

The Quality in Education Centre

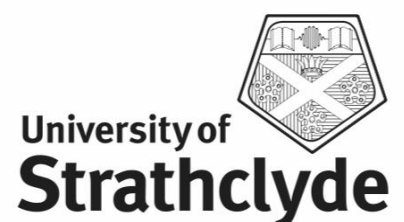
Evaluation of North Lanarkshire's Cooperative Learning Project

Final Report

April 2007

**Liz Seagraves
Colleen Clinton
Summer Kenesson**

The Quality in Education Centre
University of Strathclyde
Faculty of Education
Jordanhill Campus
76 Southbrae Drive
Glasgow G13 1PP



Contents	Page no
Acknowledgements	i
Executive summary	ii
1. Introduction	1
1.1 The aims of North Lanarkshire's cooperative learning project	1
1.2 The aims and design of the evaluation	1
1.3 Organisation of the report	3
2. Cooperative Learning	4
2.1 Models and principles of cooperative learning	4
2.2 Cooperative learning in North Lanarkshire	6
3. Implementing cooperative learning	9
3.1 Training and support	9
3.2 School approaches to introducing and monitoring cooperative learning	11
3.3 Teacher approaches to implementation	12
3.4 Challenges	16
3.5 Best whole-school conditions	16
3.6 Summary	17
4. Impact of cooperative learning	18
4.1 Impact on teachers	18
4.2 Impact on pupils	19
4.3 Impact on the school community	25
4.4 Summary	26
5. Discussion	27
References	30
Appendices (in separate document)	
A	Summary of interviews with local authority staff
B	Summary of interviews with senior management in 5 schools
C	Summary of interviews with teachers in 5 schools
D	Summary of pupil focus groups
E	Summary of parent interviews
F	Report of classroom observation
G	Report of teacher survey
H	Report of S1 pupil survey (December 2006)
I	Extract from pupil survey (2004)
J	Good practice case studies
K	Literature
L	Research instruments

Acknowledgements

The evaluation team would like to thank the management, teachers and pupils of the 5 schools that form the main focus of this evaluation. We very much appreciated the time and support they gave. They organised our visits to the schools, allowed us to observe their classes, gave up time to be interviewed and arranged for the completion of pupil questionnaires.

We would also like to thank the parents who volunteered to be interviewed and the teachers and other staff who completed the online questionnaire.

The support and cooperation of local authority officials was also appreciated.

Executive summary

This is the final report by the Quality in Education Centre (QIE) at the University of Strathclyde of an evaluation of the North Lanarkshire cooperative learning project. The project and the evaluation are funded as part of the Scottish Executive's Future Learning and Teaching (FLaT) Programme (<http://www.flatprojects.org.uk/>).

North Lanarkshire's cooperative learning project

Cooperative learning was introduced in North Lanarkshire in 2002 as part of a wider programme to raise aspirations and achievement and attainment (*Raising Achievement for All*, North Lanarkshire Education Department, 1998). The authority have made the commitment that all teachers and support staff will be trained in cooperative learning, if they wish, over a period of at least 5 years. Since the introduction of *A Curriculum for Excellence*, the authority has been emphasising the strengths of cooperative learning in supporting the development of the four capacities (successful learners, confident individuals, responsible citizens and effective contributors to society). They also believe that it provides a suitable medium for taking forward other national initiatives such as *Assessment is for Learning* and *Enterprise in Education*.

The five key aims of the cooperative learning project are to:

1. secure higher attainment in overall terms in line with the authority's strategy, *Raising Achievement for All*
2. address all national priorities by building social skills, developing citizenship and encouraging young people to be actively involved in their own learning
3. develop and promote the school as a "learning community" with a positive and inclusive ethos
4. increase teacher efficacy by adding to their toolkit of skills
5. increase pupil and teacher motivation.

The evaluation

The evaluation has five aims:

1. Describe the extent to which the five key aims of the North Lanarkshire cooperative learning Project have been met.
2. Identify strengths and any gaps in the support available to teachers using cooperative learning activities.
3. Assess the overall impact of the co-operative learning approach on teachers, pupils and parents in the study schools.
4. Identify any gender differences in relation to the impact of cooperative learning on pupils, including pupil attainment, social skills, participation and behaviour.
5. Establish conditions that support effective implementation and embedding of co-operative learning principles.

The evaluation activities took place in two stages: August 2004 to March 2005 and September 2006 to March 2007. The original invitation to tender had specified 5 schools, selected by the authority, 2 secondary and 3 primary, to be the focus of the evaluation activities, and these 5 schools were involved in both stages of the evaluation. In the second stage, the teacher sample was widened for the purposes of a teacher survey to gain the views of teachers from a wider range of schools. Data were gathered using both qualitative and quantitative methods including interviews, observations and surveys. Additionally local authority data in relation to attainment and attendance were obtained for the period 2001 to 2006; local authority evaluations of training events were also provided.

Cooperative learning

Cooperative learning has been extensively researched and it has been demonstrated that this method of delivering instruction and managing learning is an effective way to promote pupil learning, both in terms of academic achievement and social skill development. Different models of cooperative learning have emerged based on different underpinning theoretical assumptions. North Lanarkshire have

adopted Johnson & Johnson's social interdependence model, in which the 'dynamic whole' of groups is emphasised and through which 'promotive interaction' is encouraged.

For group work to be cooperative, certain key principles should be incorporated into the unit of learning. The social interdependence model of cooperative learning is built on 5 elements, all of which should be systematically structured into group learning situations: positive interdependence, promotive interaction, individual and group accountability, interpersonal and social skills and group processing.

Research has shown that where cooperative learning is promoted as a conceptual system as opposed to a series of strategies, it is likely to have a greater impact on achievement. This implies that cooperative learning needs to be implemented systematically, through rethinking learning and teaching and by using a conceptual framework to adapt lessons and activities into cooperative ones.

Implementation of cooperative learning in North Lanarkshire

Cooperative learning training for education staff in North Lanarkshire comprises a 3-day initial Academy and a range of ongoing support through Recall Days, twilight sessions, other focused training and an online resource through the authority's intranet. In addition, cooperative learning development officers are available for in-house support and development of resources.

Generally, the evaluation illustrated that the training and support provided by the authority is highly valued by participants. The Academy had provided them with useful strategies for managing cooperative group work and developing social skills in the classroom, although teachers reported finding some of the cooperative learning principles more challenging to implement. In particular, the principles of promotive interaction and group processing appeared to be implemented less effectively.

Networking with other teachers through Recall Days and in-house peer support is perceived to be a most helpful support mechanism and teachers emphasised that they would like more time for this. Whilst management recognise ongoing collegial support to be one of the 'best' conditions for promoting cooperative learning practice, they also feel that ensuring this happens can be a challenge.

In line with the literature and with respondents' views, other 'best' whole-school conditions include management commitment to a carefully planned, systematic implementation and whole-school use of cooperative learning practices. In the 5 schools selected by North Lanarkshire for the focus of the evaluation, these factors essential for facilitating and effectively developing cooperative learning are well addressed, but survey findings suggest there is room for development in this area in other schools across the authority.

The evaluation shows that there is potential for more priority to be given to continued professional dialogue. Revisiting the 5 principles of the model of cooperative learning adopted by North Lanarkshire and providing ongoing support in ways of including them on a regular basis would be beneficial and could be a focus for such networking sessions.

Impact of cooperative learning

The teachers who responded to the survey and the majority of those interviewed were positive about the effects of cooperative learning on their own teaching practice and their enthusiasm for teaching. They reported enhanced capacity through acquiring more teaching skills, better classroom management and a better knowledge of pupils.

The main benefits to pupils were reported in terms of social skill development, enhanced confidence, improved motivation and greater involvement in learning through the benefit of learning together. Less evident were the effects of promotive interaction, ie constructing knowledge and self-regulated learning via pupil and teacher dialogue. There is potential for greater emphasis to be given to this element, particularly as some of these features fit well with other initiatives such as formative assessment.

Cooperative learning appeared to be equally appreciated by boys and girls, with no substantial differences emerging in the data from pupils or in the views expressed in the focus groups.

The small sample of parents interviewed were positive about the benefits to the children from cooperative learning.

The perceived benefits with respect to cooperative learning enhancing the school community by encouraging a more inclusive and positive ethos were less reported than the benefits to teachers and pupils. This may be because, as was reported by the 5 schools that were the specific focus of the evaluation, the schools already had a positive and inclusive ethos which was reinforced through cooperative learning. However, a number of respondents to the survey indicated that cooperative learning approaches were not used in their school for wider school activities, suggesting that this is still a work in progress for some schools across the authority.

Discussion

This section discusses the findings in relation to the aims of the evaluation.

Aims 1 and 3:

Describe the extent to which the five key aims of the North Lanarkshire Co-operative Learning Project have been met and other benefits that might emerge from the evaluation

and

Assess the overall impact of the co-operative learning approach on teachers, pupils and parents in the study schools

On the whole, the evaluation findings show that the 5 schools selected for the focus of the evaluation are largely meeting the cooperative learning project aims. It has to be noted that the process of introducing change in secondary schools is more complex and therefore the implementation process needs to be carried out over a longer timescale.

In the 5 evaluation schools there was clear evidence of management commitment to cooperative learning and use of whole-school cooperative learning strategies throughout the school and in different contexts (eg for staff meetings, CPD etc). There were indications, however, that up to a third of respondents in schools authority-wide were not experiencing the benefits in a wider school context.

Teachers in the 5 schools were generally very positive about benefits to themselves in terms of developing new skills and improved motivation, although some felt that the approaches introduced through cooperative learning were not new.

They were also positive about the benefits to pupils in terms of encouraging better learning through pupils working together, the specific focus on social skills, and in pupils' motivation. Although important, there was less focus on raising attainment in terms of improved national assessment scores and examination results. It was considered that cooperative learning would contribute to these along with other measures.

The wider teacher survey also showed that the majority of respondents shared equally positive views, with an indication that cooperative learning approaches contribute to the development of the 4 capacities of *A Curriculum for Excellence*.

The evidence from the small number of parents who were interviewed showed that they were supportive of cooperative learning and some reported observing changes (for the better) in their children because of it.

Aim 2:

Identify strengths and any gaps in the support available to teachers using cooperative learning activities

Research illustrates that commitment to systematic training and support by authorities and schools leads to more effective implementation of cooperative learning. North Lanarkshire's commitment to provide training to all staff who are interested can therefore be seen as a strength.

Participants' views of the Academy training were very positive and many reported the benefits of attendance at Recall Days as they provided the opportunity to share experiences and learn from others. Continued professional dialogue was considered to be the most helpful support mechanism, with teachers emphasising they would like more time for networking and a number of respondents expressing the wish to attend (further) Recall Days. Whilst management recognise ongoing collegial support to be one of the 'best' conditions for promoting cooperative learning practice, they also feel that ensuring this happens can be a challenge. This indicates that there is potential for this area of ongoing collegial support to be further developed.

In relation both to training and observed practice, the aspect of promotive interaction which focuses on engaging in discussion and dialogue was given less emphasis, and the practice of group processing, which should engage pupils in reflective and constructive conversations, was weaker. The literature indicates not only that this is one of the most important aspects in helping learners to construct knowledge and gain understanding, but also that teachers find it more difficult to implement. Teachers benefit from additional training in monitoring the work of the groups, certain communication techniques such as appropriate questioning, and helping pupils ask questions for themselves. More emphasis on these aspects during cooperative learning training and ongoing support would be beneficial.

Aim 4:

Identify any gender differences in relation to the impact of co-operative learning on pupils, including pupil attainment, social skills, participation and behaviour.

Cooperative learning appeared to be equally appreciated by boys and girls, with no substantial differences emerging in the data from pupils or in the views expressed in focus groups. At the transition stage, girls were more likely than boys to say that some of the social skills had helped them when they moved to high school, but that may reflect more on what is important to them at transition rather than on cooperative learning. In data collected in 2004, boys were more likely to say that they looked forward to cooperative learning than girls and that it helped them do better at school.

Aim 5:

Establish conditions that support effective implementation and embedding of co-operative learning principles.

