



## Teachers' reflections on cooperative learning: Issues of implementation

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### ABSTRACT

Cooperative learning (CL) is a well documented pedagogical practice that promotes academic achievement and socialization, yet many teachers struggle with implementing it in their classes. This study reports on the perceptions of 10, middle-year teachers who implemented cooperative learning in a unit of work across two school terms. Data from the interviews indicated that while the teachers had positive experiences with CL, a number encountered difficulties with implementing it in their classrooms. Issues identified included students socializing during group activities and not working, managing time effectively, and the preparation required. Other issues that the teachers identified as being important for successful group work included the composition of the groups, the task the group was to undertake, the social skills training needed, and the assessment of the learning that occurred in the group.

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### 1. Introduction

Cooperative learning is a pedagogical practice that has attracted much attention over the last three decades because of a large body of research that indicates students gain both academically and socially when they have opportunities to interact with others to accomplish shared goals (Johnson & Johnson, 2002; Lou et al., 1996; Slavin, 1996). Through interaction students learn to interrogate issues, share ideas, clarify differences, and construct new understandings (Mercer, Wegerif, & Dawes, 1999; Webb & Mastergeorge, 2003). In so doing, they learn to use language to explain new experiences and realities which, in turn, help them to construct new ways of thinking and feeling (Barnes, 1969; Mercer, 1996). Moreover, when students work cooperatively together, they show increased participation in group discussions, demonstrate a more sophisticated level of discourse, engage in fewer interruptions when others speak, and provide more intellectually valuable contributions (Gillies, 2006; Webb & Farivar, 1999). By working cooperatively, students develop an understanding of the unanimity of purpose of the group and the need to help and support each other's learning which, in turn, motivates them to provide information, prompts, reminders, and encouragement to others' requests for help or perceived need for help (Gillies, 2003a; Gillies & Ashman, 1998).

### 2. Issues with implementing cooperative learning

There is no denying that social interaction plays a major role in how children learn (Gillies, 2003b; Webb, 1992), yet, in many

classrooms, students are often the passive recipients of knowledge rather than being active in its creation. This, in part, may be due to teachers' propensity to talk at students who are required to listen and respond, often just reiterating information provided earlier by the teacher (Galton, Hargreaves, Comber, Wall, & Pell, 1999). Moreover, Galton et al. observed that children are rarely asked challenging questions where they are required to think about the issues and provide reasons for their responses. This is a concern because Kuhn, Shaw, and Felton (1997) found that when students engage in thinking about a topic through dyadic interaction, it enhances the quality of reasoning about that topic. In fact, Zuckerman, Chudinova, and Khavkin (1998) argued that teachers have the ability to enhance and shape children's questioning by providing responses that encourage ongoing interest in the topic at hand.

Unfortunately, students are often placed in classroom situations where they have little opportunities to reap the benefits from interacting with others. In a study of classroom grouping practices in the UK, Baines, Blatchford, and Kutnick (2003) found that elementary children rarely worked together in cooperative groups despite being seated in small groups. Most children worked individually or under the direction of an adult attached to their group. By secondary school, students either worked in dyads or in groups of 11 or more members with little control over group size, the way they were to interact, or the task they were to complete. Grouping practices were aimed at maintaining control and on-task attention and maximising individual and teacher directed learning. In short, Baines et al. suggested that cooperative learning is not widely used as a practice to facilitate student interaction and learning.

Similarly, Race and Powell (2000), in a study of students' perceptions of classroom methods and activities, reported a decline in the use of cooperative learning in mathematics and science

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instruction from Grades 3 to 8. Furthermore, the students' perceptions compared well with the attitudes of the teachers; that is, teachers in the higher grades expressed a less favourable attitude towards cooperative learning than their peers in the lower grades and students' performance levels tended to mirror the decline in their perspectives.

In a study that examined the prevalence, conceptualisation, and form of cooperative learning used by elementary teachers in the US, Antil, Jenkins, Wayne, and Vadsay (1998) found that few were employing recognised forms of cooperative learning in their classrooms although all had indicated that they had daily cooperative lessons in several subjects. Similar observations have been made by Gillies (2003b) about teachers' grouping practices in Australian schools.

