. However, just as the new teachers in our study hung on to their commitment to the methodology in the face of difficult circumstance, it is equally possible for university staff to do the same. A key factor is the understanding and level of commitment staff have to the philosophy behind such an approach to learning and that depends on high quality on-going staff development opportunities.

As well as modelling the practice, it is equally important to underpin the approaches being used by a strong theoretical and research base. For this reason, students need to be exposed to the wide range of research evidence which demonstrates the effectiveness of co-operative learning and the theoretical frameworks within which it fits. This requires the tutors who teach on teacher education courses to have that understanding themselves and to incorporate this dimension into the courses they offer. If student teachers are to explore their own personal and professional stance and develop a rationale for their teaching, they need to be given the opportunity to reflect on co-operative learning by looking at their practice through a number of different lenses. Brookfield (1998) recommends that we look first to our own experiences of learning to try to identify and understand our own assumptions and beliefs, we read the literature to find out what others have to say based on research, we find out what our learners' experience is of our teaching and we share our concerns and successes in the classroom with colleagues who understand the context. University staff need to be given the opportunity to do this so that they can then understand the need to give their student teachers the same opportunities to reflect on practice and examine their beliefs and assumptions about learners and learning. In this way we can ensure that student teachers are encouraged to be critically reflective with a rationale for their teaching which informs their practice and gives them confidence to persevere with innovative teaching practices in the early years of their teaching career and beyond.

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