Conditions that support effective implementation and embedding of cooperative learning principles are those that support the introduction of any initiative or change in school contexts. The research and literature on this topic are extensive; however, 4 key factors are highlighted by Priestley and Sime (2005) and are as follows: proactive leadership, professional trust, creation of spaces for collaboration and starting small. These factors parallel the 'best' school conditions suggested by school management for the implementation and embedding of cooperative learning and can be summarised as follows:

- weight of authority commitment and links to underlying philosophy supported by policy
- proactive and committed leadership in schools
- teachers engaged by effective strategies which are seen as beneficial in the classroom
- initial training and ongoing development which engage teachers with underlying theories and principles and lead them to develop 'a conceptual system and use it to adapt current lessons and activities into cooperative ones' (Johnson *et al*, 2000)
- collaborative spaces and networking which allows teachers to share ideas and learn together.

1. Introduction

This is the final report by the Quality in Education Centre (QIE) at the University of Strathclyde of an evaluation of the North Lanarkshire cooperative learning project. The evaluation was conducted in two stages: August 2004 to March 2005 and September 2006 to March 2007. The project and the evaluation are funded as part of the Scottish Executive's Future Learning and Teaching (FLaT) Programme (<http://www.flatprojects.org.uk/>). This introduction outlines the aims of North Lanarkshire's cooperative learning project, the evaluation aims and methods and the structure of the report.

1.1 The aims of North Lanarkshire's cooperative learning project

The background to the introduction of cooperative learning in North Lanarkshire is reported below (section 2.2, p 6). It is part of a wider programme developed to raise aspirations, achievement and attainment in North Lanarkshire (*Raising Achievement for All*, North Lanarkshire Education Department, 1998).

The five key aims of the project are to:

1. secure higher attainment in overall terms in line with the authority's strategy, *Raising Achievement for All*
2. address all national priorities by building social skills, developing citizenship and encouraging young people to be actively involved in their own learning
3. develop and promote the school as a "learning community" with a positive and inclusive ethos
4. increase teacher efficacy by adding to their toolkit of skills
5. increase pupil and teacher motivation.

1.2 The aims and design of the evaluation

The evaluation has five aims:

1. Describe the extent to which the five key aims of the North Lanarkshire Cooperative Learning Project have been met in terms of improvements in the following areas, and in terms of other benefits that might emerge from the evaluation:
 - attainment, as described in the authority's strategy, *Raising Achievement for All*
 - attendance
 - pupils' social interaction skills
 - collaborative planning (pupils and teachers)
 - citizenship understandings
 - self-regulation of learning
 - teachers' efficacy in creating effective learning and teaching environments through expanding their repertoire of understandings and skills
 - indicators of a 'learning community'
 - motivation (pupil and teacher)
 - strategies used by pupils to manage the primary to secondary school transition.
2. Identify strengths and any gaps in the support available to teachers using cooperative learning activities.
3. Assess the overall impact of the cooperative learning approach on teachers, pupils and parents in the study schools.
4. Identify any gender differences in relation to the impact of cooperative learning on pupils, including pupil attainment, social skills, participation and behaviour.
5. Establish conditions that support effective implementation and embedding of cooperative learning principles.

Evaluation design

The evaluation activities took place in two stages: August 2004 to March 2005 and September 2006 to March 2007. The original invitation to tender had specified 5 schools, selected by the authority, 2 secondary and 3 primary, to be the focus of the evaluation activities, and these 5 schools were involved in both stages of the evaluation. In the second stage, the teacher sample was widened for the purposes of a teacher survey to gain the views of teachers from a wider range of schools. Data were gathered using both qualitative and quantitative methods including interviews, observation and surveys. Additionally, local authority data in relation to attainment and attendance were obtained for the period 2001 to 2006; local authority evaluations of training events were also provided. The data collection is summarised in Table 1.1

Table 1.1 Data collection for evaluation of NL cooperative learning project

Stage 1		Stage 2	
Date		Date	
June 2004	Interviews with key local authority staff for context setting	Oct 2006	Interviews with key local authority staff re ongoing developments
June 2004	Interviews with headteachers (or depute headteachers) in 5 schools	Dec 2006	Interviews with 8 senior management in 5 schools
Sept-Oct 2004	Survey of teachers who had received cooperative learning training in 5 schools	Feb 2007	Survey of teachers from 80 schools. All teachers who had been trained were invited to participate
Sept-Oct 2004	Survey of a sample of primary and secondary pupils who had experienced cooperative learning	Jan 2007	Survey of all S1 pupils in both secondary schools with a particular focus on transition
Oct 2004	Interviews with teachers: 8 primary and 10 secondary teachers	Dec 2006 - Jan 2007	Interviews with teachers: 13 primary and 9 secondary teachers
Nov-Dec 2004	Observation of 20 lessons across the 5 schools	Dec 2006 - Jan 2007	Observation of 9 lessons across the 5 schools
February 2005	12 pupil focus groups were carried out with pupils in the 5 schools	Dec 2006 - Jan 2007	7 focus groups with pupils in the 5 schools
		Jan-Feb 2007	Telephone interviews with parents
		Feb 2007	Three case studies with a focus on management and change, pupil leadership, and pupils with special needs

This report focuses mainly on the findings from stage 2 of the evaluation, but where appropriate draws on data from stage 1.

Note on samples

Details of the survey samples are included in the appendices.

Teacher survey

The authority indicated that the following numbers of teachers had completed the 3-day Academy:

- Primary teachers 1026
- Secondary teachers 595
- Special school teachers 65
- Nursery teachers 5

A circular was sent to all schools with teachers trained in cooperative learning requesting teachers to complete the questionnaire: 207 responses were received as follows:

	n	% of sample	% of CL trained teachers
• Nursery	5	2%	100%
• Primary	99	48%	10%
• Secondary	90	43%	15%
• Special schools	13	7%	20%
• Total	207	100%	12%

To obtain a representative sample of each group, responses would be required from about 300 primary, 250 secondary and as many of the special school teachers as possible. This return, therefore, gives an indication of the views of teachers in North Lanarkshire who have received training in cooperative learning, but it cannot be taken as a truly representative sample. While there is nothing to suggest that it is unrepresentative, self-selection may mean that the more committed have chosen to respond.

Pupil surveys

The survey in December 2006 received 404 responses: from 205 boys (51%) and 199 girls (49%). There were 226 pupils (56%) from one school and 178 (44%) from the other. The whole year group was selected to ensure views on transition were captured across the associated school groups.

The survey in September/October 2004 received 459 responses: 214 primary and 245 secondary pupils. The primary pupils were from the following classes: P4 – 69 (32%); P6 – 66 (31%); P7 – 79 (37%). There were 112 boys (52%) and 102 girls (48%). The secondary pupils were from the following year groups: S1 – 97 (40%); S3 – 87 (35%); S5/6 – 61 (25%). There were 124 boys (51%) and 118 girls (48%).

1.3 Organisation of the report

Section 2 provides a brief introduction to cooperative learning drawing on a range of literature and reviews different approaches and theoretical underpinnings of cooperative learning. A brief explanation of the model adopted by North Lanarkshire is given. Section 2 also provides a brief narrative of the history of cooperative learning in North Lanarkshire.

Section 3 reports the findings of the research in relation to issues of implementation, including training and support (evaluation aim 2), school strategies for implementation, teachers' perceptions of the process of introducing cooperative learning and supportive school environments (relating to evaluation aim 5).

Section 4 reports on teachers' perceptions of the impact of cooperative learning on their own professional development and motivation. The findings from teachers, pupils and parents in relation to the impact in terms of pupil attainment, achievement, learning, social development and motivation are reported (evidence relating to evaluation aims 1, 3 and 4).

Section 5 discusses the findings in relation to the aims of the evaluation. Where appropriate, discussion is linked to relevant findings reported in published research.

Summaries or short extracts of data are used to support the findings presented in the report. Full data from the surveys and reports of the interviews and observations are provided in the separate Appendices document.

2. Cooperative learning

This section presents an overview of literature on cooperative learning and the background to the introduction of cooperative learning in North Lanarkshire.

2.1 Models and principles of cooperative learning

Cooperative learning is the term applied to a well documented approach to delivering instruction and managing learning in educational environments. It has been extensively researched and it has been demonstrated that it is an effective method for promoting pupil learning and academic achievement and developing social skills and relationships, particularly compared to whole-class approaches and individual working (Slavin, 1995 and 1996; Cohen, 1994; Johnson & Johnson, 1989). Reported benefits for the learner include academic gains, enhanced competence and self esteem, development of positive social relationships and interpersonal skills, increased motivation to learn, development of strategies to manage conflict and the use of sophisticated dialogue (Gillies & Boyle, 2005).

The term is applied broadly to a variety of methods and strategies in which learners are placed in small groups to help one another learn academic content; however, a major issue is that not all group work is cooperative and cooperative learning should encompass key principles. Research has shown that, in group work, pupils very often help each other with individual tasks or work and achieve alone within the group setting, in other words they work 'in' groups rather than 'as' groups (Veenman *et al*, 2000, p285). It is also acknowledged that principles of cooperative learning may be incorporated in managing learning contexts without the term cooperative learning necessarily being used.

Theoretical principles

Different models of cooperative learning have emerged based on different underpinning theoretical assumptions. Debate has existed between the supporters of different theoretical positions, though key proponents of cooperative learning would argue for approaches which integrate different theoretical perspectives (Slavin, 1996; Johnson, 1994). Slavin (1996) identifies 4 major theoretical perspectives – motivational, social cohesion, developmental and cognitive elaboration. Johnson and Johnson (2006) identify theoretical roots of cooperative learning in 3 fields – social interdependence, cognitive development and behavioural theories.

- The motivational and behavioural perspectives are related, in that the focus is on the reward or goal structures. Individual success is dependent on group success and this provides motivational incentive to work together to help each others' learning.
- Social cohesion or social interdependence further enhance motivation through building relationships. Teambuilding is important as preparation for cooperative working and group self-evaluation is emphasised.
- Johnson and Johnson encompass under the one heading of 'cognitive development' Slavin's 'developmental' and 'cognitive elaboration' perspectives. These have their roots in Piagetian and Vygotskian theories. The emphasis is that verbal interactions between learners will enhance learning and increase achievement through mental processing and knowledge construction as opposed to motivational or social goals. Theorists distinguish between Piagetian and Vygostkian approaches – but space does not permit us to pursue this here (see Slavin, 1996 and Vedder & Veendrick, 2003). Research has shown that the quality of pupil talk in groups and their ability to explain, to challenge and to elaborate their ideas is essential to improving learning and, therefore, cognitive development is a key purpose of cooperative learning (Gillies, 2004, citing Webb, 1992 and Webb & Farivar, 1994).

Various techniques and approaches have been developed and promoted as ways of implementing cooperative learning, with different emphases being placed on rewards and types of rewards, the nature of the task, the formation of groups (heterogeneous as opposed to homogenous), with research being carried out to investigate what works most effectively and which pupils gain most. For an overview of particular methods or techniques, refer to Slavin and Cooper (1999) and Johnson *et al* (2000).

Effectiveness of cooperative learning

Johnson *et al* (2000) have undertaken a meta-analysis of research into 8 such methods or techniques of cooperative learning and their impact on achievement. One key finding was that all cooperative learning methods studied produced significantly higher achievement than competitive or individualistic approaches. The conclusion is that teachers can confidently and 'comfortably' use cooperative learning on the basis of research evidence.

However, another important part of their analyses and findings related to different ways of implementing cooperative learning. They state:

'Among the researcher-developers of cooperative learning, there are those who believe that the best way to ensure implementation of cooperative learning is to devise very specific techniques that teachers can learn in a few minutes and apply immediately (direct approach) and those who believe that teachers must learn a conceptual system and use it to adapt current lessons and activities into cooperative ones (conceptual approach) (Johnson et al, 2000).

Their analysis indicated that the *'more conceptual the method of cooperative learning, the greater its impact on achievement tends to be'*. This implies taking a systematic approach which helps teachers rethink learning and teaching and provides a framework for development as opposed to introducing a few new strategies.

However, Leat and Higgins (2002) identify 'powerful pedagogical strategies' as a way of engaging teachers in making changes to their classroom practice. A key feature of such strategies is that they provide 'practical and manageable steps that can be undertaken by professional teachers in the course of their work' (p72). Curriculum development and change is more likely to be effective when teachers are engaged in developments which they see as manageable and over which they feel they have control. They can then see themselves as agents of change in improving the learning opportunities for their pupils, rather than as objects to be changed. There appears, therefore, to be value in training which includes strategies that teachers can use with immediate effect, but these need to be learned and developed in the context of conceptual and theoretical underpinnings.