### 2.1. Challenges teachers confront

A reluctance to embrace cooperative learning may be partly due to the challenge it poses to teachers' control of the channels of communication, the demands it places on curriculum organization, and the personal commitment teachers need to make to sustain their efforts (Kohn, 1992). It may also be due to a lack of understanding of how to use this pedagogical practice in their classrooms. Gillies (2008), in a study of junior high school students' performance on a science-based learning activity, found that students performed better in those schools where teachers had been trained in how to establish cooperative learning activities in their curricula and students had been provided with opportunities to participate in these activities on a regular basis than in those schools where teachers had not been trained. It is important that teachers understand how to embed cooperative learning into the classroom curricula to foster open communication and engagement between teachers and students, promote cooperative investigation, problem-solving and reasoning, and provide students with an environment where they feel supported and emotionally secure (Johnson & Johnson, 2003; Roseth, Johnson, & Johnson, 2008).

Certainly, Blatchford, Kutnick, Baines, and Galton (2003) recognised the difficulties teachers encounter in trying to introduce cooperative learning and argued strongly that if it is to be used successfully in classrooms, the context in which it is to be introduced needs to be prepared, students need to be taught the appropriate interactional skills, teachers need to be taught how to work with groups, and the lessons and tasks need to be well organized. Likewise, Hertz-Lazarowitz (2008) emphasises the importance of preparing the physical space for learning and teaching, ensuring the learning tasks are challenging and engage students in higher-order thinking, helping teachers to understand that they need to accept their role as producers of new classroom curricula and programs, and training students in the social and academic skills they will need to negotiate their new learning environments. In short, both Blatchford et al. and Hertz-Lazarowitz recognise the complexity and multidimensionality of small-group learning and the importance of preparing the environment and individuals if students, in turn, are to reap the benefits widely attributed to this approach to learning.

### 2.2. Purpose of the study

Given the well documented research on the social and academic benefits that students derive from working cooperatively and the apparent reluctance of teachers to implement this pedagogy in their classrooms, the purpose of this study is to report on the perceptions of 10 middle-year teachers who implemented cooperative learning in their classrooms. In particular, we wanted to

investigate their perceptions of how it worked and what were the difficulties they experienced.

## 3. Method

### 3.1. Context of the study

#### 3.1.1. Participants

The 10 teachers who agreed to participate in the interviews were from five different schools (all schools included middle-years' students, that is, students in Years 6–9 with ages ranging from 11 to 14 years) in Brisbane, Australia. Three of the teachers taught Year 6, three taught Year 7, and four taught Year 8. Two of the teachers were male and eight were female which is broadly representative of the ratio of male to female teachers in Australian schools. All the teachers were highly regarded by their teaching peers as being focused professionals, competent managers of their classes, and willing to implement strategies and ideas that enhance their teaching and students' learning.

The teachers were volunteers who had agreed to embed cooperative learning pedagogy into two units of work (4–6 weeks duration each), once a term for two school terms. Before the study began, all the teachers participated in a two-day workshop (2 weeks prior to the implementation of the study) to introduce them to the basic tenets of cooperative learning (Johnson & Johnson, 2003) that students would need to function effectively in small groups. These included establishing task interdependence; teaching the small-group skills needed to facilitate cooperation; designing activities to ensure individual accountability on the part of all group members; constructing complex tasks to promote engagement and thinking (Cohen, 1994), and designing assessment criteria and rubrics to measure students' learning (Gillies, 2007). In introducing cooperative learning to their classes, the teachers were also asked to follow the guidelines advocated by Wegerif, Mercer, and Dawes (1999) for establishing exploratory talk in groups. These included understanding that: all information is shared, the group seeks to reach agreement, the group accepts responsibility for its decisions, group members are expected to justify their positions by providing reasons, group members may challenge each other's perspectives, alternative ideas are discussed before decisions are made, and all group members are encouraged to contribute.

#### 3.1.2. Interviews

The participating teachers were interviewed individually by the second author following the completion of the second unit of work. The interviews were semi-structured (Freeboby, 2003) to enable each teacher to elaborate on the eight open questions that were posed (see Appendix 1 for list of questions). The questions were informed by previous studies undertaken by Baines, Blatchford, and Kutnick (2008) and Gillies (2008) and Gillies and Boyle (2006) that indicated that teachers did experience difficulties implementing cooperative learning. We were particularly interested in how the teachers dealt with these issues because we believe that this information is relevant to teachers' decisions to either implement or not implement this pedagogical approach in their classrooms.

Each interview was audio-taped and fully transcribed by a research assistant and checked for accuracy by each author. The transcribed interviews allowed us to identify recurring regularities in the data that we could use to identify meaningful categories (Guba, 1978). Coding and recoding took place where both of us reviewed and revised the data to ensure that the themes or categories that we identified were representative of the interview data.

## 4. Results and discussion

### 4.1. Teachers' perceptions of cooperative learning

We grouped the various themes that emerged from the interview data into six main themes that reflected issues that have been identified in the research on cooperative learning (CL): implementation (Baines et al., 2008; Gillies & Boyle, 2006), group composition (Lou et al., 1996), task construction (Cohen, 1994; Cohen, Lotan, Scarloss, & Arellano, 1999), student preparation (Blatchford, Baines, Rubie-Davies, Bassett, & Chowne, 2006; Johnson & Johnson, 1990), assessment (Black, Harrison, Lee, Marshall, & William, 2004, p. 8), and teachers' reflections on CL (Lopata, Miller, & Miller, 2003).

#### 4.1.1. Implementation

When the 10 teachers were asked to talk about their use of cooperative learning, all concurred that they had had positive experiences, both for the children and themselves. These included comments about the children getting to know each other better, accepting their group roles, learning to interact with each other, being willing to take some risks with their learning, and manage their time more effectively. Comments such as the following are typical of the responses the teachers made: "They've really gotten to know each other much better than they did" (T2); "One of the best things for me would be the way the kids get to know one another and relax a bit more ... I like cooperative learning because it gives a nice feel in the classroom and you can do a lot of stuff" (T6); "They (the children) are more willing to take some risks and they are happier to make a mistake. You can see them learning off each other" (T9); and, "The kids are quite responsive in that they now know that they've got a task, this amount of time, and they've got to knock it on the head and get it done". (T5)

The benefits the teachers perceived that they derived from using cooperative learning included that it helped them to better manage and structure their lessons and make them more challenging: "I really find the most positive aspect of it is my management side of things. The classroom tends to be a far happier and more enjoyable place for the students to be" (T7); "I do lots of group work anyway, but I didn't structure it very well and I now feel that I've got a much better idea of how to do that..." (T3); and, "You've got your learning skills up to more challenging learning ideas in a group... and that's been successful, there's no doubt about that". (T4)

As a consequence of these positive experiences, the teachers observed that not only did the children respond well to CL but the standard of the work generated was quite high: "*They (the kids) responded really well to CL and I was very happy about that*" (T3); "I think that the standard of work produced is quite high" (T5); "I think I was probably pleasantly surprised at how much they were able to put down in the activities and how much they got involved with it" (T8); and, "It turned out a brilliant success" (T10). Certainly, research indicates that when CL is well structured so that students understand how they are to work together to achieve their group's goal, students benefit socially and academically from their small-group experience (Johnson & Johnson, 2002, 2003; Lou et al., 1996; Slavin, 1996).

However, while many of the teachers' comments about the use of CL were positive, we thought it was also important to explore the difficulties they had encountered with implementing it in their classrooms because their perceptions may help us to understand why it is not implemented widely or consistently (Baines et al., 2008). When asked specifically about the difficulties in implementing CL, the teachers' comments covered points such as socializing; "(There's) usually more socializing than working..." (T1), time management issues; "The time involved is reasonably

difficult" (T3) and, the organization required; "There's a lot of input from the teacher required"; and, "There's a lot of work in finding suitable tasks, printing up roles, and finding good resources...". (T5). Additionally, two teachers commented on the difficulties children have in adjusting to group work: "Well, I think with any group task the difficulty is getting them to listen to the teacher...". (T9) and, "just a few difficulties in the beginning, because you've got to change their whole way of thinking and how they've done things for years. It's a whole new mindset for them". (T10).

There is no doubt that CL requires careful preparation and implementation because teachers need to ensure that the key elements for successful group work are established. These include ensuring that tasks are constructed so that students understand that they are not only required to complete their part of the work but to ensure others do likewise. The technical term for this dual responsibility is "positive interdependence" and it is the most important element in CL (Johnson & Johnson, 1990). Other key elements that are critical to the effective implementation of CL include: promoting each other's learning, accepting responsibility for contributing to the group's efforts or task, demonstrating the interpersonal and small-group skills needed to resolve conflicts, and monitoring and reviewing the group's progress (Johnson & Johnson, 2003). When groups are structured so these key elements are in place, students are more likely to work cooperatively to help and promote each other's learning (Gillies & Ashman, 1996, 1998). Moreover, students in structured groups are more task focused, provide more detailed explanations to each other to assist each other's understanding, use language that is more cognitively challenging, and attain higher learning outcomes (Gillies, 2003a, 2004; Webb et al., 2009).