According to Cohen (1994), in order to employ cooperative learning strategies, teachers need access to professional development that includes: (1) the theory and philosophy of cooperative learning; (2) demonstrations of cooperative learning methods; and (3) ongoing and collegial support at the classroom level.

Both Slavin and Johnson & Johnson have developed frameworks for whole-school development with cooperative learning at the heart of them. As the Johnson & Johnson approach of 'Learning Together' and the 'Cooperative School' (Johnson & Johnson, 1994) is the one adopted by North Lanarkshire, it will be explained more fully here. It was also used as one focus for the evaluation and for reporting. We simply note Slavin's 'Success for All', which seeks to provide a means for whole-school reform based on cooperative learning (in particular team recognition and individual accountability), with a focus on reading and literacy (see <http://www.successforall.net/about/index.htm>).

Social interdependence model

Johnson & Johnson have developed their model on theories of social interdependence, emphasising the 'dynamic whole' of groups which encourages 'promotive interaction' as opposed to 'oppositional interaction' (competition) and 'no interaction' (individualistic) (Johnson & Johnson, 2006). They promote the benefits of both competitive and individual learning as well as cooperative learning, and emphasise the importance of all being included within the classroom and school environment. However, they recommend that the majority of time be given to cooperative learning (Johnson & Johnson, 1994). Social interdependence and promotive interaction focus on the goals of social cohesion and its benefits; these include cognitive development and elaboration and the social construction of knowledge.

This approach to cooperative learning is built on 5 principles or elements, all of which should be systematically structured into group learning situations. These are, briefly:

Positive interdependence: This means that pupils see themselves linked to others in the group in such a way that they cannot succeed unless everyone in the group succeeds. They therefore have to work in a way that promotes the learning of all members of the group. This depends on having a shared goal (goal interdependence). Role interdependence is of particular importance: members are assigned complementary roles, all of which are required to complete the task. Roles can be allocated to suit the level of ability and skill of pupils in mixed-ability groups to ensure successful contributions, or they can be assigned to specifically encourage the development of new skills. Examples of roles commonly given are reader, writer, checker, time-keeper, noise-monitor, resource manager and reporter. Interdependence can be built around other aspects, for example, rewards and resources, ie shared rewards, or each member has resources and the task cannot be completed without all the resources.

Promotive interaction (face-to-face): This encompasses both the provision of social support to each other (as emphasised in the interpersonal and small group skills element) and the promotion of each others' learning through engaging in dialogue, questioning, constructive arguing, explaining and teaching each other. Through working cooperatively, pupils should learn and practise skills for working together in a positive way and also develop thinking and learning skills. Tasks should build in opportunities to practise these skills.

Individual and group accountability: The group is jointly responsible for meeting its goals, but each individual is responsible for his or her share of the work. Individual accountability may be through asking any one member to respond on behalf of the group or by assessment of individual work. Both types of accountability need to be structured in for cooperative learning to be effective; individuals need to know that they are required to learn and not just be dependent on others in the group (no 'free rides' or 'social loafing').

Interpersonal and small group skills: Social skills need to be taught explicitly. Social skills objectives and success criteria for each lesson need to be made clear. These are introduced progressively through stages of schooling and can be very basic – for example, being polite and saying 'please' and 'thank you' – through to complex negotiation, conflict resolution and decision-making skills.

Group processing: Group processing is when group members reflect on how well they are achieving their goals and maintaining effective working relationships. They need to identify both what is helpful and unhelpful as they work together.

Further research on effective implementation

Proponents of cooperative learning emphasise that success is not guaranteed. Weak implementation will lead to weak outcomes. In that respect further findings from research are worth noting. Summary conclusions only are presented here; some detail of the studies is given in Appendix K.

The findings of an experimental study with 223 junior high students (Gillies, 2004) emphasised the importance of implementing all aspects of the cooperative learning model and of schools' commitment to ensuring that teachers have adequate professional development and support to implement it. Implementation in an *ad hoc* fashion was found to be less successful.

Three further research reports emphasise the importance of the role of the teacher and the quality of the teachers' interactions with the learners in cooperative learning situations, in particular the quality of the dialogue that takes place between teacher and pupils and pupils and pupils; they suggest that this is one aspect of cooperative learning which is more difficult to implement and that a particular focus on this in both training and ongoing support can be beneficial (Hijzen *et al*, 2006; Gillies & Boyle, 2005; Veenman *et al*, 2000).

2.2 Cooperative learning in North Lanarkshire

The introduction of cooperative learning is part of North Lanarkshire's *Raising Achievement for All* strategy, which was drawn up and published in 1998 after a review of ways in which the link between deprivation and underachievement could be countered. At that time, North Lanarkshire was rated as the second most deprived authority in Scotland and a working group had been set up in 1996 to arrive

at an inclusive and overarching policy through which a curriculum and services would be offered which would enable all children, young people and adults to function to their full capabilities, irrespective of socioeconomic background, gender, race or levels of (dis)ability.

The aims of this policy were first and foremost to (re)define achievement to cover sports, arts and music and to focus on a wider set of achievements than academic success, in order to include and empower everyone and to provide an education 'fit for purpose'. In formulating this wider definition of achievement, research was drawn on which included Gardner's 'multiple intelligences' theory, Goleman's 'emotional intelligence' theory, Buzan's mind-mapping research and findings illustrating that emotional wellbeing qualities (self-esteem, motivation, determination and high aspiration) are 'more likely to be positively associated with success than cognitive abilities' (North Lanarkshire Education Department, 1998, p3).

As part of the *Raising Achievement for All* policy, input, experiential and outcome targets were set for broad age ranges in the education system (early years, primary and secondary). Input targets reflected the authority's commitment to maintaining or enhancing resources to reduce inequalities between those from an advantaged background and those at risk from social and economic deprivation. In this light, the importance of cross-sectoral training for (teaching) staff was recognised in order to raise achievement throughout all sectors and services. Ways in which teachers could be supported to improve learning and teaching in the classroom and how underachievement could be tackled were investigated.

Links were made with Durham County, Ontario, Canada, where young people face levels of economic and social disadvantage similar to those in North Lanarkshire. Representatives from North Lanarkshire Council and Durham County met when in 1996 the Bertelsmann Prize¹ was won by Durham County for their use of cooperative learning to improve life chances for pupils and teaching staff. North Lanarkshire, through St Aidan's High School, was also one of the nominated authorities for this prize for innovative work. From this initial contact, the relationship between North Lanarkshire and Durham was further developed and a number of North Lanarkshire officers visited Durham in 2001 to explore cooperative learning. Having seen the impact of cooperative learning in Durham County, cooperative learning was chosen as one of the ways to address the aims of the overarching *Raising Achievement for All* policy.

The first training Academy in North Lanarkshire was arranged in the summer of 2002, delivered by Canadian trainers, and from then on training and further support has been delivered on an ongoing basis. Chris Ward, one of the Canadian trainers, had the opportunity to be seconded from her post of Superintendent of Education for the Durham District School Board in Ontario to be Cooperative Learning Trainer and Coordinator in North Lanarkshire for a period of 2 years. The Canadian trainers have extensive experience with cooperative learning. Durham District School Board's journey with cooperative learning began in 1988 when Durham County school district joined with four other school districts and the Ontario Institute for Studies & Education and the University of Toronto to form a consortium looking at instructional strategies.

Chris Ward's secondment has helped accelerate the pace of the roll-out of cooperative learning in North Lanarkshire and has helped the Council to become self-sustaining in terms of delivery and support. In order to complete the roll-out and to enable continuation of back-up and support in schools, six development officers were appointed in 2006 following the earlier secondment of two development officers in 2005. Local development officers will eventually take over the training role.

North Lanarkshire Council have made the commitment that every teacher and also other support staff (for example, librarians, community learning and development workers,) will be trained if they wish to be trained over a period of at least 5 years.

Since the introduction of *A Curriculum for Excellence*, the authority has been emphasising the strengths of cooperative learning in supporting the development of its four capacities.

¹ For information on the Bertelsmann Foundation see <http://www.bertelsmann-stiftung.de/>

North Lanarkshire education authority officers state that they are committed to 'rolling out' the social interdependence model of cooperative learning to all staff. They believe that cooperative learning is the best way to enable all young people to become successful learners, confident individuals, responsible citizens and effective contributors, and that it creates the ideal medium for taking forward other national initiatives such as *Assessment is for Learning*, *Enterprise in Education* and *A Curriculum for Excellence*.

3. Implementing cooperative learning

This section reviews issues related to implementing cooperative learning, including: users' perceptions of the training and support; school approaches to implementing and monitoring cooperative learning; teachers and their development of cooperative learning practices; the challenges faced by schools and teachers; and participants' views on the best school conditions for introducing cooperative learning. The findings are drawn from interview, survey and case study data. More detailed reports of each of these are contained in the appendices to the report.

3.1 Training and support

As noted in section 2, North Lanarkshire education authority was committed to offering training to all education staff who wanted to participate over a period of at least 5 years commencing in 2002. This involved not only providing initial 3-day Academy training but also a range of ongoing support through Recall Days, twilight sessions, other focused training and the introduction of an online resource through the authority intranet using First Class software. The appointment of development officers was an important step in taking forward cooperative learning in the authority.

The five schools that were the main focus of this study had made a commitment at the outset to train all staff, which meant a commitment to dedicate staff development budgets for this purpose. Clearly, this is a longer term commitment for the secondary than for the primary schools. In the 3 primary schools all core staff had been trained and it was envisaged that training for new staff could be met within budgets. It was reported that staff were trained gradually and that they introduced cooperative learning gradually to their classes in ways in which they felt comfortable.

In one secondary the strategy had involved both sending teachers on the Academies and Recall Days and introducing staff to cooperative learning through in-house training. (In this school involvement in cooperative learning had preceded the development of the authority programme and therefore staff had been trained via other training programmes.) Two members of staff had completed the training for trainers course and, although one was on secondment to the authority at the time of the study, their role was to give short input about cooperative learning during in-service days, and within their timetables they had been allocated time to work with other departments, to team teach and to support cooperative learning developments. The view was expressed by teachers and one of the 'trainers' that, while in-house training was valuable as an introduction, it was preferable that people attended the Academy to gain a better understanding of the principles and the range of cooperative learning activities that could be used.

In the other secondary, after all senior management had been trained, there was a process of allowing interested staff to opt in and 'targeting' key staff through inviting them to attend, to ensure that all departments had staff who had attended the Academy and that in some departments all staff were trained. The preference in this school is for staff to attend the Academy and no in-house training in cooperative learning is delivered.

During interviews, school management and teachers all spoke very positively about the Academy training and the ongoing support for cooperative learning developments. Two of the primary headteachers stated that they felt they had not needed a lot of support but were confident that if they had needed it, it would have been there. All welcomed the appointment of the development officers, who were recognised for their own expertise as teachers. It was reported that they were coming into the school to work with more recently trained teachers and to see how cooperative learning was being delivered within the schools.

The questionnaire for teachers asked questions about the helpfulness of the Academy training, participation in other forms of training and support and how helpful each of these were found to be. Additionally, views were drawn from the local authority's evaluation forms completed by teachers after the Academies.

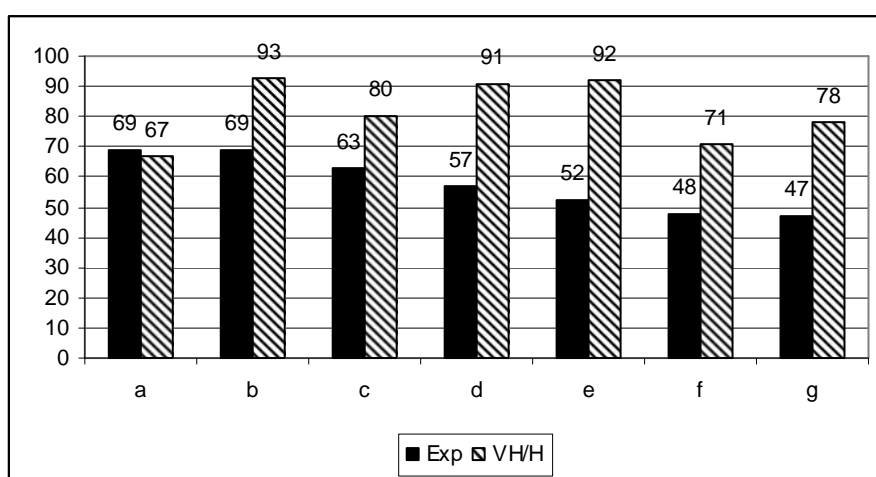
- Overall, 99% of respondents found the Academy training to be helpful or very helpful, with only one person selecting 'adequate'.