#### 4.1.2. Group composition

The teachers reported that they used a variety of strategies to form small groups. These included: mixed gender; "...tried for a balance of girls and boys... but we use a variety of grouping" (T1); random; "We had some that were random, some that were boy/girl, and some that were based on ability" (T2); or, friendship-based; "Sometimes they're friendship groups and they go with whoever they want to" (T4) while others used a combination of strategies; "Sometimes random, sometimes friendship..." (T5). Additionally, two teachers commented specifically on the size of the groups: "We stuck rigidly to groups of 4 wherever possible... and tried mixed gender groups of 2 boys and 2 girls" (T7); "...one of the biggest things was four in a group instead of six and it works brilliantly, absolutely brilliantly". (T10)

Constructing groups so that students work well together can be difficult, however, the research does provide some insights on group composition and group size with gender composition being an issue that warrants consideration. Webb (1991), in a study on student interactions during small-group mathematics lessons, found that when boys outnumbered the girls, they tended to interact with each other more and ignore the girl. In contrast, in groups where there were more girls than boys, the girls spent more time trying to involve the boy in the discussions to the detriment of their own interactions. In both these groups, the boys outperformed the girls even though the boys and girls did not differ in initial ability. However, when groups were gender-balanced, boys and girls were equally interactive and there were no differences in achievement outcomes. In short, the gender composition of the group appears to be an issue that warrants attention.

Another issue to consider in group composition is the role friendship plays in promoting group interactions. Certainly there is evidence that students who know and like each other benefit most from working together as they tend to accept more responsibility for their learning and are more motivated to achieve their goals

than students who are not friends (Abrami, Chambers, Poulsen, DeSimone, & Howden, 1995). Similarly, Strough, Swenson, and Cheng (2001) found that students who worked in same-gender dyads on a creative writing task reported a greater sense of affiliation, influence, and enjoyment than students in mixed gender ones. Furthermore, the more students perceived they were able to influence each other, the better their task performance. Interestingly, although friendship was beneficial for performance earlier in the task, it was detrimental later in terms of the errors the students made as they worked collaboratively together. In short, the evidence on the role of friendship groupings is equivocal and needs further investigation.

The research on group size and ability composition is clearer with Lou et al. (1996) reporting in a meta-analysis of 66 studies on small-group work that students learned better in small groups of three or four members. Furthermore, students, generally, performed better in mixed-ability groups, although medium-ability students appeared to perform better in same-ability groups. Follow-up research on group size by Lou, Abrami, and d'Apollonia (2001) found that students achieved more when they worked in pairs rather than groups of 3–5 students while Webb, Nemer, Chizhik, and Sugrue (1998) reported that low-ability students benefited from working in groups with students of medium- or above average ability. Moreover, contrary to previous findings that medium-ability students may participate less, Webb et al. found that medium-ability students actively participated in the group discussions learned more, and it was this participation and, in particular, the explanations that students provided that contributed to their enhanced achievement scores.

#### 4.1.3. Task construction

The teachers also raised issues about the task the children undertook with a number of the teachers commenting on the importance of having tasks that were motivating, "If they like the subject they are doing you don't have a problem. Everybody gets enthused". (T4); open-ended, "I think the group board game one was the first big activity that they had to do ... I think it was open-ended enough to allow the kids to put in their own ideas" (T1); enquiry-based, "We set up a scenario.... Those sorts of enquiry things work well in group work.... And then in their groups they had to put forward their solution and then they did a group presentation – a drama presentation" (T3), and involved student choice, "They get to choose what is the preferred project" (T7). Additionally, the teachers mentioned that the children needed to share the task and accept different roles, and engage in democratic decision making; "Once they are together in that group.... they decide who gets to speak and when, and how to respond to a person's comment without being offensive, having warm feedback rather than cool feedback and so on. And then they democratically choose what is going to be the preferred project and then the large task is looked at and broken into sub-tasks" (T7); "I guess giving them different roles in the groups". (T9)