This is very much in line with responses derived from the local authority's own evaluation of the events, which indicated that 100% of participants thought the training was relevant and enjoyable. Feedback indicates that teachers enjoyed the interactive and participative nature of the training, with particular appreciation being expressed for the trainers in terms of interesting delivery, humour and the creation of a relaxed atmosphere. In addition to learning new strategies and techniques, participants emphasised that learning about the importance, power and value of groups and how to manage them effectively was particularly valuable. Teachers also reported that the training had taught them to recognise the importance of social skills and that these can be learned, and that they had learned ways of teaching them.

These views focus on aspects of training that, in Johnson and Johnson's definition (p5), relate to a 'direct' approach of specific strategies, as opposed to ways of helping pupil dialogue for the co-construction of knowledge, which the literature emphasises as being essential for effective learning (see Appendix K).

Teachers were asked to what extent they had experienced further training and support and how helpful they had found these. Chart 3.1 displays the responses. The black column represents the percentage of the whole sample that had experienced the activity; the striped column represents the percentage of those who had experienced it who thought it was helpful or very helpful. Therefore, while 69% of the sample said they had used the local authority intranet and First Class, 67% of these thought it was helpful or very helpful. Just over half had attended Recall Days, which 92% had found helpful or very helpful.

Chart 3.1: Participation in training and support activities and views on helpfulness of these activities



Key: a = LA intranet and First class
 b = networking with colleagues
 c = school meetings run using a cooperative learning approach
 d = using teacher produced materials
 e = Recall Days
 f = support from authority Development Officers
 g = in-house training

The most frequently reported forms of support were making use of the LA intranet and networking with colleagues. Almost two-thirds had experienced school meetings run in a cooperative way and the majority had shared other teacher produced materials. Just over half had participated in Recall Days. Almost half had worked with the authority development officers; and almost half had taken part in in-house training.

Overall, the majority of those who had experienced each kind of support found them helpful. The Recall Days were found to be beneficial by the majority, followed by those activities based in the school, ie networking with colleagues and using teacher produced materials.

When asked what further support would be helpful, around 30 of the respondents indicated they would like to attend the Recall Day and other in-service training. Given the lower percentage of respondents who had attended and the perceived benefits of these events, it should be highlighted as a priority for the authority and schools to facilitate this. The benefits of these linked to the opportunity to network with others and discuss both successes and problems of practice.

Teachers also indicated that they would like more time and opportunity to network with colleagues. When built into the implementation process within a school this was seen as particularly helpful, as in the case study of New Monklands Primary School (see Appendix J). Part of the networking process involved newly trained teachers working with more experienced teachers, joint planning of cooperative lessons and then reviewing them. Two of the other primary schools in the study had developed banks of lesson plans which were shared and reviewed during in-service days. As with all initiatives in schools, the opportunity to discuss successes and problems encountered is particularly valuable.

In the open comments section of the questionnaire, several teachers reported that the support of the development officers was extremely useful and ongoing support from them would be appreciated. At the time of the evaluation most of the development officers were in the early stages of their appointments and were seen to be having an effective role. As their roles develop they will be key in providing the support for networking and providing the professional dialogue and discussions which promote ongoing development.

Although the LA intranet had been reported as one of the most frequently accessed sources of support, it was found to be less helpful. This was in part due to the limited material available. During interviews in the schools it was emphasised that this was still in the early stages of development, but that there was potential for greater use of it and it was seen as a good forum for the sharing of lesson plans, ideas and experiences with colleagues in other schools.

3.2 School approaches to introducing and monitoring cooperative learning

In the two secondary schools that were the focus of this study, cooperative learning was a high priority in the development plan – it had been for some time and remained there. For one it was the ‘number one’ target within Learning and Teaching development priorities. In two of the primary schools it was no longer on the development plan as it was now considered to be embedded and on a maintenance programme; in the third it was still on the development plan.

In one of the secondary schools, every department had one person nominated with cooperative learning responsibility and they formed a committee to support cooperative learning developments within the school. In the other secondary school, management emphasised the importance of monitoring progress through faculty, departmental and individual review processes. This included reviewing who was trained in each department, plans for undertaking training and the extent to which cooperative learning was used in each department and where they are planning to use it in the coming term. There was classroom observation by senior management, both with and without prior warning ... *‘to check they are doing cooperative learning in the normal class, not a special show class’*. This was reportedly not seen as threatening as both teachers and pupils were keen to invite people in to see what they were doing. Interviews with teachers indicated that in some departments shared resources were being developed.

Interviews with primary school management highlighted a number of features used to promote cooperative learning. For example:

- in one school, in the first year they focused on social skills, then in the second year aimed to use it at least once a week in maths and language and thereafter to use it more widely in other areas
- in two of the schools teachers were asked to prepare lesson plans for cooperative learning lessons and these were kept for reference and sharing; in one school they were evaluated during in-service days. In the third school it was planned that during the current year teachers would begin to prepare a bank of lesson plans
- in 2 schools it was reported that teachers noted in forward planning when they were doing cooperative learning lessons and that the headteacher or principal teacher observed lessons on a regular basis

- one school emphasised the importance of having a whole-school programme with a plan for introducing progressively more difficult social skills across the different stages.

In the primary schools it was stated that effectiveness and impact was best monitored through observing the children working together and the changes in their behaviour and, in particular, their growth in confidence.

The management of all 5 schools reported that cooperative learning approaches were used in school management for activities such as staff meetings, board meetings and in-service days. One primary headteacher reported that a parents' event had been organised using some cooperative learning activities. This was reported as being successful, though teachers did indicate that some parents had expressed reservations about it.

In the survey, teachers were asked to indicate the extent to which they thought it was true of their school that cooperative learning approaches were used for example in staff meetings, planning meetings, for CPD. Sixty-one percent indicated that it was fairly to very true of their school (which is in line with the number who said they had experienced this in relation to training and support). However, overall 35% indicated that it was not true or only slightly true of their school, with 43% of secondary respondents stating this compared to 30% of primary respondents.

They were also asked to indicate the extent to which they thought it was true of their school that cooperative learning had enabled them to work more collaboratively with colleagues, either in their school or within their department (for secondary teachers): 36% indicated that it was not true or only slightly true of their school, with a higher proportion of secondary (50%) than primary (27%) respondents stating this.

Further investigation beyond the scope of the current work would need to be undertaken to explore the context of teachers' perceptions: for example, it is possible that in one secondary school teachers could represent the full extent of the scale from not true to very true, depending on departmental levels of involvement. It would appear, however, that in a number of schools represented by the survey respondents, the process of using cooperative learning as a whole-school strategy still needs to be promoted. Such whole-school use illustrates the commitment of the school management and may reinforce class use. The number of respondents indicating they are not experiencing more collaborative working may also suggest that the use of peer support and networking as a way of supporting developments needs to be promoted to a greater degree (though see section 3.4 below on the challenge of finding time).

3.3 Teacher approaches to implementation

'The training gave you ideas but the real learning took place as you tried to implement it in your classroom' (secondary teacher).

Feedback from the authority's own evaluations of the training suggested that at the end of the training teachers would have liked more specific, practical examples of how to 'get started' with their own pupils – at their age and stage and, for secondary teachers, subject specific ideas. Of the respondents to the survey, 8 indicated they had not yet started putting cooperative learning into practice in their classrooms. For most this was because they had just done the training and had not had time. However, one respondent who had been trained in 2005 indicated that *'despite training, I am still very unsure of how to actually go about selecting worthwhile activities to achieve maximum benefit from them. ... I do use a variety of group work ... but do not use the coop strategies as well as I should'*. This illustrates the point that the respondent has understood that orchestrating cooperative learning principles is complex but is finding it difficult to adopt the wider model as presented through the training. The authority is preparing a 'starter-pack' which may help teachers make this transition.

Once teachers get started, however, important questions are: how often are teachers using cooperative learning approaches and to what extent are they embedding the 5 cooperative learning principles? If we wish to examine the effects of using cooperative learning on teachers, pupils and the school community (section 4), it is important to know the extent of its use.

In the questionnaire, teachers were asked how often they used cooperative learning and how often they prepared a lesson or unit of learning that embedded all 5 cooperative learning principles. The responses of combined nursery and primary teachers and secondary teachers are given in Charts 3.2 and 3.3. There were only 13 special school/needs teachers who responded. They were more or less equally split on frequency of use of cooperative learning in general and on embedding the 5 principles.

Chart 3.2: Frequency of use of coop learning

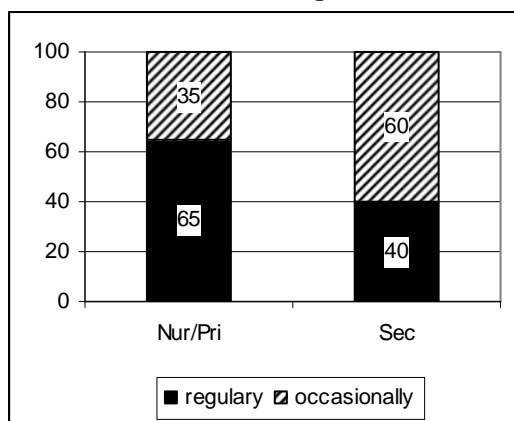
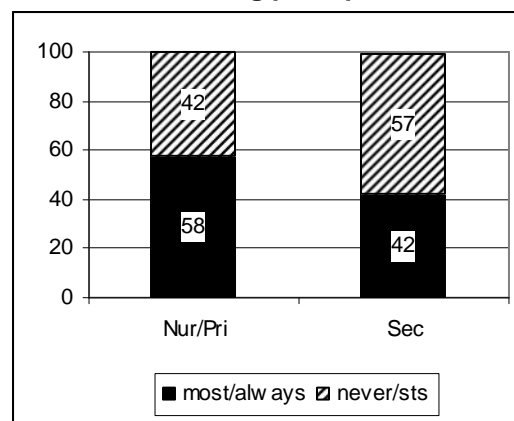


Chart 3.3: Frequency of embedding 5 coop learning principles



These figures are encouraging in that many practitioners indicated that cooperative learning was a regular feature of their classroom practice and around half reported that they were embedding all five principles most of the time.

They illustrate, however, that the primary respondents were more likely than secondary teachers to use cooperative learning on a regular basis and also more likely to embed all 5 principles most of the time when they were using cooperative learning. (Only 22 – about 10% of the sample – said they embedded the 5 principles **all** the time; 9 secondary teachers said they ‘never’ did this.)

A closer look at the secondary teachers who responded to the survey, in terms of subjects and classes they taught and the classes with which they used cooperative learning, showed that they used cooperative learning more frequently than not with their classes. (See Appendix G for more detail.) This suggests that in secondary schools where teachers are trained in cooperative learning they are more likely to use it than not with their classes, even if for some it is occasional rather than regular use.

It is interesting to note that a higher proportion of teachers who trained between 2002 and 2004 reported using cooperative learning regularly (primary = 84%; secondary = 66%) compared to those who trained later (primary = 56%; secondary = 31%) – possibly because they are reflecting over a longer period of time and have had more opportunity to use it, or that with use, practitioners use it more. Those who trained earlier were no more likely than those who trained later to indicate they embedded all 5 principles most of the time.

A question was asked about how challenging teachers found introducing elements of cooperative learning. The majority of respondents found introducing the principles of cooperative learning straightforward or very straightforward, though between a quarter and 45% found some aspects challenging. Sharing academic and social goals and providing opportunities for developing social skills provided the least level of challenge (with around a quarter finding these challenging). About a third found using team and group building challenging, while the more specific cooperative learning principles of individual accountability, group processing and positive interdependence provided the greatest challenges, with between 40% and 45% indicating these were challenging to develop and use.

Secondary teachers were more likely than primary teachers to indicate that some aspects were challenging, namely:

	% challenging or very challenging	
	secondary	primary
• sharing academic and social goals	36%	12%
• opportunities for developing social skills	40%	13%
• requiring individual accountability	51%	32%
• encouraging positive interdependence	55%	37%

In the interviews with school management in both secondary schools, it was acknowledged that cooperative learning was used more in some departments than others; some departments were very committed and used it extensively, while others had some teachers that used it well. Both schools were focusing on progressing developments within departments.

One of the secondary managers took a particular view:

'Some of the teachers will take aspects of it, some of the strategies and that is good. However, if they are not using all 5 principles then they are not doing cooperative learning. I'll challenge them if they say they are doing cooperative learning and they have not introduced social skills or done group processing. Cooperative learning gives lots of different kinds of activities, different ways of doing tasks, but we want to ensure that all 5 elements are in as many lessons as possible, otherwise it isn't cooperative learning.'

One group of teachers in one of the secondary schools spoke unprompted about the 5 principles and the importance of including them for group work to be effective. An example was given by an art teacher who used 'a full-blown, meticulously planned and structured cooperative learning approach' for the theoretical and historical elements in the units of an arts course. As the course had 4 units, work would be undertaken in a fully cooperative way by the students on that course 4 times a year, each time over a series of lessons. Other teachers in the same school spoke of doing a cooperative learning lesson once a week with different classes, or about a quarter of the time. At other times they would use some cooperative learning activities.

In the primary schools it was reported by the headteachers that all core staff used it 'in some way' and that some teachers used it more than others. There were many aspects of cooperative learning which could be 'dipped into' which added to teachers' approaches to teaching and learning without doing 'full-blown cooperative learning all the time'.

In one of the primary schools, one teacher indicated that she never used these terms and would never write a lesson plan which checked that all were present; in the same school another teacher indicated that she did lesson plans with all 5 principles noted and checked to make sure they were included and did a 'full' cooperative learning lesson at least once a week. In another school, it was reported that 'it is about picking out the bits and elements of CL that work for you'.

One might expect that something new and unfamiliar is more challenging to introduce and embed within one's practice. It may, however, be helpful to focus on and revisit these principles on a regular basis through newsletters, in-service, in dialogue with the development officers and between managers and teachers and teachers and teachers.

The evaluation team arranged to observe some cooperative learning classes. We had requested specifically to see examples of good practice rather than selecting lessons ourselves. This was with a view to being able to provide illustration which others might find helpful. An account of these observations is given in some detail in Appendix F. Points relating to examples of the 5 principles are discussed here.

Most of the lessons observed included the 5 principles of the social interdependence model of cooperative learning. For the upper secondary lessons it was generally not possible to include everything within one timetabled period and therefore the lesson plans covered a series of lessons (similar to the approach described above). One class did cover a double period, which appeared to facilitate a more coherent learning experience for the pupils.

In all the lessons observed there was a clear statement of academic goals and, for the lower secondary and primary pupils, there was a clear statement of social skills goals. However, in the

lessons for the upper secondary pupils there was little or no emphasis on social skills. Discussion with teachers suggested that this was less of a priority for older pupils as they already had well-developed skills and they tended to work more individually in preparation for exams. The classes observed were all preparing for higher examinations and there was good use of cooperative learning principles to help them with their academic work and this was **the** priority. It is possible that at other times, or with other older pupils, greater attention would be paid to social skills. At that senior stage there is potential to focus on the application of social skills in more complex situations such as democratic decision making, conflict resolution, diplomacy and debating skills. (For an example of using cooperative learning within the democratic decision-making process, see the case study of Our Lady's High School, Cumbernauld – Appendix J.)

Positive interdependence was clearly displayed through appropriate tasks, sharing resources, groups receiving praise from the teacher and others and allocation of different roles to group members. In the pupil focus groups, pupils displayed an understanding of this principle and the importance of everyone contributing.

Individual accountability was demonstrated mainly by asking individuals at random to answer or report on behalf of their group. When individuals could not respond they were not made to feel 'bad' but could seek the support of their group.

All lessons observed had pupils working in face-to-face interaction. It should be noted that the classroom environment was not always conducive to this – tightly packed classrooms, fixed furniture and resources that were not easily accessible all featured. However, the staff and pupils seemed very willing and able to work cooperatively in these restricted environments. In other cases, tables had been purchased specially to suit the teacher's preference for classroom organisation to facilitate easy movement in and out of groups.

An important aspect of promotive interaction is the dialogue which occurs between pupils to explore and challenge thinking and help with the active construction of knowledge. Some constructive talk and interaction was noted amongst the children, including challenging each others' ideas and reaching compromises, but in some cases talk was mainly at the level of information sharing. The younger children were still learning the process of resolving different views and they tended to seek the teacher's input before trying to resolve issues themselves. In such cases it appeared that the teachers did ask questions which enabled the pupils to move forward without providing direct solutions for them. A pupil in one of the focus groups explained that the emphasis on talking was beneficial to learning as *'when you are talking about things it stays in your head but when you are writing it down you just scribble and don't realise what you are writing.'* It was noted amongst the secondary groups in particular that sometimes one person took a strong lead in completing the work with others being more passive and accepting that person's view. It was also observed that the older pupils were more likely to talk about other 'life events' alongside discussion of the task in hand. It is possible that more emphasis could be put on modelling and promoting constructive questioning, challenging and dialogue.

Although in the lesson plan, group processing was sometimes postponed because of lack of time. In some lessons group processing was embedded at each stage. During interviews teachers agreed that this was often something that got squeezed out and perhaps not enough time was spent on it. In one of the pupil focus groups primary pupils provided detailed evaluations of their performances during the lesson that had been observed, and another group spoke of prompt sheets they used at the end of the lessons, but generally pupils were less familiar with this process than with some of the other elements of cooperative learning.

3.4 Challenges

This section presents the challenges identified by management and teachers.

The main challenges reported by school management during interviews included:

- committing the finance for the training
- convincing some staff that it was worthwhile – *'older teachers were less keen, but once they had experienced the training they came back with enthusiasm'*
- maintaining momentum after initial enthusiasm and keeping cooperative learning in the forefront of people's thinking about teaching and learning
- ensuring that after training teachers took it forward – training was expensive and if teachers did not implement it money could be wasted
- making sure there was time and opportunity for teachers to discuss what they were doing – *'to engage in conversation with them and listen sympathetically to what they need to support them'*
- working with some groups of children was more difficult as they were less ready to participate and required greater help with social skills; perseverance was required.

Challenges reported by teachers during interviews included:

- helping children to concentrate on social skills, especially when these are not the norm in their lives outside school (pri)
- working with some classes of children who are less ready to work in groups and who may even find pair working difficult (pri)
- helping older children, especially the more academic ones, realise that they are learning when they work cooperatively – this can include encouraging those who prefer to work on their own to work with others (sec)
- finding sufficient planning time (both).

These views were also found in the open questions in the teacher survey, particularly finding time to plan for cooperative learning lessons; two respondents specifically mentioned that it was time consuming to remember to include all 5 principles. In the interviews, teachers explained the challenge of getting the right 'mix of pupils' in the mixed-ability groups, allocating roles, preparing materials and getting the task right. All of this was time consuming and required good knowledge of the pupils, though the effort and time spent led to positive results. Finding time to work collaboratively and network with colleagues was also mentioned (and links potentially to the reasons for some of the negative responses reported in section 3.2).

In the survey a small number of teachers commented that cooperative learning was low in priority compared to other curriculum requirements and suggested the need for whole-school policies. Such comments reflect the different stages of development within schools and would suggest that their management had not adopted the same kind of commitment to cooperative learning as that found in the schools selected for closer study. While committed management may be challenged by unconvinced teachers, it must surely be a greater challenge to interested and possibly committed teachers with unconvinced management.

3.5 Best whole-school conditions

Supportive school contexts are those which provide resources and opportunities to overcome the challenges. Several broad issues were highlighted by school management in terms of the school environment which facilitates the introduction of cooperative learning:

- a supportive senior management, who are trained in cooperative learning and who use it within their own classroom practice and also 'model' it in school management practices
- a school ethos which encourages openness and sharing, where teachers are encouraged to think about their practice and performance as teachers and are given the opportunity to engage with current thinking about learning and teaching
- lots of opportunities for discussion and professional dialogue about teaching and learning in general and cooperative learning in particular.

None of the school managers who were interviewed claimed to have arrived, but they aimed to create such learning environments for both staff and pupils. Where the managers are leading by example, it is more likely that reluctant staff will be convinced; where teachers talk about how children learn in the context of different theories of learning, they will be able to evaluate their application of cooperative learning in the classroom; where there is professional openness there should be opportunities to talk about both what works and what doesn't work, problems encountered and how to overcome them; how to work with the 'difficult' children, how to build in all 5 principles of the cooperative learning model, or whatever the issues are for teachers.

3.6 Summary

Based on the feedback of participants, the 3-day Academy training was highly valued and provided important strategies for managing cooperative group-work and developing social skills. It is less clear that it engaged teachers in developing approaches to assist pupils in the construction of knowledge through dialogue – an important element of promotive interaction.

Teachers reported the benefits of attendance at Recall Days as they provided the opportunity to share experiences and learn from others. However, only around a half of the respondents to the survey had had this opportunity and a number expressed the wish to attend. It is therefore a priority for schools and the authority to facilitate this for those who wish it.

Teachers emphasised that they would like more time to network with other teachers in both their own and other schools to benefit from peer support. Ensuring this happened was seen as a challenge by management though it was recognised as a feature of the 'best' conditions for promoting cooperative learning practice. It would appear to be a way of addressing other challenges mentioned, for example, making sure teachers take cooperative learning forward after training and 'maintaining the momentum' after initial enthusiasm. Such ongoing collegial support is emphasised as essential in the literature (Cohen, 1994, see p6 above).

In the 5 schools selected by North Lanarkshire Council for the focus of the evaluation, there was a clear management commitment to a carefully planned, systematic introduction of cooperative learning and to monitoring progress in developments. Some comments in the teacher survey suggest that not all schools have this level of commitment and are not structurally promoting cooperative learning as a whole-school strategy.

In the survey, teacher responses indicated that they found the more specific cooperative learning principles more challenging to implement, and interview and observation data highlighted in particular the challenges of implementing promotive interaction and group processing. Around half of teachers indicated that they were embedding the 5 principles most of the time. Revisiting these principles with staff and providing ongoing support in ways of including them on a regular basis would be beneficial. This could be a focus for the continued professional dialogue referred to above.

4. Impact of cooperative learning

Five aims were identified by North Lanarkshire Council for the cooperative learning initiative – aims for the development of teachers, pupils and the school community. This section reports firstly on the impact on teachers in terms of enhanced teacher efficacy and motivation; it then reports on findings from teachers, pupils and parents on the impact on pupils and their learning in relation to the aims of the project, namely, pupil attainment, social skills, citizenship understandings, involvement in learning and motivation. In particular, views were sought from teachers on the extent to which they thought cooperative learning was contributing to the development of the 4 capacities emphasised in *A Curriculum for Excellence* – successful learners, confident individuals, responsible citizens and effective contributors. Finally, it reports on participants' perceptions of the impact on the wider school community.

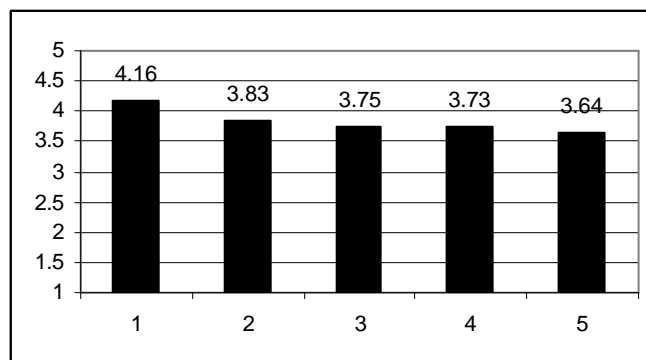
In the teacher survey, primary teachers consistently responded more positively than secondary teachers. The responses of primary and secondary teachers were investigated further as separate datasets; in both cases, generally, those who had reported using cooperative learning 'frequently' as opposed to 'occasionally' and those who indicated that they embedded the 5 principles 'most times or always' when they used cooperative learning, compared to those who said 'sometimes or never', were more positive in their responses. Space does not permit full reporting of these findings within this report but the details of these results are given in Appendix G.