There is no doubt that group tasks have the potential to affect the way group members interact with each other. Cohen (1994) found that when students are required to work on tasks where there are set answers or procedures to follow (e.g., computational assignments or those requiring basic recall of information), student interactions are minimal as they are only required to provide answers, exchange information, or request assistance. In contrast, when students work on tasks that are open and discovery-based where there are no set or correct answers, they learn that they must share ideas and information if they are to solve the problem at hand. In fact, Cohen and her colleagues (Cohen et al., 1999) have consistently found that it is the frequency of task-related interactions that is related to follow-up gains on content-referenced tests

and conceptual development in mathematical and computational tasks. Similarly, Gillies and Ashman (1998) reported that task-related interactions facilitated learning among elementary children who worked in cooperative groups on discovery-based tasks. In short, the type of task appears to determine how group members interact and it is the interaction that occurs that is positively correlated with achievement gains.

#### 4.1.4. Student preparation

All the teachers concurred that students needed to be prepared or taught to work cooperatively together. For some teachers, this involved explicitly teaching the skills that facilitate cooperation. These included skills such as identifying the characteristics of successful groups: "The first thing that we did was look at successful groups and talk about ... what they look like, sound like. How to encourage others to talk and have a voice" (T5); teaching specific interpersonal skills: "You have to do them (skills) early in the year. Annette and I did some things like whoever has the little toy monkey in their possession, they are the only one that talks, and things like that. So, I think it's a skill to teach the kids to listen to the other person and not speak over them, wait for their time to talk, a bit of positive affirmation and things like that. Groups are always talkative so it would be good to learn that if you are talking and listening in more of a structured way of talking and getting your information across to your small group" (T9) and, dealing with conflict: "We did a lot of stuff before they started. Like, saying if someone's not contributing, how can you include them more. Or, if someone's overtaking the group, how can you spread it out and why some of the roles are needed so that everyone contributes and the work gets done on time. And then at the end, with the feedback, checking on how everything worked or did you find positive ways of handling disagreements and stuff like that". (T6).

Another teacher commented: "I think there needs to be a balance. There are certain things that need to be explicitly taught. So if you want a group to work in a manner that is genuinely cooperative, you will need to explicitly teach the skills that go with it. You've got to put aside the time to teach the skills of being cooperative before the learning can take place". (T7)

In contrast, T1 reported that she did not teach them (skills) explicitly, but noted: "...We did talk about it (the skill) and I got them to give me examples of how they might do it. But I did not teach the language of it or role play it. I didn't go that far ... just reminding them of our own social skills that they learn along with the school rules, like, looking at the speaker, taking turns and staying with the group. They were already familiar with those so it was just a matter of reinforcing them and letting them know that that was going to help with the group work". In short, all teachers reported that they, either explicitly or implicitly, prepared the students for their small-group experiences.

Teaching children the interpersonal and small-group skills that facilitate cooperation in groups is critical to the success of these groups (Blatchford et al., 2006; Johnson & Johnson, 1990). Gillies and Ashman (1996, 1998) found when students worked in groups where they were trained to cooperate, the students demonstrated more on-task behaviour, gave more detailed explanations and assistance to each other, and obtained higher learning outcomes than their untrained peers. In fact, many of the skills the teachers taught the students as part of the preparation for group work were similar to those advocated by Wegerif et al. (1999) who proposed that social interaction and reasoning is enhanced during small-group work when:

1. all relevant information is shared;
2. the group seeks to reach agreement;
3. the group takes responsibility for its decisions;

4. reasons are expected;
5. challenges are expected;
6. alternatives are discussed before decisions are made; and,
7. group members are encouraged to speak.

In fact, training students in those social skills that facilitate group communication is accepted as a basic tenet of CL (Johnson & Johnson, 2003; Slavin, 1996). However, because of the time and planning teachers need to invest in teaching these skills, they are often neglected or taught on an ad hoc basis (Gillies, 2003b; 2008; Webb, 2009).

#### 4.1.5. Assessment

All the teachers concurred that assessing the outcomes of group learning were important but teachers differed in the way they managed the assessments. Two teachers reported that they conducted informal assessments. For example, Teacher 3 commented that: “I have been looking at things like assessing how they're going in the group but that's not really formal assessment” while Teacher 5 reported: “I know that I have anecdotal evidence just by wandering around and seeing who is on task and who is progressing correctly and if they are reporting back to the class and if what they have done satisfies me”.

Other types of assessments that the teachers undertook included getting the children to complete some self-evaluations such as responses to specific questions or writing learning logs of their experiences. For example, Teacher 1 noted: “Yes. I have done self-assessments with them at the end of term. Just with little images of a person either plodding along or walking or running or speeding ahead and there would be different categories of the curriculum areas. It might be how they responded in English, how they saw themselves achieving in maths or behaviour. So, it was more colouring in where they saw themselves, and again, I find that they are very honest with that”. However, Teacher 10 reported: “What we do too is every term we send home what we call a Learning Log ... that the kids can take it and talk about”.

Other forms of assessment that the teachers reported using included group presentations of work: “...our assessment can also include the presentation on the quality or the amount they researched” (T2) and group discussion with an individual assessment; “What we had done this last time was that there was an individual assessment piece. There might have been an initial component, like when we did the prac work, the first task of designing the experiments was group discussion, but the actual report had to be individual at the end. ... So, group sharing of ideas but totally individual writing up”. (T8)

On the other hand, some teachers reported that they had difficulties with assessing students' group work. Teacher 3, for example, noted; “I have done group assessment in the past ... It's always a problem because there's always someone who says they've done more work than the others. I have been looking at things like assessing how they're going in the group but that's not really formal assessment”. Teacher 9 also commented: “I think I can improve a lot. I've done no formal assessment as yet so maybe that could be one of my goals ... So maybe in the future I could start doing them as assessment but more of a project, a long term thing rather than short lessons because that's all I've really done so far”.

The teachers' approaches to assessing group learning varied widely with some teachers acknowledging that they were experiencing difficulties. Certainly, assessing students' achievements during their CL activities can be difficult but research indicates that there are many ways in which this task can be undertaken. For example, the types of assessments can include both formative and summative assessment which may include: curriculum-based assessments, criterion-references assessments, authentic

assessments (based on real-life tasks), case studies, portfolios (collections of exemplars of work), exhibitions of performance (group or individual presentations), and problem-based inquiries (see Gillies, 2007 for a complete list of these assessments). However, while these different types of assessments are often relevant to the group task (i.e., they are authentic tasks), concerns are raised about their contributions to students overall achievements.

In order to answer these concerns, Black and Wiliam (1998a), in a synthesis of the results of evidence on formative assessments published in more than 250 articles from a number of countries, concluded unequivocally that formative assessments do raise students' achievements overall across different ages and programs, including the achievements of low-achieving students. This improvement is attributed to the frequent use of feedback which helps students to understand what they need to do to successfully complete a task. Furthermore, when students are involved in the assessment process, they learn to monitor what they must do and learn and this enhances their own cognitive and metacognitive thinking about the issue at hand (Black & Wiliam, 1998b).

Feedback on students' performance is very important for student learning. Kluger and DeNisi (1996), in a comprehensive review of studies on feedback to students, found that feedback improved performance in the majority of these studies. Moreover, feedback that focuses on what needs to be done can encourage students to believe that they can improve if they are willing to invest in the effort required (Black et al., 2004, p. 8). Interestingly, Wiliam, Lee, Harrison, and Black (2004) found that when teachers take time to develop and use formative assessments, there was strong evidence of tangible benefits in terms of students' achievements on mandated standardized tests. Similarly, Engel, Pulley, and Rybinski (2003) found that the use of authentic assessment activities also helped students to do well on standardized tests. In short, while many teachers may express concern about the difficulties involved in developing and implementing assessment tasks that are authentic, there is evidence that they help students to improve their performances on both formative and summative assessment tasks.

#### 4.1.6. Teachers' reflections on CL

Given that all the teachers had had experience with implementing CL into a unit of work, once a term for two school terms, we asked them to elaborate on their experiences and how CL fitted in with the mix of strategies that they use in teaching. Interestingly, many of the comments the teachers made were predicated by observations about how well the children had responded to their CL experiences. These included: “...being positively engaged and not giving up” (T1), “...they're doing ... and able to use language specific to what we've covered ... but are also able to talk about it in a way that demonstrates an understanding not just a reiteration of what they've heard” (T4); and, “watching those kids going from gang-fighting lunch breaks to working harmoniously in class because they had a common goal really swung my view towards the value of cooperative learning, setting up groups where they were on task on something with a shared goal”. (T7).