As with many initiatives, the primary school environment appeared to be more favourable to the introduction of cooperative learning than secondary schools and primary teachers generally were more positive regarding the benefits. This might be because benefits are more likely to arise from proper application of the method, which might be easier in primary schools where academic goals are less complex than in secondary schools and there are less constraints imposed through timetabling. However, it is evident that with more frequent use and with the application of all aspects of the model of cooperative learning, teachers' perceptions were also more positive. This may be because, as teachers gain greater experience of proper application, benefits do emerge.

4.1 Impact on teachers

In the survey, teachers were asked to indicate on a 5-point scale the extent to which certain benefits applied to them. The mean scores are presented in chart 4.1.

Chart 4.1: Teachers' views on the extent to which cooperative learning has enhanced their teaching practice (mean score)



Key: Cooperative learning has ...

1. provided me with a wider range of teaching skills
2. increased my motivation and enthusiasm for teaching
3. assisted me with classroom management
4. helped me develop better relations with pupils
5. helped me get to know pupils better

Overall, respondents were very positive about the contribution of cooperative learning to their own development as teachers, in particular in relation to developing a wider range of teaching skills. On the other items, between 10% and 15% of the sample selected the negative end of the scale.

During the interviews with both management and teachers in the 5 study schools it was explained that, for most teachers, group working was not new but that cooperative learning had introduced a more structured framework and a more explicit focus on social skills. The training materials had also provided lots of new ideas for classroom activities. In one primary school, however, it was stated that *'cooperative learning has always been going on in primary schools but not under this name'*.

In the open-ended section on the questionnaire many respondents took the opportunity to express how valuable they had found cooperative learning, using expressions like 'a breath of fresh air', 'energised', 'galvanised', and developing a 'new outlook' on their jobs. One stated: *'Cooperative learning has had a huge impact on my teaching. Now I can't teach without using cooperative learning. I am an avid fan and so are my pupils'*. On the other hand it was also reported: *'It hasn't improved my teaching skills and it hasn't improved my interaction with pupils, but it is very interesting'*. This respondent did not explain but the assumption is that teaching skills and interaction are already strong.

During the interviews teachers' views about motivation were mixed; as with the survey respondents, the majority talked in terms of it providing a 'new impulse', 'it restores and rejuvenates'. *'I hope it never stops, hope it never changes and I hope the local authority doesn't decide it is now not working'*. A small number thought that it had not made any difference to the motivation of teachers.

4.2 Impact on pupils

4.2.1 Attainment

North Lanarkshire's policy, *Raising Achievement for All*, emphasises the development of the whole person and takes a broad view of achievement with an emphasis on inputs and experiences for children that go beyond academic learning and academic outcomes. Outcome targets are set both in terms of measurable progress, ie national assessment and examination success, and qualitative indicators relating to softer skills and personal development.

Throughout interviews with authority, school management and teachers, the view was that it was not necessarily appropriate to use attainment indicators as a measure of success of cooperative learning. The authority representatives indicated that progress should only be tracked over the long term as it was important that children experience cooperative learning consistently throughout their educational career. There was, however, anecdotal evidence of raised attainment. For example, at the Recall Days some participants reported improved test results as evidence of 'benefits and successes' they had experienced from using cooperative learning.

The research team obtained from the local authority statistics service examples of national assessment results displaying the 3 primary schools' performances on reading, writing and mathematics at the stages used as National Priority indicators for the academic years 2001/02 to 2005/06. A summary of SQA results was also obtained for the 2 secondary schools. The figures indicated that there appeared to be progress in some areas at some stages, more particularly at P6 and P7, but there were also some noticeable dips in performance. In one secondary school there was notable progress in mathematics in S2. Each school representative was asked to comment on the results for their own school.

The following points were made:

- national assessment results were not seen as a good way of monitoring the impact of cooperative learning; some children made good progress but they still may not reach the level the government says they should be at for their age
- everything schools did was about raising attainment and improvements could not be attributed to one initiative; cooperative learning was one influence amongst many. In the secondary maths department where progress was noted there would be *'several strategies "on the go" – one could not lay claim to improvement courtesy of cooperative learning'*
- there were fluctuations between year groups and some years do have higher attainment; the aim was for a long-term general upward trend and cooperative learning would be part of that trend
- in schools where attainment in national assessments was already high, there was little room for manoeuvre

- while better results were being achieved in some subjects in secondary schools, on the whole it was too early to make a claim that cooperative learning was having an impact on test and examination results.

The teacher survey included a statement relating to 'increased academic attainment' with teachers responding on a 5-point scale from 1 = I have not observed this to 5 = this is very evident (see table G13 in Appendix G). Of all the statements relating to both pupil and teacher benefits of cooperative learning, this one had the lowest mean score (3.03). Percentage responses for the ratings were:

1 & 2 = 25%

3 = 39%

4 & 5 = 31%

Some teachers believed that cooperative learning was impacting on attainment, while others were more ambivalent.

The pupils were not asked directly about success in tests or examinations, but there was a statement with which they were asked to agree or disagree: 'I feel I can do better at school when we do cooperative learning'. Across all pupil datasets (primary and secondary pupils in 2004 and S1 pupils in 2006), approximately three-quarters of pupils agreed with this statement.

To investigate how people perceived the relationship between attainment and cooperative learning, school management interviewees were asked what factors they felt influenced attainment and, where these were negative, how cooperative learning might address these. Primary head teachers referred to home and social background where there were low expectations and little encouragement to do well at school; the children often had poor social skills because they did not experience the development of such skills outside school. Both primary and secondary representatives spoke of poor quality teaching leading to underachievement, for example, *'not sharing learning outcomes and assessment criteria and setting up tests expecting some to fail'*.

Cooperative learning could address some of these factors because:

- it emphasised the development of social skills which enabled the children to participate
- it encouraged the development of good quality relationships with other pupils and also with the teacher
- working with their peers allowed the children to learn from each other
- having a role which was essential to the whole group gave them a sense of worth and achievement.
- outcomes (both social and academic) were clear.

One headteacher indicated that talking with others about what they were learning encouraged pupils to think about what they knew and what they wanted to learn.

The benefits of cooperative learning were expressed more strongly in terms of developing social skills and developing the whole child's self-esteem and confidence and increasing motivation; it was believed that these should all contribute to better learning for the children. The importance of learning together and helping each other was emphasised, though the importance of dialogue and discussion as part of that process, a factor that is highlighted in research literature, was mentioned less frequently.

4.2.2 Social skills, citizenship understandings, involvement in learning

All school interviewees were strongly in agreement that cooperative learning was achieving the aim of developing social skills. Both management and teachers indicated that they had always focused on social skills but that cooperative learning had made this explicit. Although some pupils did not work well together, this was addressed as part of cooperative learning. In one of the primary schools it was noted that benefits could be seen across the whole school and in the playground. There was a sense of respect and the pupils were solving problems for themselves. *'In situations where they would have become physical they now talk about it. Enabling them to stop and talk before raising the fist is fantastic.'* It was recognised, however, that it was difficult to maintain that behaviour outside school if the environment they came from did not respect the same skills.

In the teacher survey, the following items were given the highest ratings (1-5 scale):

	mean score
• learning as part of a group	4.16
• ability to work in partnership and teams	4.12
• willingness to participate	3.92
• ability to relate to others	3.91
• improved inter-group relationships	3.84

The charts on page 22 display the responses from the S1 pupils who were surveyed in 2006/07 across the themes of social skills, learning and motivation. The percentage agreeing with each statement is given and these illustrate the relative importance given to the benefits of cooperative learning by the pupils.

It is clear that the pupils agreed that the skills of working with others and encouraging others were gained through cooperative learning, though they were more ambivalent about learning to be nice to others. Comparison with the data gathered in 2004 shows that the responses for the S1 pupils remained much the same over time (see Appendix I for 2004 data). However, in 2004 the findings were that, while 70% of primary pupils and 68% of S1 pupils thought that cooperative learning helped them to be nice to others, only 46% of S5/6 pupils thought this. This relates to views reported in section 3 (p14): the older pupils thought that their skills were already well developed and perhaps 'being nice to each other' was not a priority at this stage of learning.

During interviews and in the teacher reports of 'benefits and successes' at the Recall Days, the development of confidence and self-esteem was a recurrent theme. Having responsibility and a clear role made children feel important, but ensuring they had a role in which they could be successful enhanced confidence – *'everyone achieves and feels good about themselves, not just the more able children'*. Taking on the role of reporter, for example, and being asked to respond on behalf of the group at any time, also increased confidence. The social attitude of respect for each other and 'no put downs' created an environment where pupils could contribute without fear of making mistakes. During the focus groups, the pupils also talked of increased confidence, particularly in relation to being able to 'make friends' and getting to know new people, which could be when making the transition to high school or on holiday.

In the teacher survey, respondents were largely in agreement that cooperative learning contributed to a number of indicators of confident individuals as defined in *A Curriculum for Excellence* (see Table G10 in Appendix G).

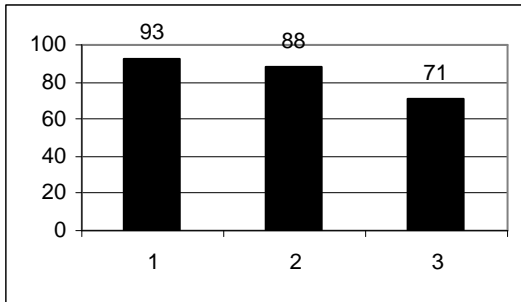
Citizenship understandings may be taken to include the understanding by the pupils that they are part of a community and this is addressed in section 4.3. In the teacher survey there was broad agreement that cooperative learning contributed to developing values associated with being a 'responsible citizen' (see Table G11 in Appendix G).

Involvement in learning can be considered from two perspectives for pupils: firstly, engagement in the classroom in the learning activities and learning along with other pupils and, secondly, greater awareness of strategies for learning, the ability to monitor their own learning and to assess the quality of their own output achievements – or 'self-regulated' learning.

As noted above in relation to social skills, learning together is one of the most appreciated aspects of cooperative learning by both teachers and pupils. During interviews and in open comments, teachers emphasised that the task structure and different roles for pupils ensured that all pupils took part; teachers spoke of more on-task behaviour and less disruption (although working with some classes of difficult pupils has also been noted). In the teacher survey, 60% of respondents indicated that 'more on-task behaviour' was evident or very evident.

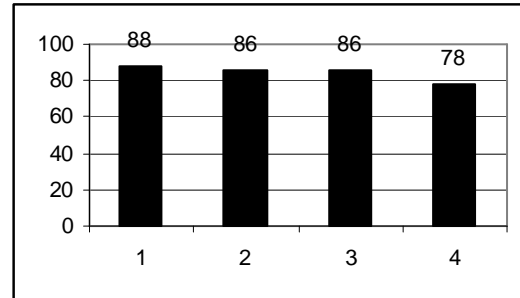
There was also general agreement that cooperative learning was contributing to a range of indicators identified as features of successful learners in *A Curriculum for Excellence* (see Table G9 in Appendix G). In particular, 75% thought that they had observed fairly high and high progress in pupils' enthusiasm for learning because of cooperative learning.