These positive experiences appeared to reinforce teachers' perceptions of CL as a strategy that should be embedded in the curriculum: “I'm looking forward to doing it (cooperative learning) again without it all being new” (T2); “Yes, I was really happy (with CL)” (T.6); “I think it can be slotted in at some stage in nearly every key learning area whether it be part of the learning process or an assessment piece”(T9); and, “I know how it's going because the kids have loved their group work. I think they have had a good engaging year. I think they are into their learning. I think they have surprised themselves with what they can come up with in the short time span. So, I am satisfied that they are satisfied. I really think that I have learned a lot this year”. (T5)

Others, though, indicated that CL was a challenge: “I suppose it makes me think about the way I’m teaching” (T3) while Teacher 7 commented: “As a beginning teacher, I found that (CL) uncomfortable for the first couple of months but after trying that shared resources thing we spoke about earlier where it was the best way to get the most out of the stuff in the school, I started to enjoy it a bit more, especially when I saw the kids enjoy it and my management problems improved”.

Teacher 8 noted that she needed to be committed to using CL because, although she had some doubts about group work, she could see the potential groups had for helping children to think; “Well, next year I need to take it as a whole year approach not just an ad hoc bit here and there, probably give it a better go than I have in the past. I haven’t been a person who had a lot of faith in group work but I always like to reflect on where I’m going with my teaching and I think maybe I need to get the kids thinking a lot more and I think that they think a lot better in groups than they do with me up in front of the classroom. So I think I will use it next year”.

It is not surprising that some of the teachers reported being challenged by CL, given the complexity associated with implementing this strategy in a classroom. This complexity is illustrated by *Hertz-Lazarowitz (1992)* who proposed that the classroom comprises six-interactive dimensions, all of which are inter-related so that changes in one, affect changes in the others simultaneously. These dimensions are: The physical organization of the classroom, the learning task, the teacher’s instructional behaviour, the teacher’s communicative behaviour, students’ academic behaviour, and students’ social behaviour. In this context, although the teacher acts as “the guide on the side” (p. 77) to facilitate learning, she needs to remain cognizant of the effect the different dimensions have on each other.

When teachers choose to implement CL, they need to determine how the class will be organized (i.e., composition and size of groups), the type of task (i.e., level of complexity), the mode of instruction (i.e., direct teaching or small-group interaction), the patterns of communication (i.e., language needed to mediate learning), and the types of academic and social behaviours expected from the students (i.e., standards of performance and the specific interpersonal and small-group skills required). Given previous reference in this paper to the effects of group composition and size and type of task on student interactions and performance, it is not surprising that teachers may feel challenged by CL. Furthermore, given that teachers’ discourses in classrooms are critically important as they provide students with insights on how to think and respond (*Sternberg & Grigorenko, 2004*) while simultaneously, having the potential to scaffold and mediate students’ learning (*Gillies, 2004, 2006; Webb, 2009*), it is not surprising that some teachers are challenged by the sheer complexity of managing all the different dimensions of CL. This does not mean that they should desist from trying but, rather, it raises issues about the importance of providing teachers with opportunities for ongoing professional development in the application of CL in their classrooms.

*Lopata et al. (2003)*, in a survey of exemplary teachers’ actual and preferred use of CL, found that teachers are more likely to use CL when they have participated in staff development designed to provide them with the background knowledge and skills required to implement this approach to learning in their classrooms. Interestingly, *Gillies (2008)* found that students demonstrated more complex thinking and problem-solving skills, both in their discourse and follow-up learning outcomes, when their teachers had participated in professional development activities on how to establish CL in their classrooms. In short, both *Lopata et al.* and *Gillies* highlight the importance of training teachers in the knowledge and skills required to implement CL in their classrooms.

## 5. Summary and conclusion

This study reports on the perceptions of 10 middle-year teachers who implemented cooperative learning in their classrooms in a unit of work, once a term for two school terms. All the teachers spoke positively about their CL experiences, noting that the children responded well to their small-group experiences and that it helped them to better manage and structure their lessons. When asked about the difficulties they experienced, they reported concern with the socializing that occurred in the groups, time management, and the organization required to implement CL. Other issues that challenged the teachers included the composition of the group (e.g., gender, ability, friendship), and the type of task needed to motivate students. Interestingly, all teachers agreed that preparation needed to occur if students were to work successfully in groups and this included training students in the social skills, including how to manage conflict.