Chart 4.2: Pupils' views on social skills (percentage agreeing)



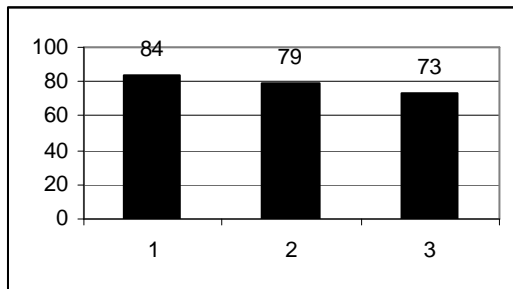
- Key: Cooperative learning ...
1. helps me to work with others
 2. helps me to encourage others
 3. teaches me how to be nice to everyone

Chart 4.3: Pupils' views on learning benefits (percentage agreeing)



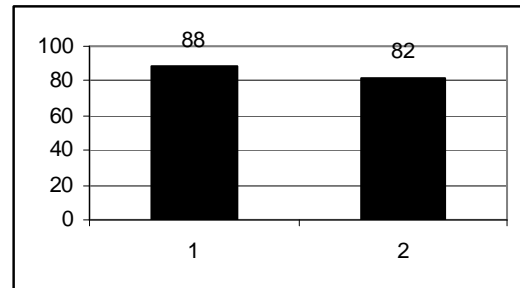
- Key: Cooperative learning ...
1. helps me work things out with the help of my friends without asking the teacher
 2. helps with hard work
 3. (helps with) problem solving because we share our ideas
 4. (helps me) understand things better

Chart 4.4: Pupils' views on 'self-regulated' learning (percentage agreeing)



- Key: When we do cooperative learning ...
1. I know when I have made a good contribution
 2. I learn what I could do better next time
 3. I am better at planning answers

Chart 4.5: Pupils' views on enjoyment of cooperative learning (percentage agreeing)



- Key:
1. I really look forward to cooperative learning
 2. I would like to do more cooperative learning

While still positive, fewer thought that progress had been made in thinking and learning independently (55% indicating fairly high or high progress) and in the ability to apply learning in new situations (47% indicating fairly high or high progress). Some teachers spoke of some younger children finding it difficult to work on their own after having worked cooperatively; others indicated that working together led to better individual work, for example in story-writing as they had shared and discussed ideas, or in giving solo talks. Generally the emphasis was that cooperative learning had to be balanced with individual work, so that pupils also learned to work on their own – an important ability for assessments and examinations.

The benefits of learning together were emphasised by the pupils in focus groups and in comments on their questionnaire about what they liked about cooperative learning. If 'stuck' they could rely on others for support, or if they did not understand something, for example in maths, 'someone else can work it out and maybe you can understand it their way'. Older pupils felt it was particularly useful in subjects where they were exploring different views.

The data from the S1 questionnaire (as illustrated in Charts 4.3 and 4.4 on page 22) suggest that the pupils were strongly in agreement about the benefits of working and learning together, although between a fifth and a quarter were slightly less sure of it helping them understand things better and in relation to knowing about their own learning.

4.2.3 Motivation

As indicators of improved motivation, school attendance and exclusion data were obtained from the local authority statistics service for the five schools which were the focus of the evaluation. However, it was difficult to identify any particular changes in these data. Two of the primary schools showed consistently higher attendance than the other, and in 2 of the schools attendances had shown slight increases at P5, P6 and P7. In one of those schools, however, one cohort was a particularly poor attending group notably different from those who preceded and those who followed. Both secondary schools showed improvement in attendance in S4, S5 and S6. The issue of attendance was discussed with senior management in each of the 5 schools. As with attainment data, it was felt that cooperative learning might contribute as part of a wider range of initiatives to address attendance. For some primary schools attendance was not a problematic issue.

Evidence of increased motivation in pupils was reported by school managers as being the enjoyment children displayed in working cooperatively and observing them as being busy and on task during lessons. In one of the secondary schools it was reported that when children were asked which subjects they liked they tended to talk about the ones where cooperative learning was well embedded. Teachers talked about similar signs of enjoyment, though a few thought that it did not motivate all children and that it did not always work. Feedback from the authority's Recall Days highlighted similar instances of increased enthusiasm for school.

As illustrated in Chart 4.5 on page 22, the majority of the S1 (2006) pupils looked forward to cooperative learning and wanted to do more. When compared with the S1 pupils in the 2004 survey, it appears that the later cohort is more positive about cooperative learning, especially in relation to looking forward to doing it – 88% compared to 65% agreeing (see Tables 15 and 16 in Appendix I).

4.2.4 Transition to secondary school

The S1 pupils who completed the questionnaire in 2006 were asked specifically about making the transition from primary to secondary schools. They had taken part in a range of activities organised by the schools to assist in transition and their views on these are reported in detail in Appendix H.

A direct question about whether they thought cooperative learning had helped during the time of changing school (answered only by those who had experienced cooperative learning) showed that 69% thought it had helped them, 10% thought it had not, and 18% did not know.

An open question about how cooperative learning had helped resulted in around 220 comments. These represented 4 themes: getting to know people (123 comments); improved confidence (40 comments); working with others (31 comments) and improved work (27 comments).

A selection of skills which cooperative learning should help develop was presented in the questionnaire and pupils were asked if they thought these skills were helpful in settling in to high school. Unsurprisingly, the skills perceived as being most helpful were getting to know people and getting on with other pupils, with three-quarters saying these were very helpful and almost all the remainder saying they were a little helpful. The responses as to what was **very helpful** were:

- getting to know people 75%
- getting on with other pupils 74%
- reaching agreement 52%
- asking for help 44%
- saying kind things 42%
- listening to everyone 40%
- resolving conflict 39%

For the most part, the others said that these things were a little helpful, though it is interesting to note that 10% thought 'saying kind things' was not helpful, 11% thought 'asking for help was not helpful' and 'resolving conflict' was not helpful. For some of the pupils there was a degree of uncertainty around the relevance and use of the skills (and at this stage possibly uncertainty about knowing how to resolve conflict, although P7 pupils had spoken about the skill of 'disagreeing agreeably'); however, in broad terms, cooperative learning was reported to be making a contribution in easing pupils' transition from primary to high school in the schools studied.

4.2.5 Gender differences

There were few differences in the responses between boys and girls. In relation to transition, girls were more likely than boys to agree that cooperative learning helped with 'getting to know people', 'getting on with other pupils' and 'saying kind things'.

	% indicating very helpful	
	girls	boys
• getting to know people	83%	70%
• getting on with other pupils	82%	67%
• saying kind things	49%	38%

Generally, both boys and girls have similar perceptions of the benefits of cooperative learning. At the transition stage girls may be more focused on developing relationships and applying social skills, which could explain the difference in the responses above.

In the data collected in 2004 it is interesting to note that at secondary school boys were more likely than girls to agree that cooperative learning helped them do better at school (82% compared with 67%) and that they wanted to do more cooperative learning (75% compared with 62%).

4.2.6 Parents' views

A small sample of 12 parents were interviewed by telephone. They had a total of 20 children across both primary and secondary schools. A number said initially that they did not know what cooperative learning was and had not received information from the school, but when the interviewer explained, most could recount instances of their children talking about it.

The parents were positive about these experiences, for example, in helping shy children take part, developing self-esteem, reassurance about learning and pupils being able to support each other. The only reservation was that very young children might find it unsettling if they move from group to group. They all agreed about the importance of being able to work cooperatively and that it was important to learn this in school.

The parents' words speak for themselves:

'My little girl has got a lot out of it. She's been involved in classroom discussions and has actually now spoken solo. She used to be really shy and wouldn't talk at all in the classroom, but she now contributes to these discussions. She used to hate group work but the teacher has really encouraged her and she's now quite confident' (parent of primary pupil).

'I have seen my eldest son going to [school] a nervous wreck and he's now a completely different person because the school picked up on it [on his low self-esteem] and put him into lots of different projects and linked him up with others and put him in different groups and he's really come out of himself. I think the school has done that with others too – sussed out which children have low esteem and involved them and brought them out of themselves' (parent of secondary pupil).

'It enables them to share different experiences. I know that my daughter finds it reassuring that other kids sometimes experience difficulties with the same things she does. I think it helps them to know that others don't always find it easy either' (parent of primary pupil).

'And now that they're revising I think working together is helpful because they can support one another and share information. I think it's helpful for kids like R who tend to hold back when in a group and it encourages them to speak and take part more' (parent of secondary pupil).

4.3 Impact on the school community

One of the aims for the cooperative learning initiative is to develop and promote the school as a learning community with a positive and inclusive ethos. This includes the open, learning environment referred to in section 3.5 (p16) which was put forward as representing the conditions required to allow cooperative learning to be successful.

In the teacher interviews, most reported that their schools already had a positive and inclusive ethos and this enabled cooperative learning to fit in.

The school managers agreed that cooperative learning contributed to the development of a learning community with a positive ethos. They agreed with the teachers that it was important that such an ethos was already part of the school culture and in that context cooperative learning would *'find a home'*. However, many aspects of cooperative learning continued to build the sense of community. Cooperative learning:

- emphasised that everyone was part of a team; positive interdependence was essential; everyone was needed
- made children more aware of the need to support each other and that to succeed they needed to work together
- emphasised that behaviour learned was not just for the classroom but for the whole school
- meant that children with additional support needs could be given a role and that role was just as important as any other for success.

In open comments on the questionnaire and in feedback from the authority's Recall Days evaluations on 'benefits and successes', teachers refer to the fact that pupils with additional support needs can be given a role which includes them and allows them to contribute equally.

In the case study of Pentland Primary and Fallside High School (schools with specialist provision for pupils with social, emotional and behavioural difficulties), it is noted that cooperative learning has been used on a whole-school basis (or is planned to be used) as the class sizes are small. In Pentland school it is considered that cooperative learning has contributed to maintaining 'a happy and secure family ethos'.

In the survey, teachers were asked to indicate the extent to which they had observed that cooperative learning had led to improved integration of special needs students (on a 5-point scale where 1 = not observed; 5 = this is very evident). The small number of special needs teachers in the sample were positive about integration, with 10 out of 13 rating towards the positive end of the scale.

Primary teachers were more positive than secondary teachers:

Rating	Primary	Secondary
• 1 & 2	18%	30%
• 3	28%	35%
• 4 & 5	54%	35%

However, many were still reporting that there was evidence of benefits in relation to inclusion and integration of special needs learners.

Findings from the survey about the use of cooperative learning approaches within the wider school community and the extent to which this was encouraging more collaborative working have already been reported in section 3.2 (p11). In summary, respondents were less positive about the benefits to the whole school compared to the benefits to teachers and pupils. While over a third indicated that cooperative learning approaches were in use more generally within schools and were encouraging more collaborative working, at the other end of the scale over a third indicated that these were not true of their schools. Additionally, in secondary schools, almost a half indicated that cooperative learning was not encouraging collaboration across departments and subjects. While the schools

which were the focus of the evaluation study presented themselves as learning communities with a positive and inclusive ethos, data from the teacher survey indicate that in the wider authority this is a 'work in progress'.

4.4 Summary

The teachers who responded to the survey and the majority of those interviewed were positive about the effects of cooperative learning on their own teaching practice and their enthusiasm for teaching. They reported enhanced capacity through acquiring more teaching skills, better classroom management and a better knowledge of pupils.

The main benefits to pupils were reported in terms of development of social skills and the opportunity to develop confidence and self-esteem. The specific focus on social skills with clearly stated social skills outcomes was seen as a strength of the model of cooperative learning used by North Lanarkshire. Although important, there was less focus on raising attainment in terms of improved national assessment scores and examination results. It was considered that cooperative learning would contribute to these along with other measures.

Involvement in learning is enhanced through the structured group working approach provided by the social interdependence model. Learning together was one of the most highly rated benefits of cooperative learning by both teachers and pupils. It is less clear that pupils were becoming more aware of their own learning processes which might emerge from pupil and teacher dialogue. As these are features of teaching and learning which have been highlighted through other approaches to change, such as formative assessment, there is potential for greater emphasis to be given to this.

In interviews and in the local authority training evaluation data, teachers reported evidence of an increased motivation in pupils, which is supported by the finding that the majority of S1 pupils look forward to cooperative learning lessons and want to do more. Nevertheless, school attendance and exclusion data, as indicators of improved motivation, did not show any particular changes. As with attainment, cooperative learning is considered to contribute to addressing attendance as part of a wider range of initiatives.

According to the pupils who were asked, the social skills they had developed as part of cooperative learning were very helpful when they moved from primary to secondary.

Cooperative learning appeared to be equally appreciated by boys and girls, with no substantial differences emerging in the data from pupils or in the views expressed in focus groups. At the transition stage, girls were more likely than boys to say that some of the social skills had helped them when they moved to high school, but that may reflect more on what is important to them at transition rather than on cooperative learning. In data collected in 2004, boys were more likely to say that they looked forward to cooperative learning than girls and that it helped them do better at school.

The small sample of parents interviewed was positive about the benefits to the children from cooperative learning.

The perceived benefits with respect to cooperative learning enhancing the school community by encouraging a more inclusive and positive ethos were less reported than the benefits to teachers and pupils. This may be because, as in the case of the 5 schools that were the specific focus of the evaluation, it was felt that schools already had a positive and inclusive ethos to which cooperative learning certainly added. However, a number of respondents to the survey indicated that cooperative learning approaches were not used in the school for wider school activities, indicating that this was still a work in progress.