Assessing students’ work in small groups presented a challenge for some teachers with some teachers making informal assessments of students’ progress while others encouraged students to self-evaluate and reflect on their progress. Group presentations were also used as a way of assessing students’ work, however, a number of teachers acknowledged that they experienced difficulties with assessing students’ achievements.

Finally, while a number of teachers reflected positively on their experiences of CL and made the comment that it should be used more widely, others indicated it was a challenge and required commitment on the part of the teacher if it was to be implemented effectively.

### 5.1. Implications for teacher education

The study has implications for training teachers in cooperative learning pedagogy. First, it highlights the importance of ensuring that teachers are trained in the skills needed to implement cooperative learning in their classroom. These include ensuring that cooperative learning experiences are well structured (*Gillies & Ashman, 1998*), tasks are complex and challenging (*Cohen, 1994*), and that students are taught the social skills required to manage conflict and monitor and review the group’s progress (*Johnson & Johnson, 2003*). Second, the study provides examples of how the teachers dealt with group composition, task construction, and student preparation while documenting current development in the literature that either supported or challenged teachers’ approaches. This is important because research indicates that students are often placed in groups with little consideration being given to their composition, the quality of the activity they are asked to undertake, or any discussion on how they are to resolve difficulties (*Baines et al., 2003, 2008; Galton et al., 1999*). Finally, teachers’ reflections on cooperative learning were often affected by how well the students responded to this approach to teaching with some teachers admitting they were challenged by its complexity. This is not surprising and raises questions about the importance of providing teachers with ongoing professional development in the application of cooperative learning in their classrooms (*Webb et al., 2009*).

### Appendix. Interview questions

1. Tell me about your use of cooperative learning
  - Describe one successful experience?
  - Describe another experience that met with some degree of failure?
  - What conclusions do you draw from these experiences?

2. Tell me about the difficulties of applying cooperative learning in your classroom.
  - environmental restrictions (time, furniture, etc)
  - relating to the range of students
  - curriculum pressures
  - What have you done to overcome particular difficulties?
3. Tell me about the forming of groups for cooperative learning?
  - How do you select students to work together in groups?
  - What mix of students has worked?
  - What mix of students has not worked? Why is this do you think?
  - What size groups are optimal?
  - What mix of abilities appears to work well?
  - Comment on the cultural and gender mix of student groups?
  - Talk about getting less popular students involved and contributing successfully.
  - How successful is cooperative learning for students with learning difficulties?
  - What have you learned about forming groups?
  - What might you do differently in the future?
4. Tell me about motivating students to work cooperatively.
  - Do you use rewards such as points? Explain.
  - Do you think that the set tasks and problems can be sufficiently engaging in themselves? How does this work?
  - How do you encourage students to “own” or identify with their group?
  - Talk about success stories you have had in getting certain students involved.
  - What factors were crucial do you believe in effecting change?
  - Have you any other thoughts how you might promote participation of students who are reluctant?
5. Tell me about the skills students require to work successfully in groups?
  - How can these be promoted?
  - How do you foster students’ getting along productively (pro-social skills)? Examples: sharing ideas and information, acknowledging and praising the ideas of others, checking the shared understanding with other group members
  - How much structure is required to assist the process of cooperation? Do specific instructions help?
  - Is the use of roles helpful in the promotion of successful cooperation and interaction? How does this work?
6. Tell me about the assessment of students’ learning during and after their involvement in a cooperative learning project?
  - How do you assess the contribution of individual students?
  - Do you give group marks?
  - How can you overcome the problem of some students feeling they are carrying the burden of work for a group?
  - How can assessment assist cooperative effort?
7. Tell me about the students’ reflecting on their group processes and success in doing the tasks.
  - How do you encourage the students to be more reflective about how they worked as individuals and as members of a group?
    - complete checklists to encourage self-reflection on individual contributions to group
    - evaluate group processes as a whole class activity
    - encourage oral feedback on cooperative experience just completed
  - What is the relationship between self-reflection as a group and future success in groups? What have you observed?
8. Talk about your belief in cooperative learning as an important strategy.
  - How does it fit with the mix of strategies that you use?

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