Although views are largely positive, amongst the teachers interviewed there was a small core whose conversation followed the line that cooperative learning was not new, they had always been doing it, you pick out bits that suit you, it doesn't suit all children and hasn't made much difference to teachers. It is perhaps important for the authority to investigate such views. These may not necessarily indicate cynicism or a reluctance to become involved, but rather that through other staff development opportunities teachers have developed a repertoire of skills that they find equally valuable.

5. Discussion

This section of the report discusses the findings in relation to the aims of the evaluation.

5.1 Describe the extent to which the five key aims of the North Lanarkshire Cooperative Learning Project have been met and other benefits that might emerge from the evaluation

and

5.3 Assess the overall impact of the cooperative learning approach on teachers, pupils and parents in the study schools

These two aims have been addressed in section 4.

It is evident that, in respect to the 5 schools selected by the authority for the focus of the evaluation, the 5 aims are largely being met. Although the process of introducing change in secondary schools is more complex and needs to be carried out over a longer timescale, there was clear evidence of management commitment to cooperative learning and to other current important curriculum developments. Teachers were generally enthusiastic about benefits to themselves in terms of developing new skills and enhanced motivation, though some felt that the approaches introduced through cooperative learning were not new. They were also positive about the benefits to pupils in terms of encouraging better learning through pupils working together, the specific focus on social skills which was very important where some of the skills were not encouraged outwith the school community, and in pupils' enjoyment of learning. Although important, there was less focus on raising attainment in terms of improved national assessment scores and examination results. It was considered that cooperative learning would contribute to these along with other measures. The evidence from the small number of parents who were interviewed showed that they were supportive of cooperative learning and some reported observing changes (for the better) in their children because of it.

The evidence obtained from the wider teacher survey also showed that the respondents were largely positive about the benefits of cooperative learning, with an indication that the approaches it encourages contribute to the development of the 4 capacities of *A Curriculum for Excellence*.

There were indications, however, that up to a third of the respondents were not experiencing the benefits in a wider school context, with some indicating that it seemed to be low priority and that there was a need for it to be included in the school policy. This suggests that some schools have not shown the same commitment as the 5 study schools. However, it is not possible to comment on the wider implementation within the authority beyond these suggestions from the survey. This was not part of the remit of the evaluation.

5.2 Identify strengths and any gaps in the support available to teachers using cooperative learning activities

This aim is addressed in section 3 of this report.

Research reported in Appendix K (Gillies, 2004) shows that commitment to systematic training and support by authorities and schools leads to more effective implementation of cooperative learning, resulting in teachers using structured groups with improved learning outcomes for pupils. Thus North Lanarkshire's commitment to offer training to all who want it over a period of years can be seen as a strength.

Based on the feedback of participants, the 3-day Academy training was highly valued and provided important strategies for managing cooperative group work and developing social skills. Teachers reported the benefits of attendance at Recall Days as they provided the opportunity to share experiences and learn from others. However, only around half of the respondents to the survey had had this opportunity and a number expressed the wish to attend. It is important that schools and the authority ensure that teachers have the opportunity to participate in these events.

Teachers emphasised that they would like more time to network with other teachers in both their own and other schools to benefit from peer support. Ensuring this happened was seen as a challenge by management, though it was recognised as a feature of the 'best' conditions for promoting cooperative learning practice. Such ongoing collegial support is emphasised as essential in the literature (Cohen, 1994).

The appointment of a team of development officers in 2006-2007 to support schools was appreciated by respondents and provided the opportunity for further support that teachers suggested they would like. The ongoing development of the local authority intranet would in time provide more sharing of examples of work and the opportunity to discuss both successes and challenges.

Teachers found the more specific cooperative learning principles of the social interdependence model more challenging to implement, although around half of survey respondents indicated that they were embedding the 5 principles most of the time. Revisiting these principles with staff and providing ongoing support in ways of incorporating them on a regular basis would be beneficial. This could be a focus for the continued professional dialogue referred to above and a particular focus for the work of the development officers.

Evidence from various data sources (survey, interviews and observations) indicates that the principles of positive interdependence, individual accountability and developing social skills have been embraced by cooperative learning practitioners. Talk around 'promotive interaction' tended to focus on the fact that children were working 'knee to knee' or 'eye to eye' and as a means of putting social skills into practice.

The aspect of promotive interaction which focuses on engaging in discussion and dialogue was less emphasised, and the practice of group processing, which should engage pupils in reflective and constructive conversations, was weaker. From the feedback on the 3-day Academy, it was not clear that teachers had developed an understanding of these aspects of promotive interaction and group processing. Research literature indicates that this is one of the most important aspects in helping learners to construct knowledge and gain understanding (see Appendix K, eg Bereiter, 2002; Brophy, 2002; Gillies & Boyle, 2005). The literature also indicates that it is something which teachers find more difficult to implement and that teachers benefit from additional training in monitoring the work of the groups, certain communication techniques such as appropriate questioning, and helping pupils ask questions for themselves (Veenman *et al*, 2000; Gillies & Boyle, 2005).

Such social constructivist approaches are, of course, not unique to cooperative learning and are fundamental features of many other current developments (when effectively implemented) such as formative assessment (under the auspices of the Assessment is for Learning Programme), critical thinking skills, creativity across the curriculum, enterprise in education, and the Harvard 'Teaching for Understanding' course, which some of North Lanarkshire's teachers have been undertaking as part of their CPD. The research suggests that it is the quality of dialogue and talk that leads to better learning and raised levels of attainment; therefore a stronger focus on this within cooperative learning training and ongoing support would be beneficial.

5.4 Identify any gender differences in relation to the impact of cooperative learning on pupils, including pupil attainment, social skills, participation and behaviour

Cooperative learning appeared to be equally appreciated by boys and girls, with no substantial differences emerging in the data from pupils or in the views expressed in focus groups. Only at the transition stage did some of the girls emphasise that some of the social skills had helped them when they moved to high school, but that may reflect more on what is important to them at transition rather than on cooperative learning. In data collected in 2004, boys were more likely to say that they looked forward to cooperative learning than girls and that it helped them do better at school.

5.5 Establish conditions that support effective implementation and embedding of cooperative learning principles

Conditions that support effective implementation and embedding of cooperative learning principles are those that support the introduction of any initiative or change in school contexts.

It is not possible here to review the extensive literature that exists on educational change. However, Priestley and Sime (2005) review relevant literature and highlight four factors which were associated with the effective implementation of formative assessment in a school as part of the Assessment is for Learning Programme. These factors are relevant to cooperative learning and parallel the 'best' school conditions suggested by school managers for the implementation and embedding of cooperative learning.

The first factor is proactive leadership, supported by the 'official weight' of the initiative. In the case of AiFL, the weight came from it being a national initiative supported by research evidence and also local authority support. In the case of North Lanarkshire's cooperative learning, 'official weight' comes from the authority, its commitment and the underlying philosophy of the policy, *Raising Achievement for All*. Proactive leadership in the main 5 schools was evident from their willingness to be trained, to put cooperative learning into practice in their own teaching and in supporting teachers through the provision of training and materials.

The second factor is professional trust. Teachers need to be trusted to adapt teaching in the light of their own experience. In line with Leat and Higgins (referred to in section 2, p5), pedagogical strategies are introduced and teachers build them into their practice, rather than providing them with a large curriculum package to be delivered to the letter. This links to Priestley and Sime's fourth factor: starting small. Approaches or strategies that teachers can apply immediately in their classroom and see the benefits (Leat and Higgins 'powerful pedagogical strategies') are important. These benefits lead to teachers reflecting and adapting their approaches to learning and engaging in greater depth with the underlying principles.

Feedback in relation to cooperative learning indicates that teachers were given many strategies that were immediately usable in the classroom, providing them with the opportunity to introduce small changes. The authority indicated that it was important for teachers to be allowed to *'experiment with cooperative learning activities, in order to be able to internalise the working model and develop a framework in which cooperative learning is embedded'*. For those who engaged more deeply with the underlying principles there was enthusiasm to commit the time and effort required to prepare materials, organise roles and manage heterogeneous groups, all of which were seen to be time consuming. For both cooperative learning and formative assessment, the challenge is to ensure that teachers are engaging with the underlying principles and theories and the implications for teaching and learning and not just adopting a few strategies.

Priestley and Sime's third factor is essential to ensuring that the transformation takes place: the creation of spaces for collaboration. This allows for constructive dialogue amongst teachers – allowing them to engage in the social constructivist paradigm of learning promoted as beneficial for pupils within cooperative learning. Creating space and time for teachers to discuss and network was seen both as essential and as a challenge by the school managers in the schools studied.

Thus, in summary, conditions that support effective implementation and embedding of cooperative learning are:

- weight of local authority commitment and links to underlying philosophy supported by policy
- proactive and committed leadership in schools
- teachers engaged by effective strategies which are seen as beneficial in the classroom
- initial training and ongoing development which engage teachers with underlying theories and principles and lead them to develop *'a conceptual system and use it to adapt current lessons and activities into cooperative ones'* (Johnson *et al*, 2000)
- collaborative spaces and networking which allows teachers to share ideas and learn together.

References (including those in Appendix J)

- Barnes D & Todd F (1977) *Communication and Learning in Small Groups*. London: Routledge & Kegan Paul
- Bereiter C (2002) *Education and Mind in the Knowledge Age*. Mahwah, New Jersey: Lawrence Erlbaum Associates
- Brophy J (2002) *Social Constructivist Teaching: Affordances and Constraints*. Oxford: Elsevier Science Ltd
- Cohen E G (1994) Restructuring the classroom: conditions for productive small groups *Review of Educational Research* 64, 1-35
- Gillies R M & Boyle M (2005) Teachers' scaffolding behaviours during cooperative learning *Asia-Pacific Journal of Teacher Education* 33 (3) 243-259 (summary accessed at www.standards.dfes.gov.uk/research)
- Gillies R M (2004) The effects of cooperative learning on junior high school students during small group learning *Learning and Instruction* 14, 97-213
- Hijzen D, Boekaerts M & Vedder P (2006) The relationship between the quality of cooperative learning, students' goal preferences, and perceptions of contextual factors in the classroom *Scandinavian Journal of Psychology* 47, 9-21
- Johnson D W & Johnson R T (2006) *Where we have been: theoretical roots* (extract from paper presented at 'Creating a Community of Learners', North Lanarkshire Conference on Cooperative Learning, SECC, October 2006
- Johnson D W & Johnston R T (1994) *Learning together and alone: cooperative, competitive and individualistic learning* 4th edition Boston: Allyn & Bacon
- Johnson D W & Johnson R T (1989) *Cooperation and Competition: theory and research* Edina: Interaction Book Company
- Johnson D W, Johnson R T & Stanne M B (2000) *Cooperative Learning Methods: a Meta-Analysis* (sourced at www.co-operation.org)
- Joyce B & Showers B (1995) *Student Achievement through Staff Development: fundamentals of school renewal* New York: Longman
- Leat D & Higgins S (2002) The role of powerful pedagogical strategies in curriculum development *The Curriculum Journal* 13 (1) 71
- Mercer N (1996) The quality of talk in children's collaborative activity in the classroom, *Learning and Instruction*, 6, 359-377
- North Lanarkshire Education Department (1998) *Raising Achievement for All: Report by Director*
- Priestley M & Sime D (2005) Formative Assessment for All: A whole-school approach to pedagogic change *The Curriculum Journal* 16 (4) 475-492
- Slavin R E (1995) *Cooperative Learning: theory, research and practice* Boston: Allyn & Bacon
- Slavin R E (1996) Research on Cooperative Learning and Achievement: What We Know, What We Need to Know *Contemporary Educational Psychology* 21, 43-69
- Slavin R E & Cooper R (1999) Improving Intergroup Relations: Lessons Learned From Cooperative Learning Programmes *Journal of Social Issues* 55 (4) 647-663
- Veenman S, Kenter B & Post K (2000) Cooperative Learning in Dutch Primary Classrooms *Educational Studies* 26 (3) 21-320
- Webb N (1992) Testing a theoretical model of student interaction and learning in small groups. In R Hertz-Lazarowitz & N Miller (eds) *Interaction in cooperative groups* (102-119) Cambridge, UK: Cambridge University Press
- Webb N & Farivar S (1994) Promoting helping behaviour in cooperative small groups in middle school mathematics *American Educational Research Journal* 31, 369-395